Project I

"Implementation of web algorithm of an ERP system"

Submitted in partial fulfillment of the requirements for the degree of

Bachelor of Engineering

by

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This is to certify that the project entitled ***Implementation of web algorithm of an ERP system*** is a bonafide work of **Sudhanshu Somnath Singh (16ET31),Ninad Ramakant Sail (17DET58), Abhijit Jagannath Shinde (17DET64)** submitted to the University of Mumbai in partial fulfillment of the requirement for the award of the degree of **Bachelor of Engineering** in **Department of Electronics and Telecommunication Engineering**.

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Project I

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This project entitled ***Implementation of web algorithm of an ERP system*** by ***Sudhanshu Somnath Singh (16ET31),Ninad Ramakant Sail (17DET58),Abhijit Jagannath Shinde (17DET64)*** is approved for the degree of ***Bachelor of Engineering in Department of Electronics and Telecommunication Engineering.***

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Supervisor

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Declaration

We declare that this written submission represents my ideas in my own words and where others ideas or words have been included, we have adequately cited and referenced the original sources. We also declare that we have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. We understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

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Abstract

Tittle : Implementation of web algorithm for an ERP system

Enterprise Resource Planning (ERP) system consists of different sets of software that are used to integrate the business functions in a company or organization. Given that these solutions provide an integrated solution to the needs of an organization, these systems are in high demand by all organizations. The full potential of these systems can only be realized only if they are successfully implemented

However, the implementation process is costly and time consuming, and thus requires careful planning and organization. If successfully implemented, ERP systems provide many benefits to those organizations that adopt them. On the other hand, if the implementation process is not successful, the venture can prove costly.

The different streams of research on ERP systems have mainly been on ERP adoption, success measurement, and critical success factors (CSFs).

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Chapter 1

Introduction

1.1 Introduction

ERP is a system that automates the task necessary to perform a business processes. It replicates the business process into software, also guides employees step –by –step automate as many procedure. Hence its main aim is to serve backbone for complete business. Most of the companies uses ERP system like Godrej, Mahindra and Mahindra etc. Also most of the educational institutions are using ERP system nowadays in order to sort the things easily. [1] Many authors have mentioned that the implementation of ERP solutions in higher education institutions as difficult process. ERP simply works on the CRUD (Create, Read, Update, Delete) operations. ERP is completely build on the DMS(Database Management System). ERP result to be a cost effective software, where the organization of data is in a better manner. ERP system leads to the security of the data. The managing mechanism of this system is quicker than other methods. It also saves a lot of time in educational institution as taking attendances in the registers is like old techniques [3]. [1] ERP system is introduced in higher institution as it has become largest software investment as compare to any organizations. ERP system helps to identify the organization process and documenting with the help of the personnel. The Attendance of employee services and the daily affairs is completely maintained and updated at each and every single execution. It provides different data from multiple places to a single platform.

1.2 Objective of the Study

The investigation of ERP usage and building up the system of how to ideally market and sell our item utilizing present day showcasing strategies.The fundamental targets of this investigation are:

- The usage of ERP process with selective highlights and market request.
- Comparison between different ERP frameworks and demonstrating the prevalence of our item in target showcase.
- Learning the Product improvement cycle as effective way the item will speak to target crowd.
- Marketing the item in focal point of offers age.

1.3 Research Methodology

The term 'philosophy' signifies an "investigation of and justification for the specific technique or strategies utilized. For this examination practical methodology or blended strategy is applied.

1.3.1 Pragmatic Approach or Mixed Method for Research

The sober minded way to deal with science includes utilizing the strategy which shows up most appropriate to the examination issue and not becoming involved with philosophical discussions about which is the best approach. Practical specialists thusly award themselves the opportunity to utilize any of the strategies, systems and methods regularly connected with quantitative or subjective research. They perceive that each technique has its restrictions and that the various methodologies can be reciprocal. They may likewise utilize various systems simultaneously or in a steady progression. For instance, they may begin with eye to eye interviews with a few people or have a center gathering and after that utilization the discoveries to build a survey to gauge mentalities in a huge scale test with the point of doing measurable investigation.
Contingent upon which measures have been utilized, the information gathered is broke down in the fitting way. Nonetheless, it is some of the time conceivable to change subjective information into quantitative information and the other way around despite the fact that changing quantitative information into subjective information isn't extremely normal.
Having the option to blend various methodologies has the benefits of empowering triangulation. Triangulation is a typical component of blended techniques thinks about. It includes, for instance:
The utilization of an assortment of information sources (information triangulation)
The utilization of a few distinct scientists (examiner triangulation)
The utilization of various points of view to decipher the outcomes (hypothesis triangulation)
The utilization of numerous techniques to think about an examination issue (methodological triangulation)
In certain investigations, subjective and quantitative techniques are utilized all the while. In others, initial one methodology is utilized and after that the following, with the second piece of the investigation maybe developing the consequences of the first. For instance, a subjective report including top to bottom meetings or center gathering exchanges may serve to get data which will at that point be utilized to contribute towards the advancement of a test measure or frame of mind scale, the consequences of which will be examined factually.

1.3.2 Data Sources

- Working with ERP Developers and direction from them.
- Competitors inquire about
- Market overviews
- Internet

1.3.3 Data Preparation and Analysis Method.

Information Preparation is the way toward gathering, cleaning, and combining information into one record or information table for use in examination. The way toward planning information for the most part involves amending any blunders (normally from human as well as machine information), filling in nulls and deficient information, and blending information from a few sources or information positions. The procedure of information arrangement ordinarily includes: Information Analysis – The information is evaluated for mistakes and irregularities to be remedied. For enormous datasets, information readiness applications demonstrate accommodating in creating metadata and revealing issues. Making an Intuitive Workflow – A work process comprising of a grouping of information prep tasks for tending to the information blunders is then planned. Approval The accuracy of the work process is next assessed against an agent test of the dataset. This procedure may call for changes in accordance with the work process as beforehand undetected mistakes are found. Change – Once persuaded of the viability of the work process, change may now be done, and the real information prep procedure happens. Reverse of Cleaned Data – Finally, steps should likewise be taken for the spotless information to supplant the first grimy information sources.

1.4 Limitation of the Study

Like some other articles and postulation, this investigation isn't free from confinement. Most elevated level of endeavors has been given to beat these constraints through broad investigation. The significant impediments are given beneath:

- ERP programming is a secret issue and it doesn't unveil to other people.
- ERP programming controls all business procedure of an association, so study on each procedure is tedious.
- Relevant information and archive accumulation were troublesome. As a part of the Bachelors of Engineering program, all students are required to complete a final year project. This report is the outcome of our developed skills during internship program and utilization of those skills in our final year project. The topic of our Project is "Developing Marketing an ERP System.

Chapter 2

Literature Review

2.1 Enterprise Resource Planning (ERP)

ERP is the most required tool in the market of organization right now. Even the educational institutes are demanding this system because this system can handle n number of data at a same time also we can get those data at a glance when required.

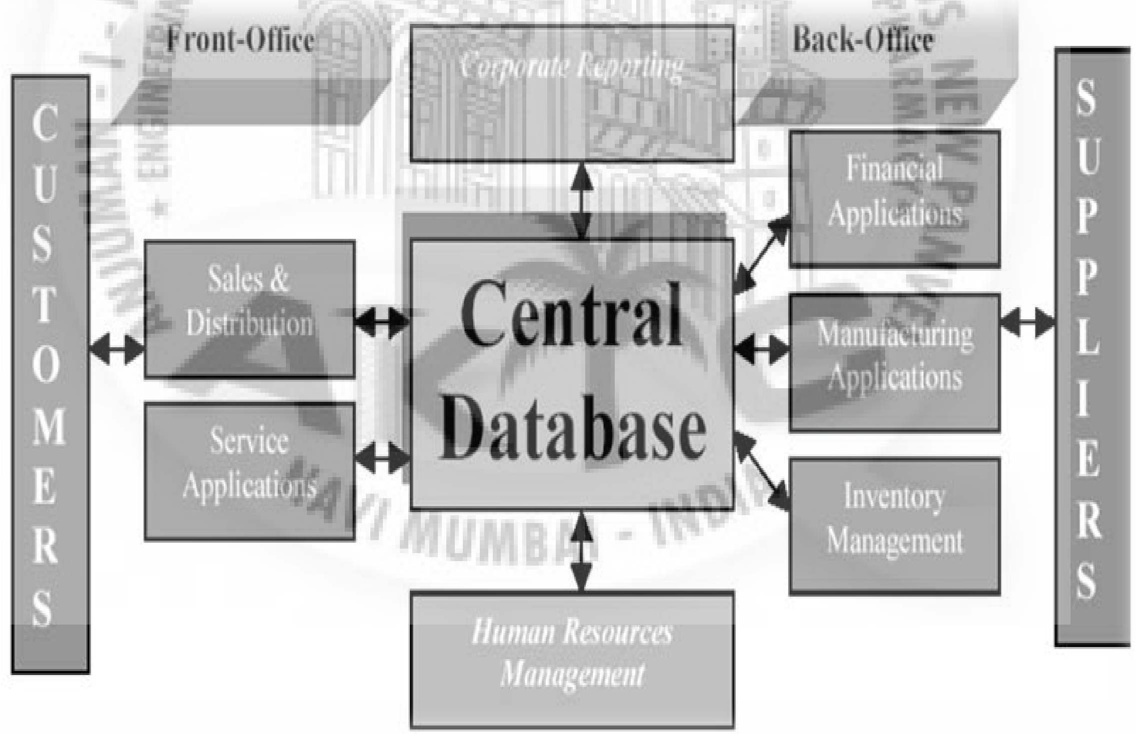


Figure 2.1: ERP System Concept
[Link: http://what-when-how.com/information-science-and-technology/evolution-of-erp-systems/]

2.2 Background

Developing an ERP system is completely based on the client requirements. An simple ERP system simply has the sections like attendance, user information, person's achievement details etc. But due to the modern technologies the requirements are increasing drastically. In every ERP system the generic requirements that are provided is,
1. Dashboard
2. Training
3. Clients
4. Enquiry
5. Meeting Management
6. Human Resource
7. Finance Management
8. Communication
9. Change Support
10. Attendance

2.3 Implementation of ERP

Implementing an ERP system is not an easy task to achieve. It's a big process which involves great expenditures, efforts and time [14]. The most important factor in this project which leads towards the success is the implementation phase [13]. Implementation of ERP systems allows a company to handle its business for various advantages like improved process flow, better data analysis, and better customer service [7]. In addition, advantages expected from implementation of ERP systems includes reduced costs, reduced operations time, and organization having more customer values.[12]
ERP is the major project which is currently in demand from all the organization irrespective of the size. Since this system plays a major role in every organization, the issues covering the process of implementation is one of the major concerns. And it further makes situation more complex because of the many failed cases, including some fatal disasters which caused a huge loss for the industry. Hence, It is necessary for the developer of ERP and the company to firstly analyze the system because the risk of failure is always there and sometimes it can be highly expensive[4]. One of the popular topics on the implementation of ERP is to improve Critical Success Factor (CSF) [7]. According to [8], the life cycle of product is now very short and technology is changing drastically due to which new factors may arise. Likewise, while the CSF for implementation of ERP systems is mentioned, there have been many inconsistent and inconclusive findings [9]. The major factor which recognized as the most crucial part in the implementation of the ERP system is the selection process [15].[6] In order to deal with these, companies have to respond quickly with their production while keeping the cost efficient factor in mind.
Many factors which directs towards the success or failure of the ERP implementation can only be learned from the prior implementation experiences [10]. According to [5] it caused a huge interest amongst the vendors so that they look towards improving future ERP system to support the customers present at the other end.

2.4 Selection of ERP

Once the BPR is completed the next task is to evaluate and select a suitable package for implementation. Evaluation of the right ERP package is considered as more crucial step. Evaluation and selection involves:

- Checking whether all functional aspects of the Business are duly covered.
- Checking whether all the business functions and processes are fully integrated.
- Checking whether all the latest IT trends are covered.
- Checking whether the ROI is optimum.

2.5 Modules of ERP

"Hertzsoft Admin Version 3" consists of 21 modules which are explained below.

Module 1 : Dashboard :

Module 2 : Mailing (member@hertzsoft.com) a. Inbox: Users will get all their mails sent on his Hertzsoft email account. The mails will be automatically categorized into 2 different tabs. No item and no list separation:

- **i. Primary Mail:** This tab will be display emails sent by other Hertzsoft members such as contact@hertzsoft.com.
- **ii. Other Mails:** This tab will display emails sent by non Hertzsoft Email IDs such as Gmail, Yahoo etc.

b. Compose Mail: Users can compose mail by writing Subject, To, CC, BCC, Content, File Attach etc. A mail will be sent to all the recipients.

c. Draft: If user want to save mails as Draft before sending, uses can save it as a Draft.

d. Sent Mail (if possible): User can check the mails sent in this tab.

e. Trash (If possible): Deleted mails will be added in Trash which can be either restored or deleted permanently.

f. Notification: Users will get a notification whenever mail arrives in Inbox (irrespective of category)

Module 3 : Blogging:

a. View Blogs: Users can view a list of all blogs (Using DataTable). An extra column for Edit, Delete Authenticate blog. Edit and delete option will be available for self-uploaded blogs only. Authenticate blog will be visible to Admin only.

b. Add Categories: Users can add new categories. (E.g. Hertzsoft, Technology, Research)

c. Add Blog: Users can post blogs on Hertzsoft Official Website with Subject, Content, Category, Image Attachment.

d. View Comments: Users can view comments posted by website users.

Module 4 : Training:

a. Enquiry: Users can view a list of all new Enquiries (Using DataTable). An extra column for Edit Delete Enquiry will be available.

- **i. Add Enquiry:** Users can also add new enquiry.
- **ii. Add Enquiry Status:** User can change enquiry status along with follow up date. Moreover, user can set the status as cancelled or approved.
- **iii. View All Enquiry Status:** User can view all enquiry status according to follow up date.

b. Courses: Users can view a list of all Courses (Using DataTable). An extra column for Edit Delete Course will be available.

Add Course: Users can also add new courses.

c. Batches: Users can view a list of all Batches (Using DataTable). An extra column for Edit Delete Batch will be available.

- **i. Batch Details:** On clicking a batch, complete details of the batch should be displayed including number of students admitted (refer Module 4.c), payment details i.e. payment received and payment pending. User should also be able to remove a student from a batch (if admitted by-mistake or if student cancels admission)
- **ii. Add Batch:** Users can Add a Batch with following details Batch Name | Start Date | Trainer | Students | Fees | Total Expected | Total Paid | Total Balance

d. Student: Users can view a list of all Students (Using DataTable). An extra column for Edit

Delete Student will be available.

Add Student: Users can Add a Student with following details. Student Name | Contact Number | Email | Batch Code | Fees Paid | Balance

e. Attendance: User can select a batch, lecture date timing. A list of all students enrolled for a particular batch will be visible with a checkbox by default all checked. User can simply uncheck absent students and submit their attendance. Lecture Start Time and End time should also be noted.

i. Attendance Record: Attendance Record of All Students Batch wise, Student wise should be available.

f. Payment: Whenever a student pays an installment or full payment. Its entry should be made with following details. This module will also contain Payment Record.

- **i. Payment Record:** Payment record of all batches will display here.
- **ii. Payment Reminder Mail, SMS WhatsApp Message:** Payment Reminder Mail, SMS WhatsApp message should be send to all the students after starting with batch every 2 days if student have any pending fees.

g. Course Certificate Number: Whenever student gets a certificate. Its serial number should be recorded on the system which can be further checked on official website of Hertzsoft. Student Name | Certificate For (Textarea) | Date | Course | Certificate Serial Number

Module 5 : Final Year Projects:

a. View Projects: Users can view a list of all final year projects (Using DataTable). An extra column for Edit, Delete Authenticate project will be visible. Edit and delete option will be available for self-uploaded Final Year Projects only.

b. Add Final Year Project: Users can add Final Year Projects on Official Website with following parameters: Title | Abstract | Cost | Base IEEE Paper | YouTube Video URL (if exists).

Module 6 : Clients:

a. View Clients: Users can view a list of all clients (Using DataTable). An extra column for

Edit Delete will be visible.

b. Add Client: Users can add Clients with following details:

Client Name I Contact Number I Address I Email ID I Password I Organization Name I Address I Website IDate of Adding should be automatically recorded.

Module 7 : Enquiry:

a. View Enquiries: Users can view a list of all enquiries (Using DataTable). An extra column for Edit Delete will be visible.

b. Add Enquiry: Users can add Enquiry with following details: Client ID I Project Title I Project Details I Date of Enquiry I Status (Active / Finished)

c. Create Estimate: Users can add Estimate with following details: Client ID I Project Title I Products Quotations

d. Add Status: Users can add Status with following details: Status Follow Up Date Time (if required) I Date of Status (automatic)

Module 8 : Meetings Management:

a. View Meetings: Users can view a list of all client meetings (Using DataTable). An extra column for Edit Delete will be visible.

b. Add Meeting: Users can add Meeting with following details: Client ID I Project ID I Date I Start Time I End Time I Minutes of Meeting

i. Meeting Thank You Mail: A mail can be send from Hertzsoft (if required) thanking client for spending time with us and sending them Minutes of Meeting.

Module 9 : Projects Management:

a. View Projects: Users can view a complete list of all projects (Using DataTable) sorted by Date (Latest First). An extra column for Edit Delete will be visible.

b. Add Projects: Users can add Projects with following details: Project Title I Project Type I Description I Customer ID I Project Manager I Team Leader, Total Cost I Order Date I Deadline I SRS Upload

c. Manage Team Members: Add / Delete records of Employee / Interns working on the project.

d. Create Agreement: This option will help to autogenerate an agreement as per the format prescribed by the company.

e. Generate Invoice: Auto Invoice Generation option according to format of Hertzsoft using following parameters: Client Name I Address I Email I WebsiteI Quotation

f. Add Payment: This option can help to accept payment from clients. Auto Receipt should be generated with following parameters:

g. Generate Receipts: Auto Receipts Generation according to format of Hertzsoft.

h. Payment Reminder Mail, SMS WhatsApp Message: Payment Reminder Mail, SMS WhatsApp message should be send to all the clients after starting with batch every 2 days if student have any pending fees.

. Task Division: Create a timeline chart. Divide full project into different modules. Create timeline chart. Decide Planned Completion Date Mark when it is actually completed. This will be visible to client on client portal in the form of timeline chart. These details should be automatically added in To Do List.

Module 10 : Human Resource:

a. Employee: Employee Name, ID, Passport Size Photo, Email, Password, Contact, Qualification, Date of Birth, Date of Joining, Designation, Department, Recent Degree Marksheet Scan LC (if available), UID No., UID Scan Image Upload, PAN (No + Scan Image Upload), Salary.

b. Interns: Interns Name, ID, Passport Size Photo, Email, Password, Contact, Qualification, Date of Birth, Date of Joining, UID No., UID Scan Image Upload, PAN (No + Scan Image Upload), Stipends (Monthly / Contractual), Duration.

c. Attendance Management: Staff's daily attendance record will be maintained along with in-time and out-time details. (More details awaited regarding Holidays Compensatory Offs)

d. Leave Management:

- **i. Add Leave:** User can add a leave request using following parameters: Leave Date From I Leave Date Till I Leave Days I Leave Type I Reason I Status (Approved / Rejected)
- **ii. View Leaves (Admin Only):** Admin can view all leave request and approve or reject Leave.
- **iii. Penalty (LWP):** Salary will be deducted automatically if an employee is absent with-

out prior intimation.

e. Feedback: Employee can add an anonymous feedback to the admin.

f. Appreciation: Employee Interns can be appreciated by some special gifts along with certificate. This certificate serial number should be recorded on the system using following parameters Employee / Intern Name | Certificate for (TextArea) | Certi Serial Number | Date | Gift Given

Module 11 : Finance Management: This section will generate reports for following

a. Donation: Donation ID, Donor Name, Reason, Amount, Date

b. Expenditures: Expense ID, Reason for Expense, Date of Expense, Staff Associated.

c. Salary: Salary ID, Staff ID, Date Amount, Time, By Cheque / Cash / Account Transfer. This should help in Auto Generation of Salary Slips

d. Contract Pay: Pay ID, Staff ID, Task ID, Amount, Date, Time. This should help in Auto Generation of Salary Slips.

e. Reports: This section will help to generate various reports in printable formats such as:

- **i. Total Earnings:** Project Payment, Batch Payment, Product Income, AMC and Donations etc. w.r.t. selected date.
- **ii. Total Expenditures:** Salary, Product, Contract Pay, Marketing Expense, Research Development Expense, Normal Expenses w.r.t. selected date
- **iii. Total Income Generated:** Total Earnings – Total Expenditures w.r.t selected dates.

Module 12 : Tasks (To Do List):

a. Add Personal Tasks: User can add a new task using following parameters: Task Name | Date | Deadline

b. Admin Tasks: Admin can add task to any employee which will be visible in a separate category Admin Tasks to the employee.

c. View Tasks: User can view all task Admin as well as Personal. A separate column for Edit Delete Tasks for personal Tasks only

d. View Everyone's Tasks (Admin only): Admin can view all tasks assigned to employee as well as employee's and his own personal tasks

Module 13 : Calendar:

Dashboard Widget as well as separate page to show all Projects Deadline, Tasks Deadline, Batch Timings

a. Add New Event: Admins can add new events in the Calendar.

Module 14 : Communication:

a. Personal Messaging: Members can personally send a message to any other member.

b. Group Messaging: Members can send message to all other members on the Group.

Module 15 : Domain Hosting Information:

Widget as well as Separate Page that will display all Domains and Hosting ordered by Expiry Date. A renewal reminder email can be sent just on a button click to the client to renew Domain/Hosting.

Module 16 : Password Storage:

Need to generate a very strong Encryption Algorithm, which can be decrypted only by us. Passwords of various accounts will be stored here. This can be accessed only by Admin.

Module 17 : Change, Support Maintenance:

a. View Request: Users can view a list of all support request (Using DataTable). An extra column for Edit Delete will be visible.

b. Add Request: Users can add Request with following details: Request ID | Client ID | PID | Support Details | Date of Request | Status (Active / Finished)

c. Create Change Request: Users can create Change Request (CR) with following details: Client ID | PID | Details| Quotation Auto E-mail will be sent to client.

d. Add Status: Users can add Status with following details: Status | Date of Status (automatic)

Module 18 : Marketing:

a. View Status: Users can view a list of Marketing Status. **b. Add Marketing Status:** User can add a new marketing status will following parameters Employee ID | Marketing Type | Details | Expense (if any) | Outreach Number | Date

Module 19 : Research Development:

a. View Status: Users can view a list of Research Development Status. **b. Add Research Development Status:** User can add a new research Development status with following parameters: Employee ID | Details | Expense (if any) | Date

Future Modules

Module 20 : AMC:

Module 21 : Products:

a. View Products: Users can view a list of all products.

b. Add Product: User can add a new product with following parameters: Product Name | Description | Date

c. Add Income: User can add income for a specific product with following details: Product ID | Amount | Source | Description | Date

d. Add Expense: User can add expense for a specific product with following details: Product ID | Amount | Description | Date

Chapter 3

Skills required for Product Development Framework

3.1 Technical Skills Requirement

In this period, we started to know that what are the technologies or courses that are required to build a website. We started to learn those courses. Since the web development is a huge field itself, so there are lot many courses that are used to build a responsive websites.

So basically web development is divided into 3 sections,

1. Front End
2. Back End
3. DataBase(DB)

1. Front End:

What is Front End? Whatever the contents that you see on website, these all comes under front end section. You can achieve it using two of the languages i.e HTML CSS

2. Back End:

What is Back End? The actions that are performed on a webpage completely based on the back end section. For eg. When you click on any button on a webpage so after clicking what event should occur is determined by backend programming. We can say that backend is responsible for the behaviour of a webpage.

Languages that we have learned is required to build our project is explained below

3.1.1 HTML

HTML stands for Hyper Text Markup Language. Current version of HTML that is being used is HTML5. It is a client side scripting language. It's not a programming language, it is markup language. It is used to design static webpages. In HTML, Hyper means a link or a reference link to where you want to navigate, Text means data or information whatever the data you want to display on a webpage, Markup is a predefined terms that are present in HTML, Language is nothing but communication. HTML consists set of markup tags, that are used to design the layout of the webpage. Whatever the data we write we save it using .html extension. Currently HTML5 is used widely in web development because in previous version audio and video format was not supported and HTML5 supports both of it.

Figure 3.1: HTML5
[Link: http://www.webzip.in/tag/web-design-institute-in-chandni-chowk]

3.1.2 CSS

CSS stands for Cascading Style Sheets. It is an styling language which use to make webpage more stylish. It is like makeup on simple page to look beautiful. there is type of css as follows:

1. Internal CSS

2. External CSS

3. Inline CSS The main question rises is Why CSS?

Like every webpage, they have more than one or multiple pages but if you want to show same images on different pages or same contents on different pages so what are you going to do?? Write it multiple times? Well CSS does it for you, you can just determine the contents that you want to display on different page and just assign a class to it. Now import that CSS file to every page and use the class where you want to print those contents. That's it, this is how it makes to display contents easily. Same things can be done for any event like animation of page, colour of page, styling of page etc. CSS makes it simple. It reduces the line of program. That's why it saves a lot of time.

3.1.3 Bootstrap

Bootstrap is the most used and simple language to be used by HTML, css, javascript. which makes a developer work more simplex as developer have to only use the classes of bootstrap to build an responsive webpage. it is developed by twitter.

Why Bootstrap?

1. Supports responsive designs.

2. More Time saving

3. Consistency.

4. Customizable.

5. Support. Bootstrap is a pre build templates whose classes is used in order to make a web page attractive and responsive.

After the successful medication event details extraction through various mechanisms, our system will take care of scheduling and handle the time management process and will act as a medium for triggering the event.

Product ID	Product Name	Product Quality	Product Quantity
1	Wheat	Good	200 Bags
2	Rice	Good	250 Bags
3	Sugar	Good	200 Bags
3	Sugar	Good	200 Bags
3	Sugar	Good	200 Bags

Figure 3.2: Bootstrap Table
[Link:https://www.jquery-az.com/bootstrap-table-with-5-demos-and-free-code/]

3.1.4 JavaScript

JavaScript is the language use in web-development and it has more wide scope. It has more faster growth then the other language and big companies like Netflix, Paypal builds internal application using JavaScript. For long time JS is used in browsers to build attractive webpages, some of the developers refers to JS as toy-language. But those days are gone due to huge development and investment by large companies like Facebook and Google. These days you can build real time networking applications like chats, video streaming services etc.

```
module.exports = leftpad;
function leftpad (str, len, ch) {
  str = String(str);
  var i = -1;
  if (!ch && ch !== 0) ch = ' ';
  len = len - str.length;
  while (++i < len) {
    str = ch + str;
  }
  return str;
}
```

Figure 3.3: JS Code
[Link:https://cms.qz.com/wp-content/uploads/2016/03/leftpad.jpg?quality=75strip=allw=1600h=900crop=1]

3.1.5 jQuery

jQuery is a library that is built on top of JS which enables “less write do more” which means that you can do things that takes lot of line of code in javascript and you can do it in single or couple of line in jQuery. jQuery is fast, small, featurable library of JS. The main work of Jquery is make Developers work easy by simplifying JS on Web-page and it is one of the most widely used JS library. It’s a old library but it is still being used by lot of developers. One of the best part of jQuery is it is cross browser compatible, open source.

Figure 3.4: jQuery Example Code
[Link: https://www.webhostdesignpost.com/website/whatisjqueryandwhy.html]

3.1.6 SQL

SQL stands for Structured Query Language. Data is all around us, we used to store data on papers or in file cabinet but eventually now we store it online what we call Databases. SQL is the language which communicates with databases. If you want to add, remove, delete data from database then you can use SQL to perform such actions. We can perform by using SQL queries like UPDATE, INSERT, DELETE etc.

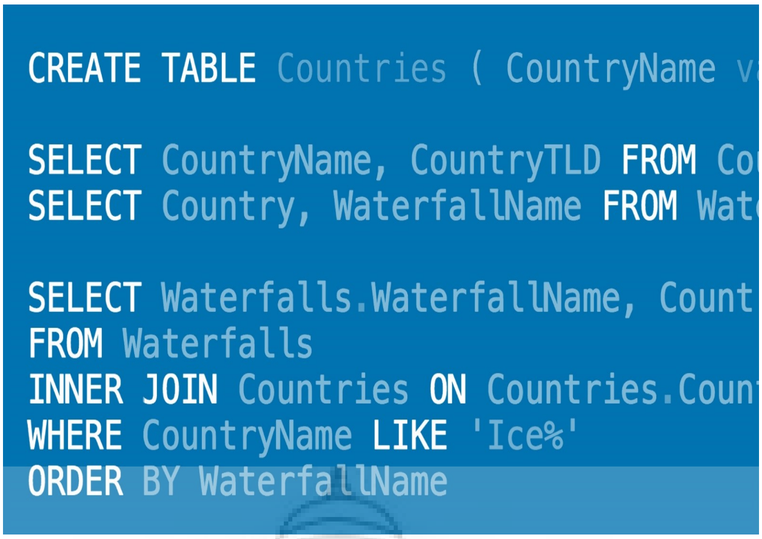


Figure 3.5: SQL Example Code
[Link: https://cdn.lynda.com/course/580646/580646-636924001862842177-16x9.jpg]

3.2 Marketing Skills Requirement

3.2.1 SEO (Search Engine Optimization):

Search engine optimization (SEO) is the process of generating organic traffic affecting the visibility of a web page searching results for Search engine such as Google, Yahoo, etc. SEO involves promoting a website to increase the traffic that will result in lead generation.

SEO usually defines the content what people usually searches, basically it goes along the most significant search keywords, trending topics which people like to search. It determines, how people use the search engine to surf their need on Internet.

Lets say, if I want a "Avurvedic Soap" that is easily available in market. I will search for "Best Avurvedic Soap" instead of "Soap" or "Bath". Simply I want to prove that, people usually search for simplest formulated words that will end with maximum finding words. The relevance of such words are determined by SEO tactics.

SEO is not an easy task, it needs lot of patience. The fundamental increase in the ranking of the website on simple terms, "Google First Page" is provided by efficient usage of keywords and its associated tactics.

SEO is as important for business as it significantly corresponds to increase in business leads. That's business leads can be termed as fruitful experience after spending lots on SEO. The spending not only involves money but also time.

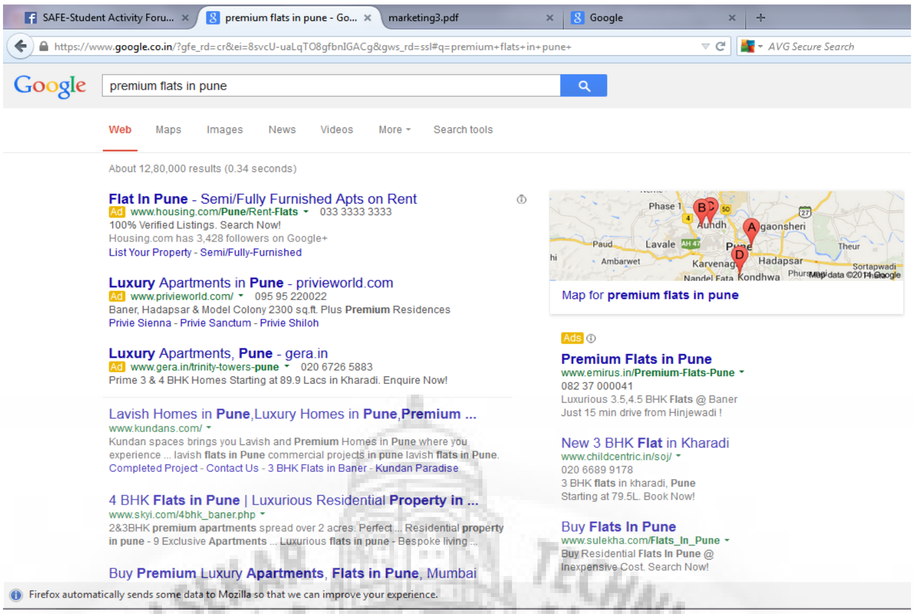


Figure 3.6: Organic traffic through SEO

3.2.1.1 Social Bookmarking:

Social bookmarking is yet another interesting topic which usually everyone follows for marketing their product. The social bookmarking usually deals with the link that user post on social networking sites in a fancy way.

Eg:- If I own a clothing center and I don't have any marketing associate person to handle my work. The only way I will seek is the Social networking sites. I will try to post my collection on my facebook Id and will tell hundred of people to share it.

People will like it, hardly people will comment on that post and lead generation ratio for this type of marketing will be nearly zero as we are using our personal id to promote products which is not desired for Target customers. The fundamental aspect of every marketing tactics to hit a target audience.

Let's not relate this example with Social bookmarking. This was only to give a basic idea about Social marketing Social bookmarking should be started. Talking about Social bookmarking is similar to the bookmarks that are available on our private computers. The social bookmarking sites are efficient to increase traffic for the product and believes in the product growth potential policy.

It usually approaches a unlimited growth potential and sharing of links multiply and reach to thousands of target users. Target users can be converted to leads depanding upon the nature of client demand what exactly they need to buy in our product. The various Bookmarking sites include:

1. Scoop.it
2. Flipboard
3. Slashdot
4. Redditt
5. Tumblr
6. Pinterest (Popular website for social bookmarking)

3.2.2 SEM (Search Engine Marketing):

Search engine marketing (SEM) is a marketing plan over internet which corresponds in promoting the websites and optimizing them through different search engines. The visibility of SEM is determined by Search engine results page (SERPs) which is enhanced by digital advertisements and its optimization through various sources.

SEM targets of achieving ultimate range of high ranking when a user tries to search it on different search engines.

The most handy concept with SEM is Search Engine Optimization (SEO) which targets the right audience by rewriting the content available on website.

Figure 3.7: Search engine result page

When it comes to SEM as well as SEO, everyone must start doing their research on finding the

most popular as well as relevant keywords using software such Alfreds, google trends, etc.
We did mentioned only two tools for finding the lead generative keywords because they are quite effective. While using Alfreds you have to worry about paying few bucks, although it worth spending over it. The next one that I have suggested would be the Google trends, which is Freeware tool to determine the most search topics across the globe. It also has an customized feature that allows to compare the popularity of more than two words at a time. The search results into popularity index of that keyword and comparison with other keywords with the regional topography.
Every saturation point need to analysed before you began doing research on keywords. One of such is website saturation. You really need to understand the popularity of website on search engine and the amount of backlinks used by the site.

Flat-rate PPC: The Flat-rate PPC follows a fixed rate model that is agreed for a single click. The amount variation for each click may result in loss of stability in planned budget for digital marketing. The negotiation of rates is possible upon the interest showed by the advertiser to buy that phrases. The greater the amount, more the visibility of advertisement is possible.

3.2.3 SMM (Social Media Marketing):

Social media marketing is the type of digital marketing which involves traffic generation through social networking sites. The rise of digital revolution in 21st century resulting in exploration of various method of connecting people across the globe. The same connectivity has craved a marketing philosophy in every mindset as it signifies the most simplest way to market any product. Only the thing, need to be highlighted is you really have to be concerned about the target audience. Pitching your product who is neither interesting nor they are engrossing for it will result inadequate loss of time. Anything can be easily shared on social networking sites. The post can be image, video, Gif, Advertisement, etc.

Figure 3.8: Tools for social media marketing
[Link: https://www.50marketing.com/social-media-marketing-services/]

Social networking for marketing creates a platform for every marketer to promote their product in a high anticipated way. The people engagement towards your product will corresponds with no. of viewers. Is all the viewers defined as target audience? The viewers will be rectify from the target audience to limited leads based on Funnel theory of marketing.
The engagement of people to your post also involves customers which analyses other people comments to determine the review of the product.

3.2.3.1 Facebook Marketing

Facebook is the most popular social networking site. The networking site has observed a tremendous growth over year and year with more than one billion users. It's likely impossible that your relatives, friends or family members are not using Facebook, atleast for india the statements is not contradictory. Every new product has a sure launch on Facebook due its features and versatility of using it. Every marketing agent will prefer promoting the product on Facebook as it's a brand.
Facebook is a low-cost marketing strategy with less than a fraction of cost. The ideal solution for running a small marketing campaign for every medium or small scale businesses with a limited budget plan.

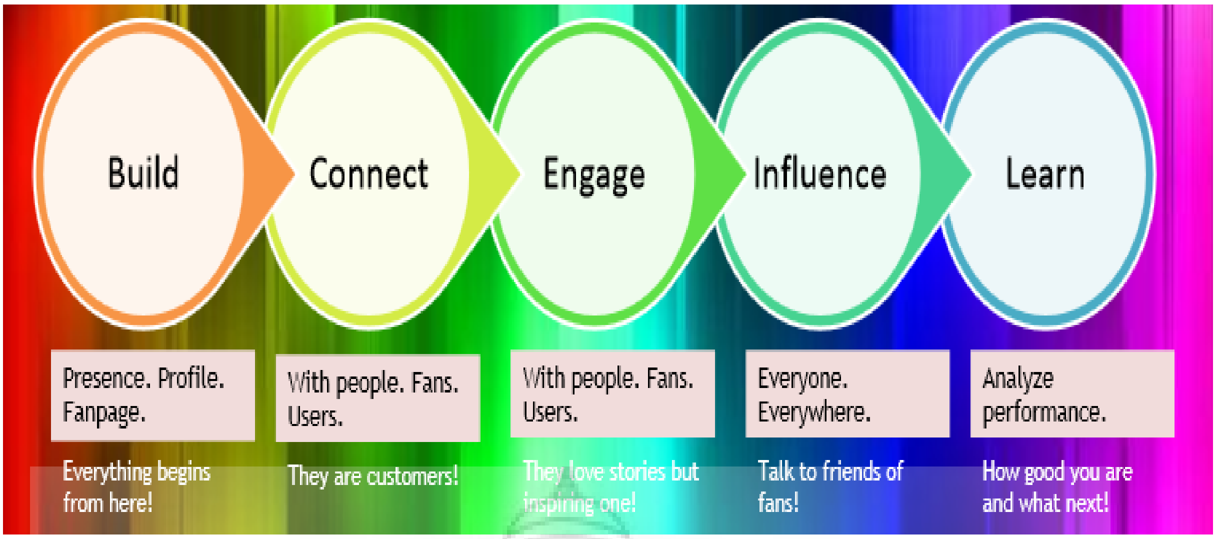


Figure 3.9: Timeline for facebook marketing
[Link: https://www.entrepreneur.com/article/250889]

Marketing over Facebook can be achieved by creating a page of that product. The next assigned task would be to find likes to the page. One can use "Promote your Page" option which is readily available which values to few bucks. The easiest to increase the like is hare among the people and make them to share it to their friends too. But again this is quite a lengthy process. Once your page reaches to top insights, you do not need to be worry about likes and popularity of the page. The regular updates and post will show activeness and passion towards your business which again effective in lead generation.

The business page do come with all marketing tactics that need to used wisely as well as patiently. The facebook business page provides an platform to set your business name, entity, address and availability. Hence it became easy tool for the customer to contact you for further queries.

Figure 3.10: Example of facebook marketing

3.2.3.2 Marketing using Twitter:

Alike other social media, 21st century most ignored social networking site for digital marketing is Twitter.

Twitter is the most flexible and quicker option to promote your products, create a brand advocacy among the people who really using this social networking site. If I need to launch and promote my product ie. an ERP system, I will initially start searching for Target audience. Searching target audience become very difficult, if you want to individually pitch your product. That can noted as one of disadvantage of Twitter while using it for digital marketing.

If you are marketing your product on dense scale with well-known ambassador who is famous personality or celebrity with millions of followers on Twitter will easily do well. A single tweet of promotion by your ambassador promoting your product can gain high lead generation ratio for the product. Well that need plenty of finance and one can't think it at their initial stage. We need to focus on easiest way to pitch our product which can in turns generates lead with maximum Return On Investment (ROI).

Figure 3.11: Example for twitter marketing

3.2.3.3 Instagram:

Instagram is modern social networking site which started as picture sharing platform has gain immense popularity within the less period of time. With its grow popularity, the developers has launch new features which includes feed, filters, stories, etc. The easily connectivity to Facebook, Tumblr, Foursquare makes one go platform to share your pictures. When marketing is concerned, its again a way effective tool that can reach to target audience. Instagram also sources a platform where people can promote their business and can generate the leads. The communication wit customers can be easily achieved through Direct message

making itself an ideal platform for companies to connect with their current and potential customers.

3.2.3.4 YouTube:

YouTube is a videographic Social Networking site and most popular search site on the Internet. Daily millions of users spend their fruitful time watching interesting videos on Youtube as it offers a variety of segment across the globe.

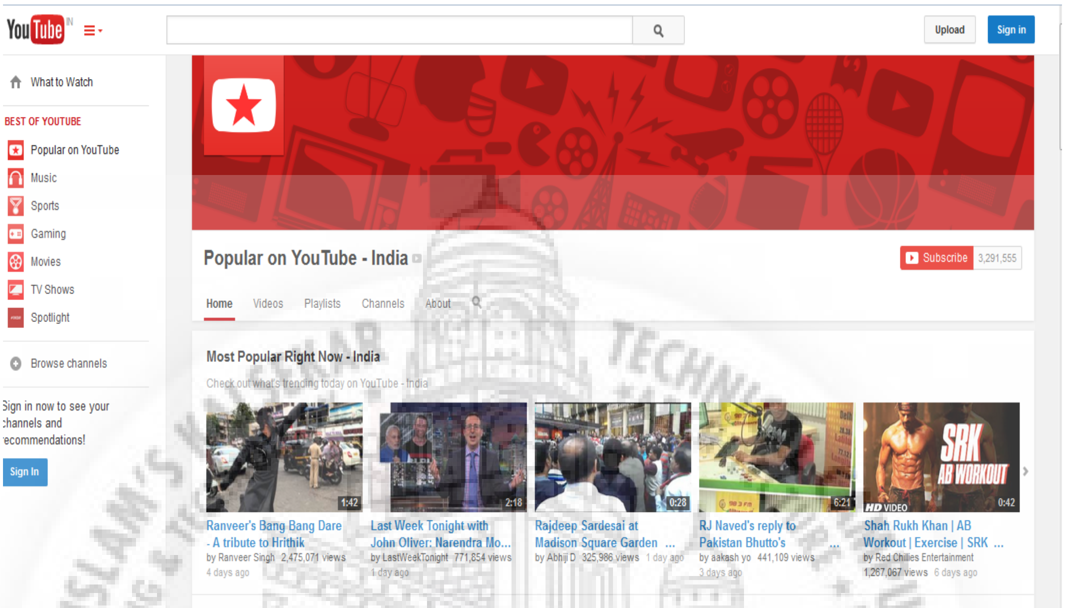


Figure 3.12: Example for youtube marketing

3.2.3.5 EMT (Email Marketing):

Email marketing is significant marketing technique which is followed most of marketing agencies. The email marketing involves sending a mail to every end user in order generate it into lead. The advertisements including in every email message are mean to create a brand advocacy among the people. The purpose of sending emails refers to enhance the business relationship with peoples and convince them to buy the product.

Chapter 4

Working of Product Development Framework

The first thing which comes in the ERP main webpage is the dashboard, where all the statistics of each data is displayed in a chart or graph manner.

4.1 Dashboard

4.2 Blogs

In our ERP system there are different modules from which blogs is one of them. Blog is essential element in every educational as well as brand website. So the basic idea of blog to provide the users and the employees to express the experience and provide some of the new information to all users and students.

As the blog is available to every login in employee and intern of Hertzsoft Technologies hence they can post their experience whenever they want. This blogs will be displayed on the offical website of Hertzsoft Technologies. The comments of this blogs are stored in database and as well as on the ERP system. In order to post a blog user need to provide blog title, category of blog, file and the content of the blog as a input in the form of webpage as shown in figure.

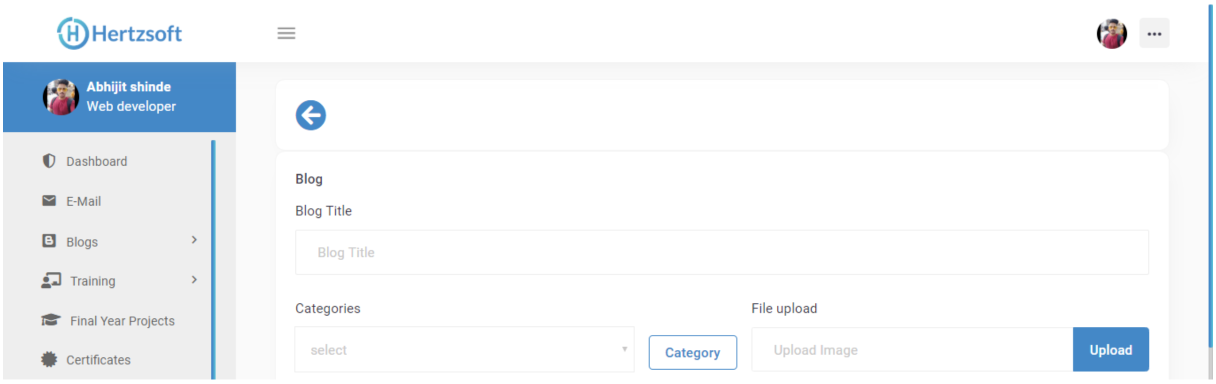


Figure 4.1: Add Blog Form

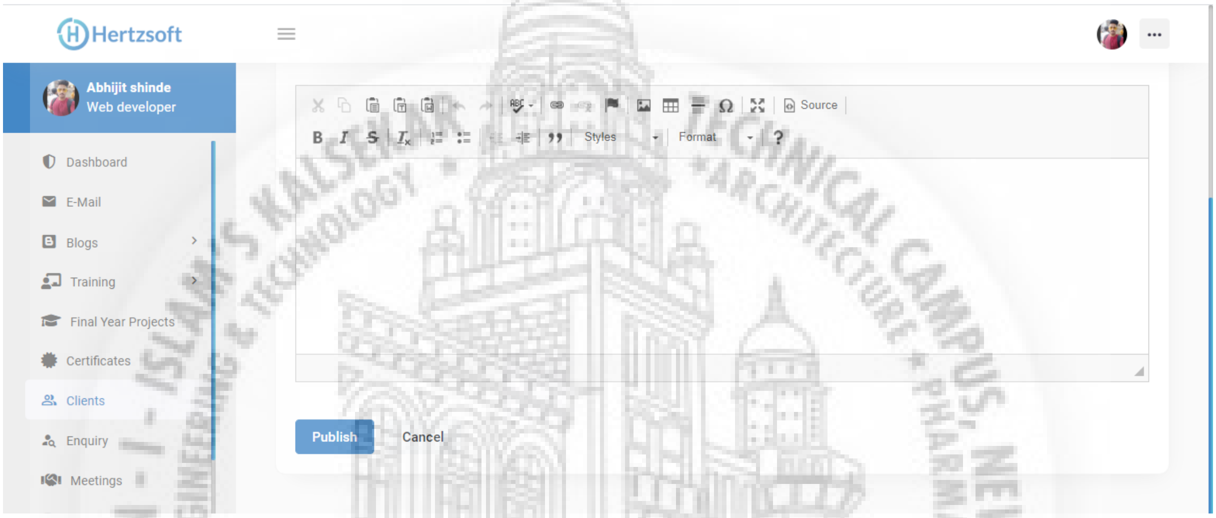


Figure 4.2: Add Blog Form

Once the data is submitted to the database, it will get reflected in the view blogs section as shown below. Here admin has the access to whether delete the blog if its irrevelant. Also there is a option to the members that they can edit there blog if they comimted mistake. So the list of the blogs posted by particular login is displayed in this table.

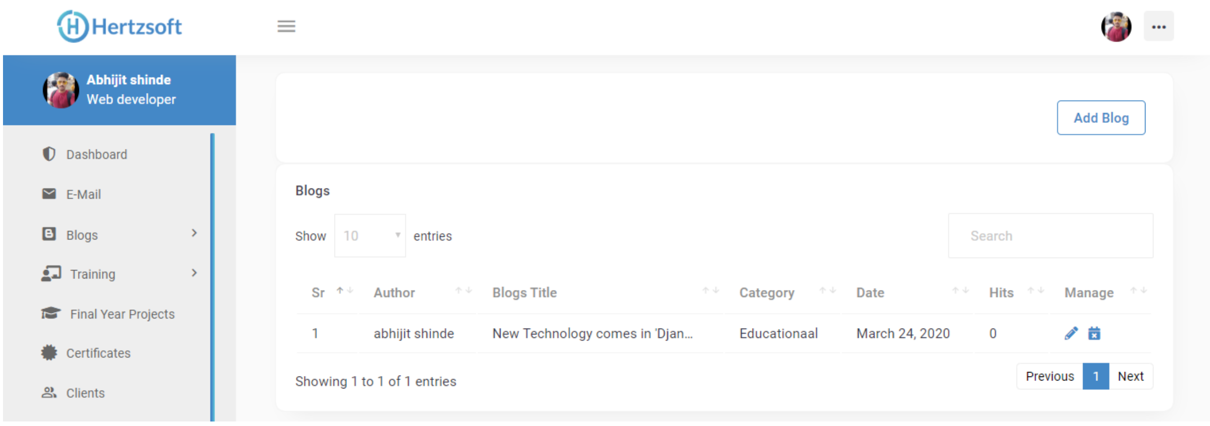


Figure 4.3: List Blog in Table

4.3 Training Section

In this section we are holding the data of those batches which are going to attend Hertzsoft technologies. There are 4 sub sections in the this section,

4.3.1 Enquiry:

In this section, user can upload his enquiries related to the training section. Data will be taken as a input through a html form where user need to fill name, college, contact details, date (by default today's), enquiry for, and the remark.

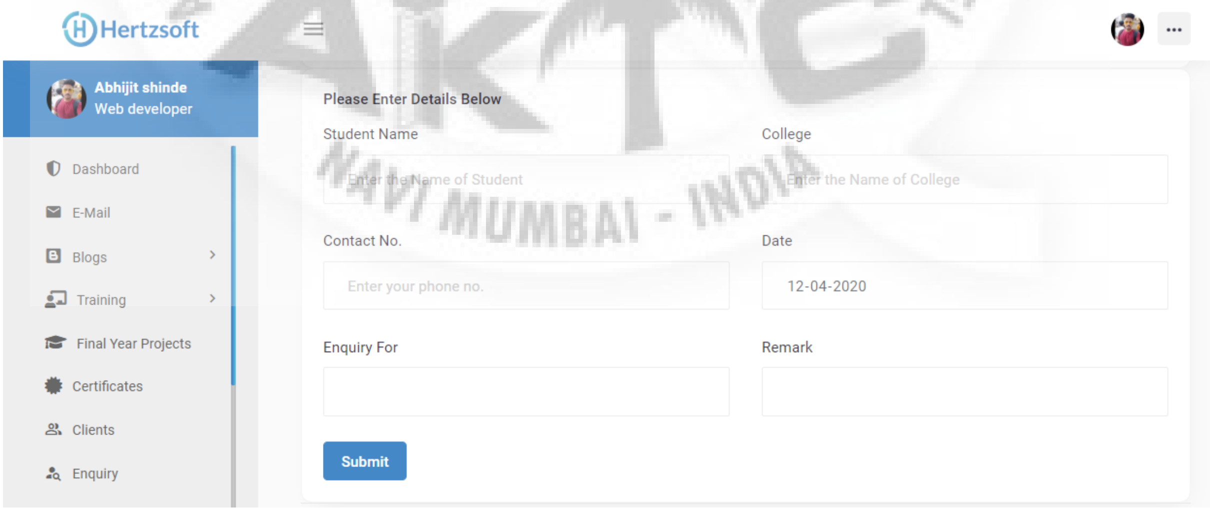


Figure 4.4: Add Enquiry Form

Once the data is submitted to the database, this data will automatically reflected on the webpage.

Here admin have the access to check the data which is entered in this section as well as admin can manage it. When we talk about manage means admin can take actions like edit the enquiry or delete the enquiry. The data table is shown in fig below.

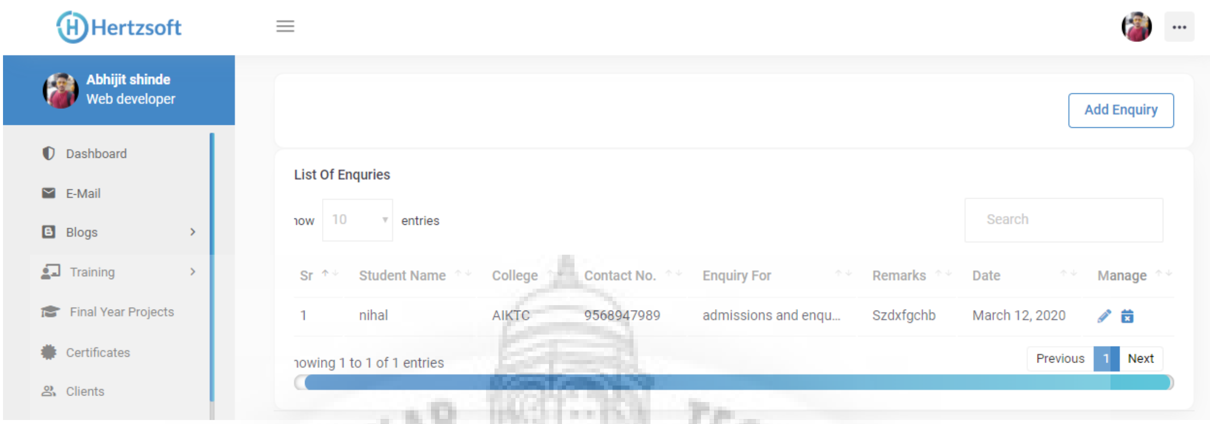


Figure 4.5: List Enquiry Table

4.3.2 Courses:

In this section the courses which are going to be held at Hertzsoft technologies will be stored. While storing the data, requirements will be course name, course duration, image for the course, pdf related to course, course fee and content.

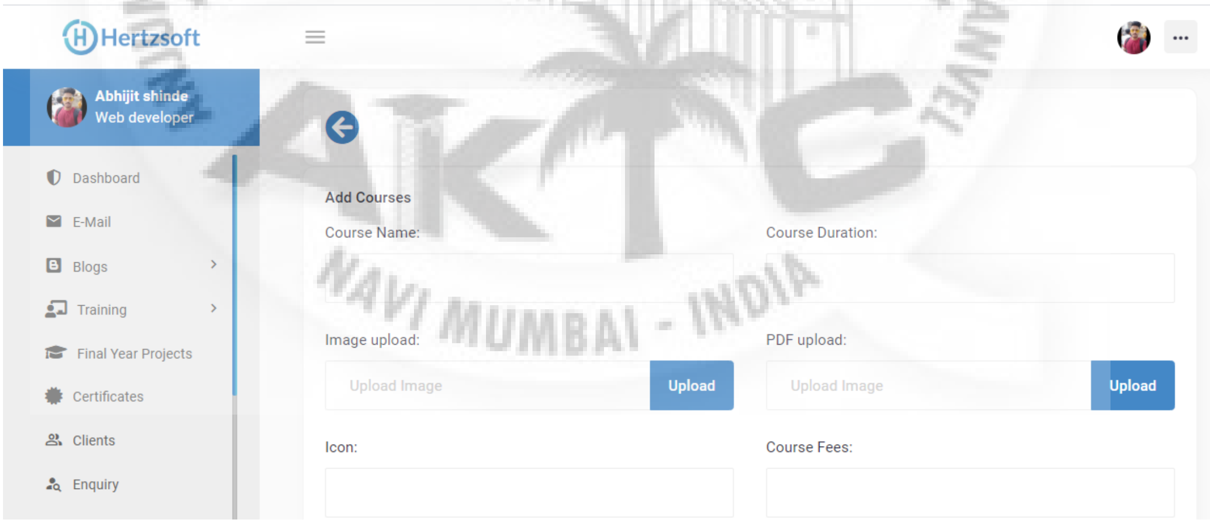


Figure 4.6: Add Courses Form

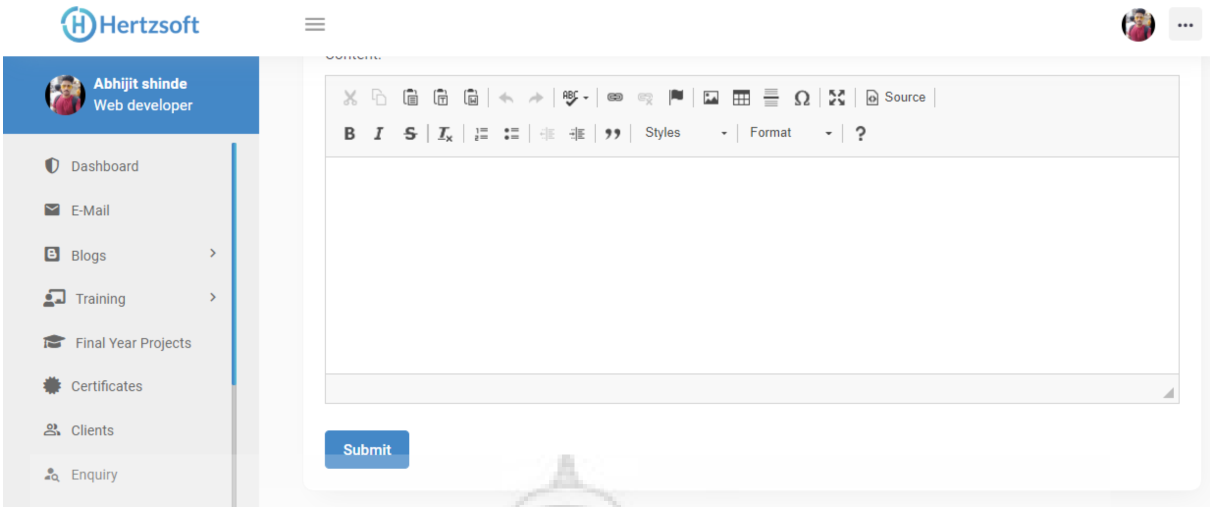


Figure 4.7: Add Courses Form

4.3.3 Batches:

In this section there will be multiple batches which will have different courses. These batches will have the separate faculty for teaching. The staff will be an employee or intern of Hertzsoft technologies itself.

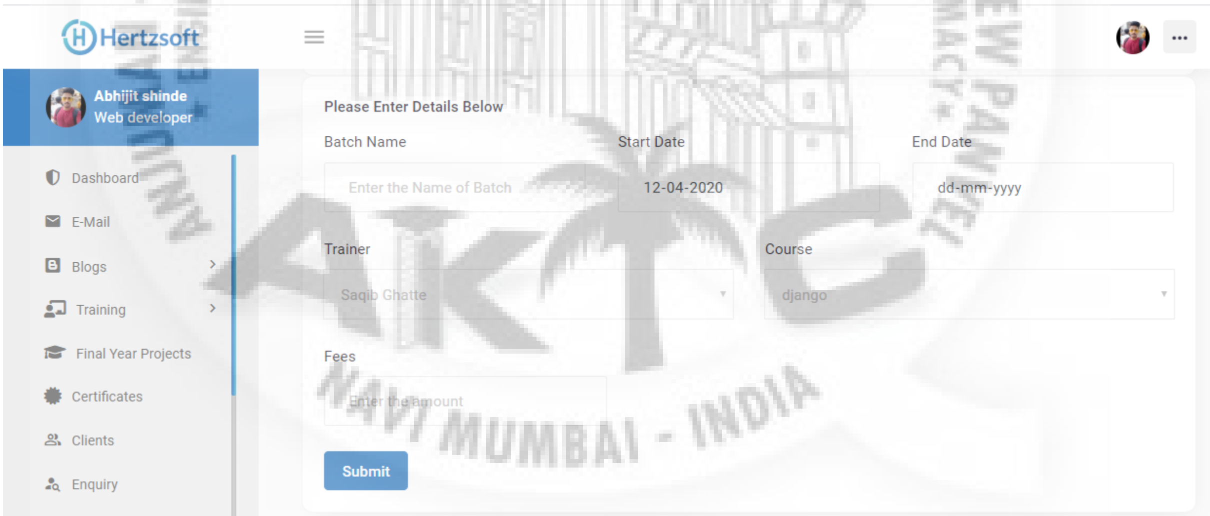


Figure 4.8: List Batches Table

Here we can see there are certain icons present towards the right side of the batches. These icons are having their separate functions where the admin can edit, delete, take attendance, enroll the students for specific batch and the last icon is for getting the attendance record of the batch. Now in the enroll students section, the students those are checked while submitting the form will be enrolled for that specific batch. The students will be filtered out through this section.

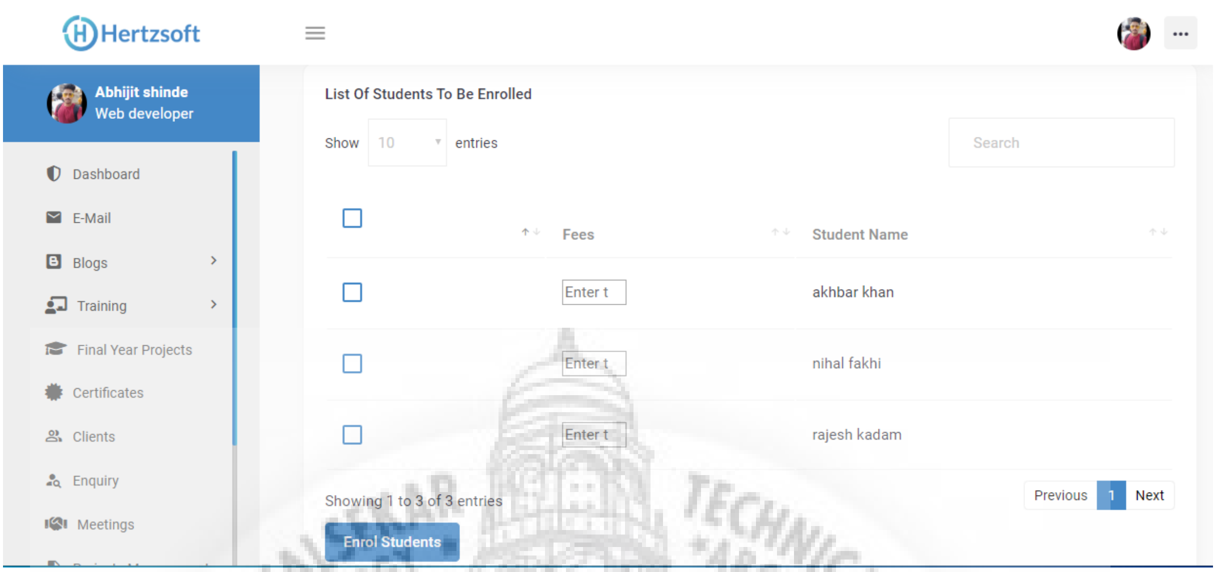


Figure 4.9: Enroll students Form

Once the students are enrolled now whenever the batch will be conducted there will be attendance of each and every student at that time. This attendance will be stored at the database. Admin can access those records as well.

Figure 4.10: Batch Details of Attendance Form

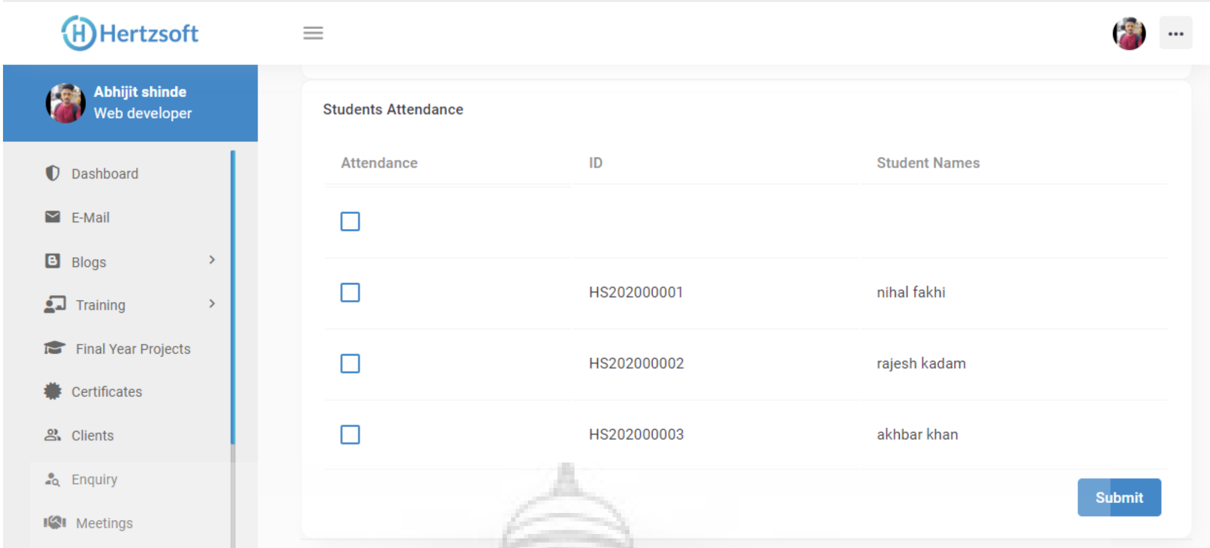


Figure 4.11: Batch Attendance Form

Once the data is submitted, we can see the record of the attendance on a single click. Once we click on that icon we can see the complete record of the attendance of specific batch as shown in figure. Also if admin wants he can delete the attendance record of specific days.

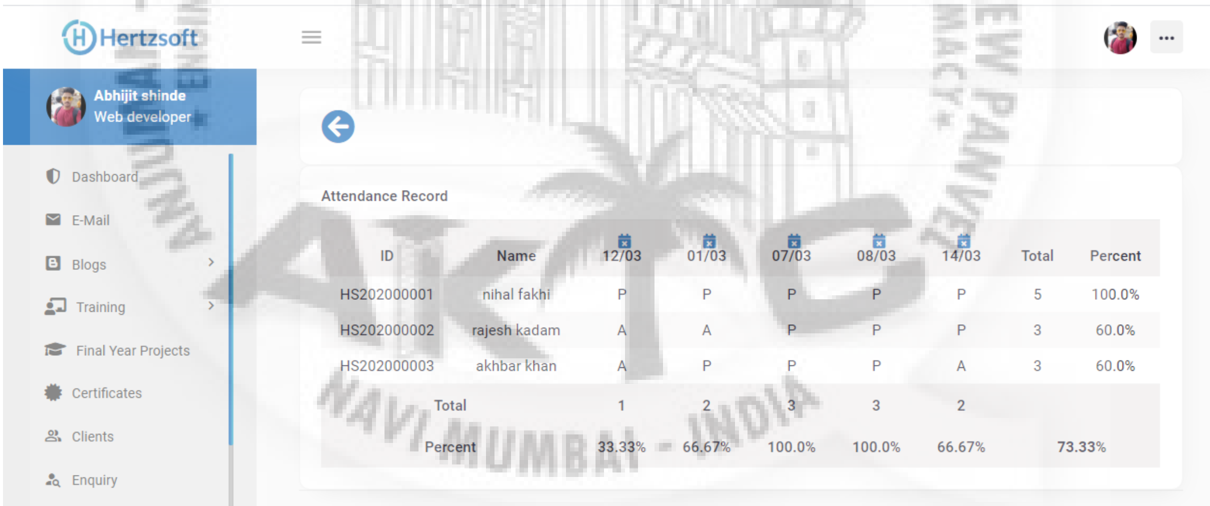


Figure 4.12: Batch Attendance Record

This was all about the data table which is displayed on the batches section of the web page. Now if we click on the specific batch, we are going to see the details of the batch where various data will be displayed related to that batch. The details will look as shown in fig.

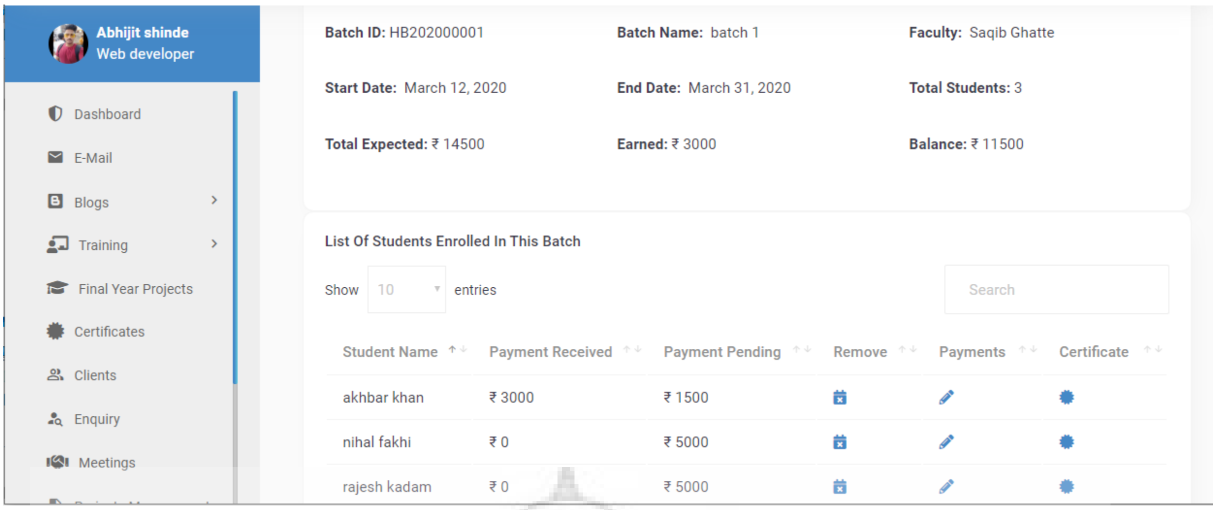


Figure 4.13: Batch Details

This page will display all the data of batches such as Batch ID, batch name, faculty name, start date of batch, end date of batch, total number of students enrolled in batch, total amount expected from the batch, total amount received from batch, total amount pending from batch. Below all this details there will be list of students enrolled in batch. Here admin can delete the students from the batch if required. From here itself admin can certify a student while clicking on the certificate icon. There are two other columns where the amount received from the student and pending amount is displayed. This payments can be managed by the payment icon. Once we click on that icon, the data table related to that student's payment will be displayed. From there we can see all the payment record of that student till today's date. We can add the payment from this page only by clicking on add payment button. Also we can see the receipt of that payment by clicking on the view button.

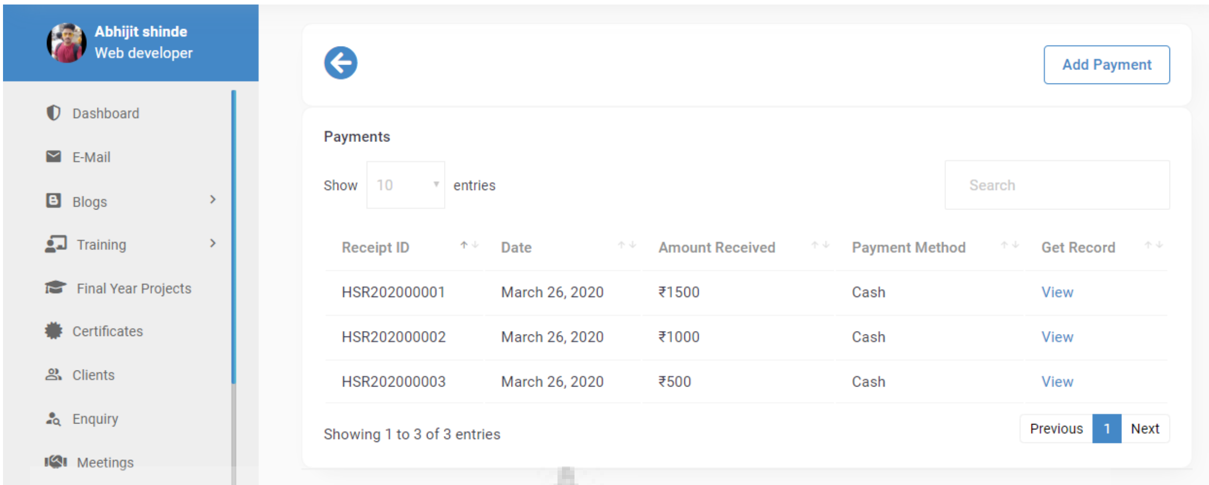


Figure 4.14: Payment Details

4.3.4 Students:

In this section we can add a student in the Hertzsoft by giving name, college, email, contact number, location of the student as a input. Once the data is submitted to the database, the data will be reflected on the webpage as shown in figure. Admin can manage the details such as edit and delete the entries of the students. Also the students appeared while enrolling students in the batch will have these list of students.

Figure 4.15: Student Table

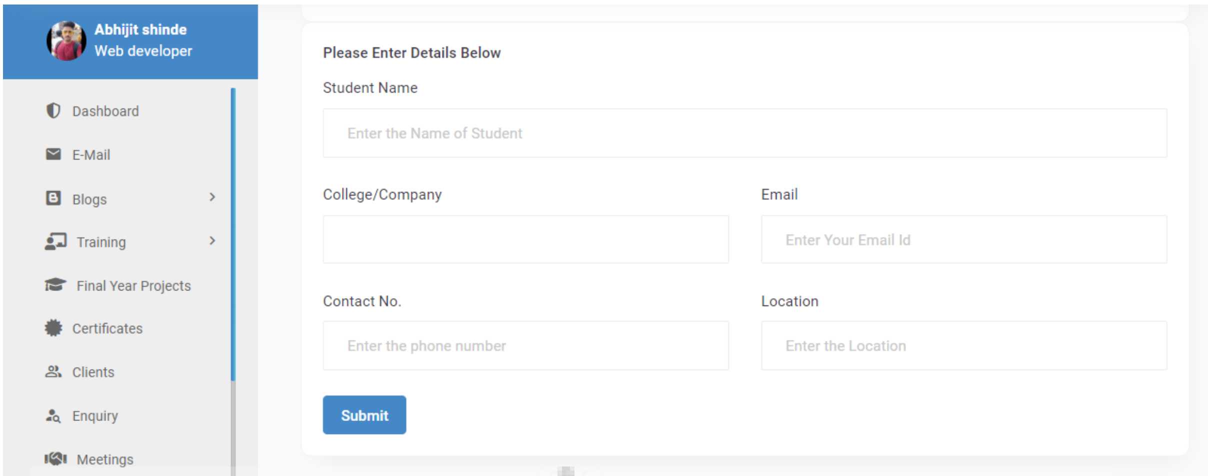


Figure 4.16: Add Student Form

4.4 Final year projects

As the Hertzsoft Technologies is not only the leading IT company but also the Training Institute and Coaching Classes where they are providing solutions and final year projects to the Engineering and Diploma Students.

So keeping the records of each and every final year project is essential and important. For that, this section provides all necessary and essential needs as the main moto of ERP system is to track the every record.

This section has form to submit the necessary data to database. In order to add a project to this ERP system user need to provide details like title of project, abstract, cost, based IEEE paper, domain of the project as a input as shown below.

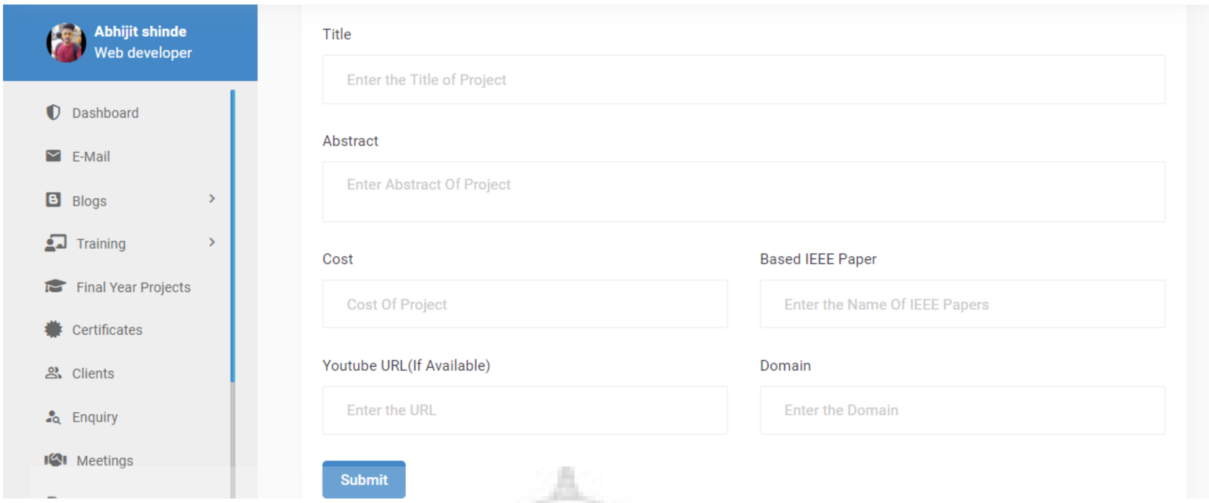


Figure 4.17: Add Final Year Project Form

Once the data is submitted, it will reflect on the ERP system in the datatable of the final year projects section as shown in figure.

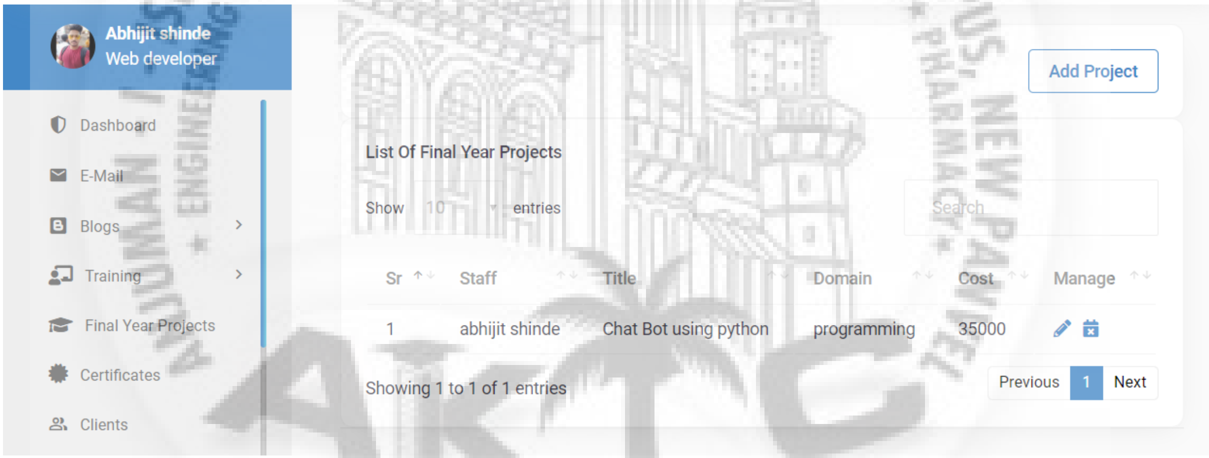


Figure 4.18: List of Final Year Project

Also provided a manage section through which final year projects can be edited or deleted as required.

4.5 Clients

Clients is the one section of our ERP system which contain all the record regarding clients as their name, company, Email id, Address, contact number.

This section contains the add client form and the client list in the table. Where the add client Form contains the all fields which is mention above and by submitting the form all the data will saved in the database.

The list of all clients will displayed in the tabular format from the database as the fields like client name, contact number, Email id, organization name and date of client added and also provided the edit and delete button in the table which allow admin to edit the client details if in future is there any changes in the information of client and also delete the data of particular client.

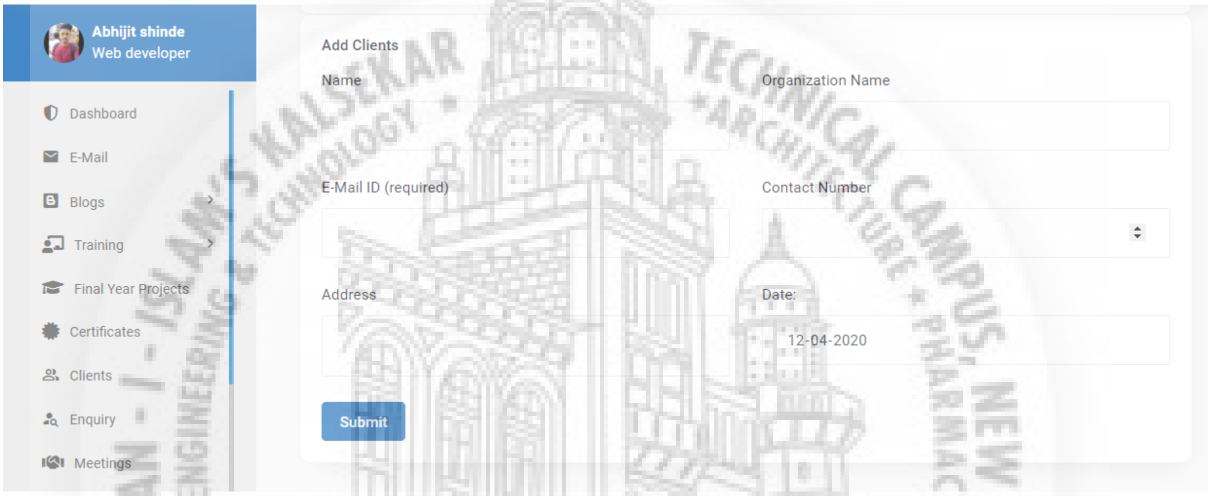


Figure 4.19: Add client information form

Figure 4.20: Client list table with edit and delete option

4.6 Enquiry

As the Hertzsoft Technologies is IT company which provide project based solutions hence, most of the time clients made the enquiry for there projects so there should be the section which contain the record of each and every enquiry made by client.

This user can add an enquiry by providing client name, enquiry date, enquiry title, enquiry details given by client as a input in the form of the webpage and this data are stored in database.

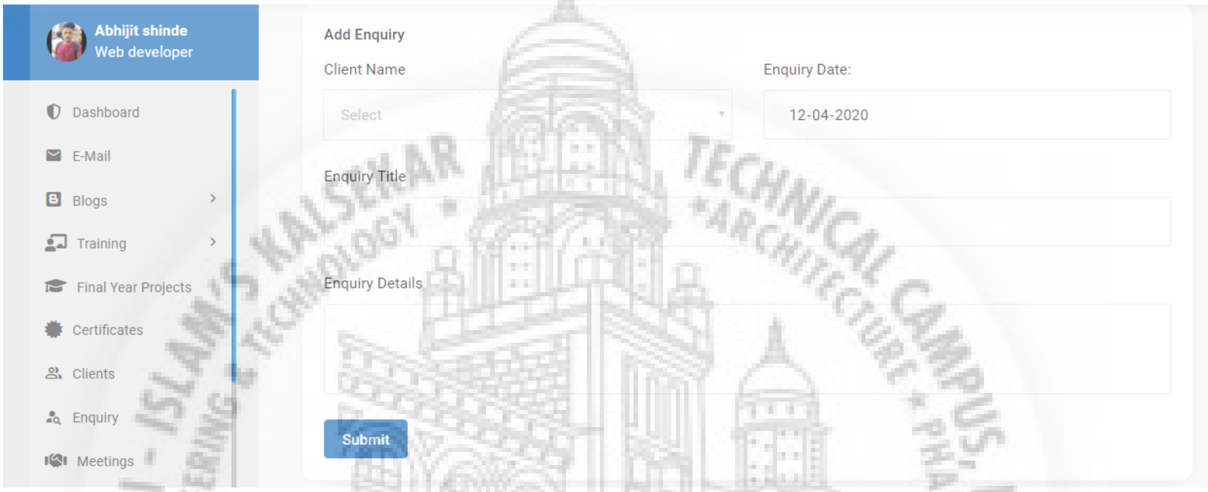


Figure 4.21: Add enquiry form

Once the data is submitted, it will reflect on the ERP system in the clients section as shown below in the figure.

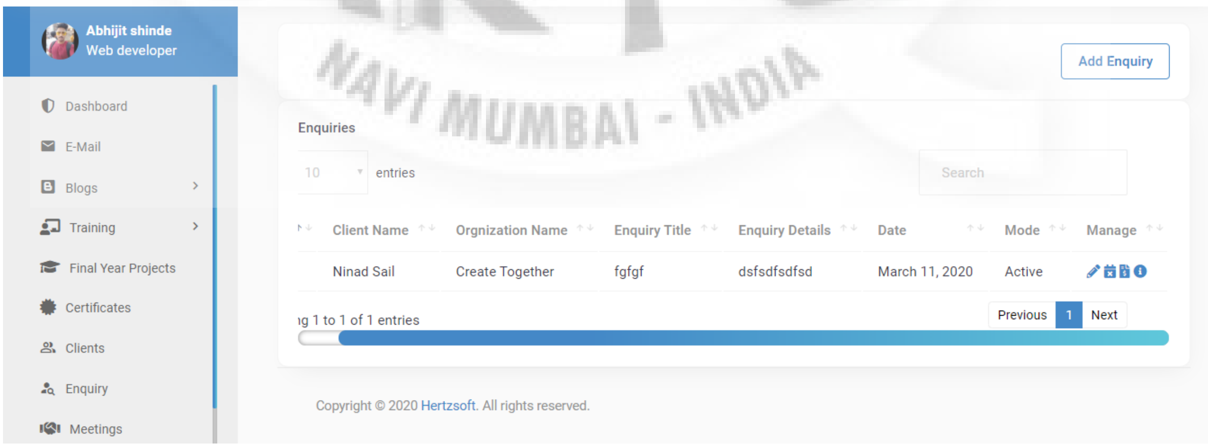


Figure 4.22: list of Enquiries

This list of enquiry table also contain icons as buttons which has sub sections in the enquiry module first two are the edit and delete enquiry buttons. If client approaches for any enquiry regarding the project then client must ask for some estimate bill and this estimate is not full proof but temporary one until client company and Hertzsoft Technologies come agree upon final estimate. Hence, during the negotiation period multiple estimates can be generated for that the estimate generate button is present.

Once the user clicks on the estimate icon, form for adding estimate will be opened where the data is submitted into two different table where the modules and quotation are save in one sections and other information in to the other table. User can add estimate simply by providing duration, maintenance period, date, and description as a input to the form as shown in figure below.

Figure 4.23: Add Estimate Form

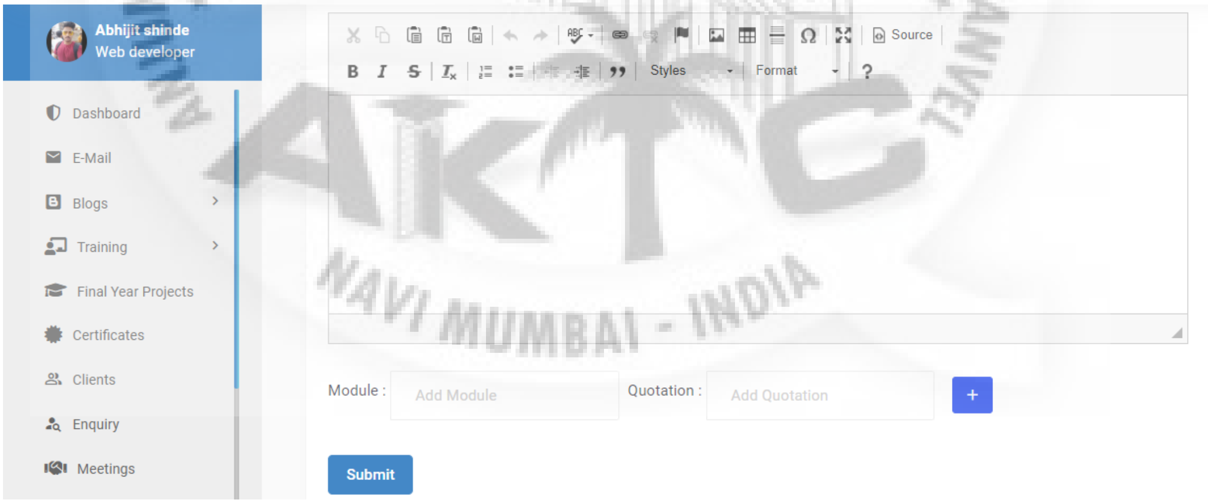


Figure 4.24: Add Estimate Form

After the submission of the form, this information is displayed in the data table and we provide the view button to display the estimate bill. In this estimate we use the data from various tables in database by using the MySQL queries.

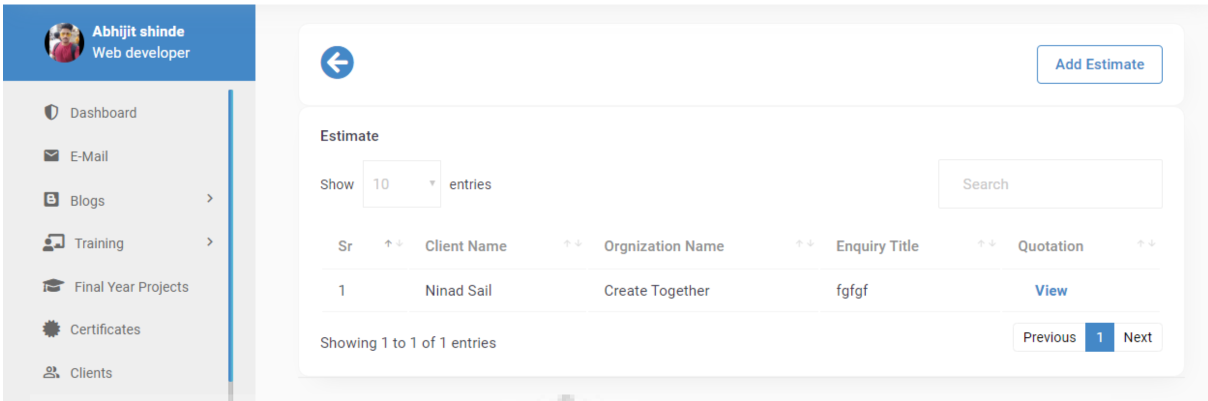


Figure 4.25: list of Estimates

However the status of this enquiry must be recorded from the start to the end of this project, where how the enquiry is handled, who handled the enquiry and what are the improvement and running status, these all details must be recorded time to time. Hence, one status button is added to record the status regarding the enquiry as shown below in figure.

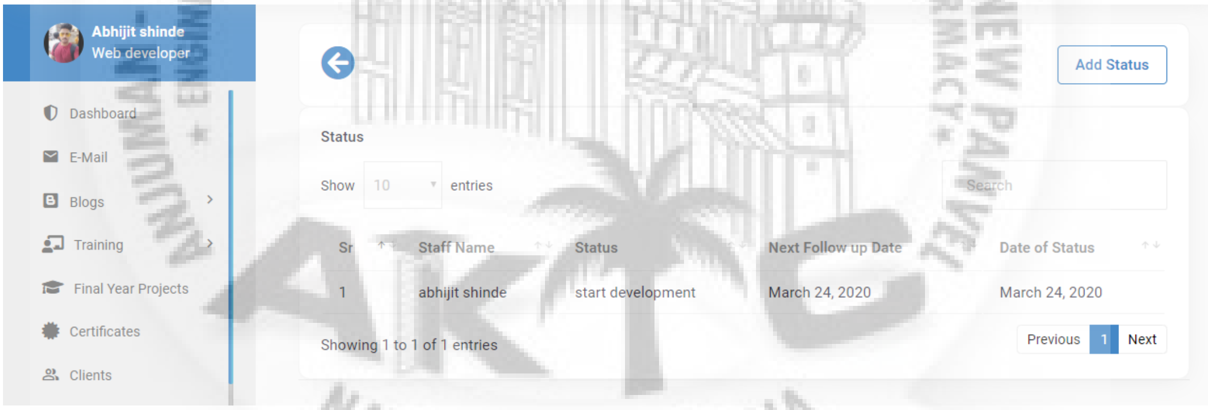
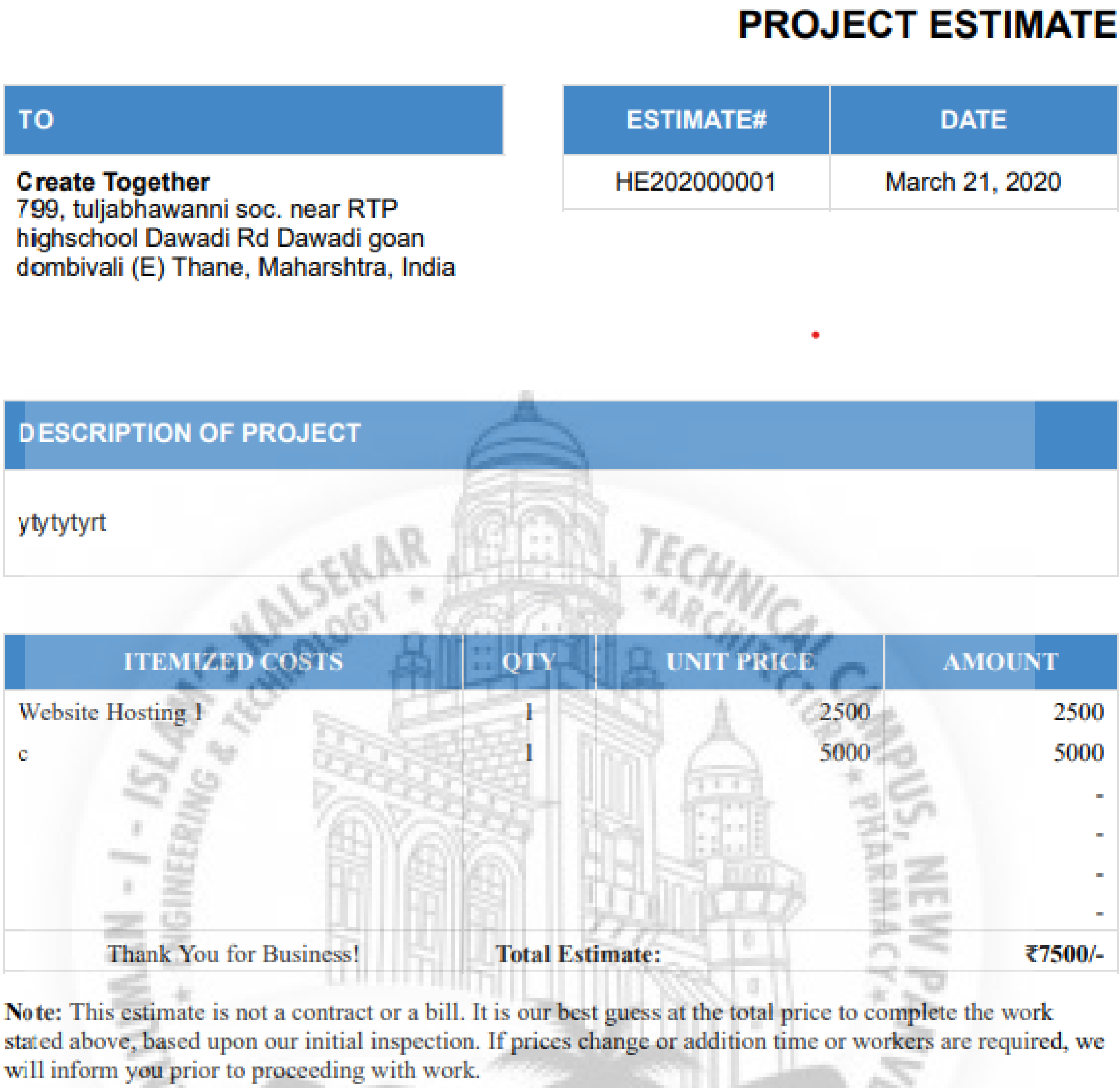


Figure 4.26: List of Status

Once the estimate is created, we can see the bill of that project estimate easily from the ERP system Only. There is a section in enquiry where we can see the project estimate bill as shown in figure below.



PROJECT ESTIMATE

TO	ESTIMATE#	DATE
Create Together 799, tuljabhawanni soc. near RTP highschool Dawadi Rd Dawadi goan dombivali (E) Thane, Maharshtra, India	HE202000001	March 21, 2020

DESCRIPTION OF PROJECT
ytytytyrt

ITEMIZED COSTS	QTY	UNIT PRICE	AMOUNT
Website Hosting 1	1	2500	2500
c	1	5000	5000
			-
			-
			-
			-
Thank You for Business!	**Total Estimate:**		**₹7500/-**

Note: This estimate is not a contract or a bill. It is our best guess at the total price to complete the work stated above, based upon our initial inspection. If prices change or addition time or workers are required, we will inform you prior to proceeding with work.

Figure 4.27: Estimate Bill

4.7 Meetings

ERP system is made for Hertzsoft Technologies. For the projects to be implemented there should be clear clients demands and these demands cannot be completely fetchable on phone so for that meetings are necessary. Hence, to maintain the records of these meetings this section is available in the ERP system. The form which is filled for the meeting contain the field where the data is coming from the client table in database with the help of MySQL queries and fetch these data to the the table from the database in the form of list table. In order to add a meeting, user need to provide certain details as shown below.

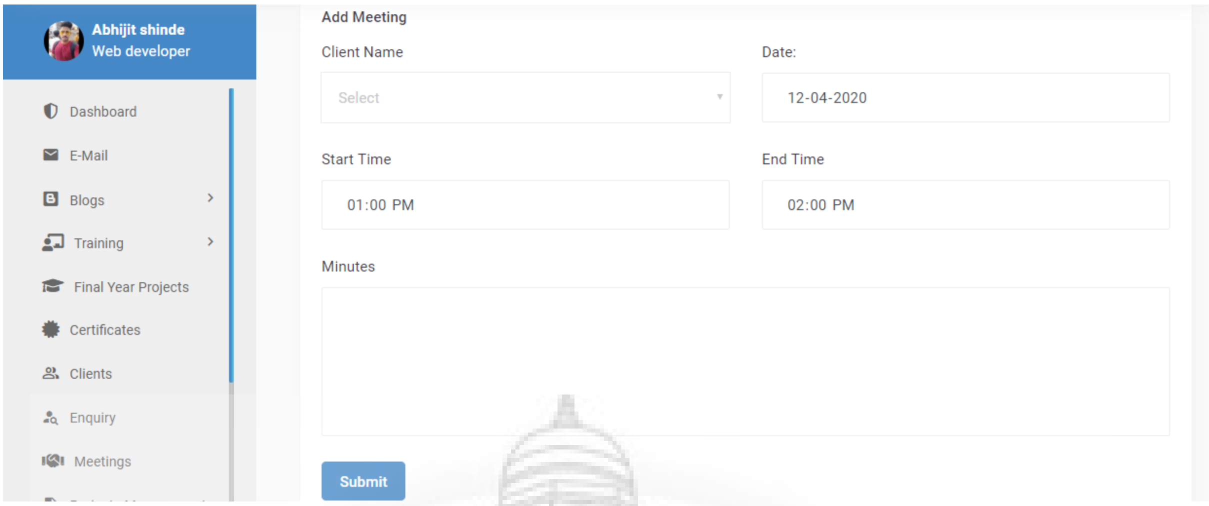


Figure 4.28: Add Meeting form

Once the form is submitted, the data will be refected on the webpage in the meetings section as shown in the figure below.

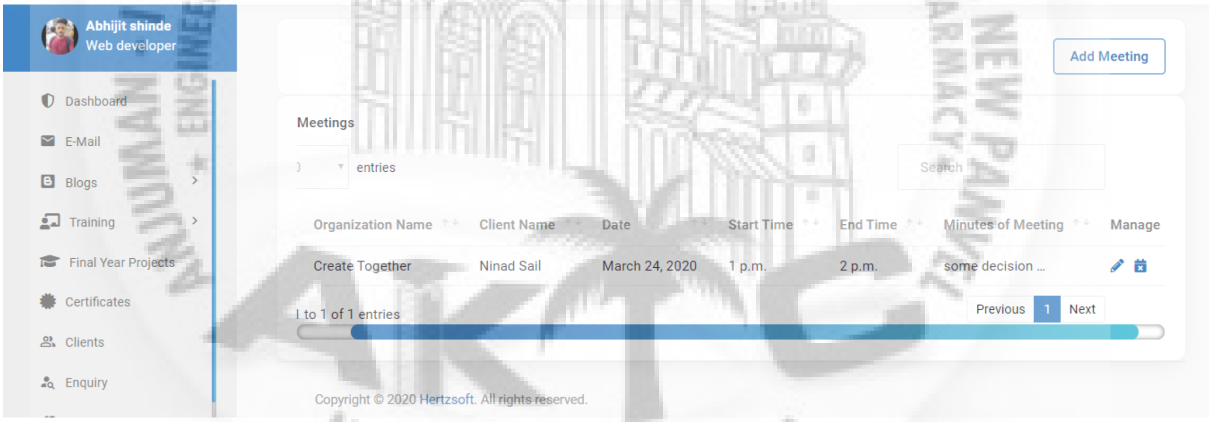


Figure 4.29: List of Meeting

4.8 Project management

As Hertzsoft having so many project and system records all the information regarding the industrial project. It is essential to maintain these all records and these are maintained in thi section. It has the separate tables of project managemet.

In this section whatever the project we have stored in the table and also the records regarding the project, all these information is stored in the database by using the form and all this data where the client details like name and the staff details from the human resources module is fetched to the add project form by using the MySQL queries and the Django zinger format. The form for adding a project is shown below.

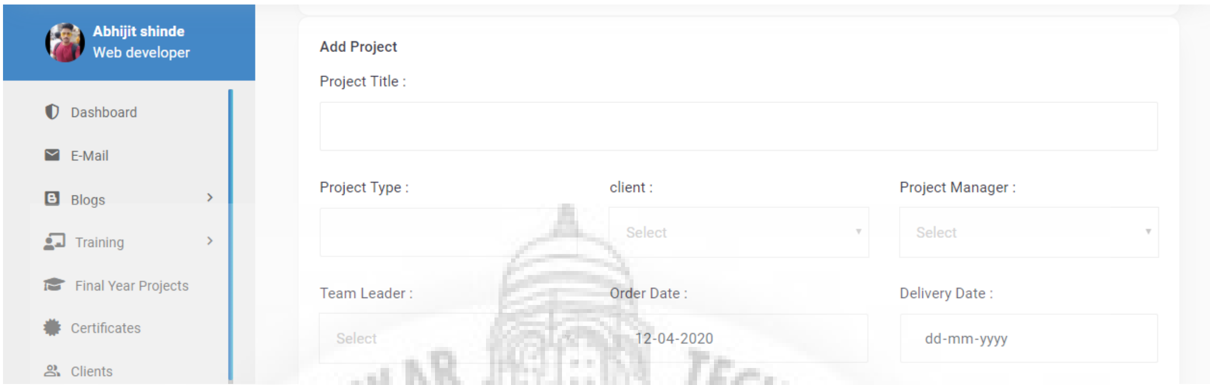


Figure 4.30: Add Project form

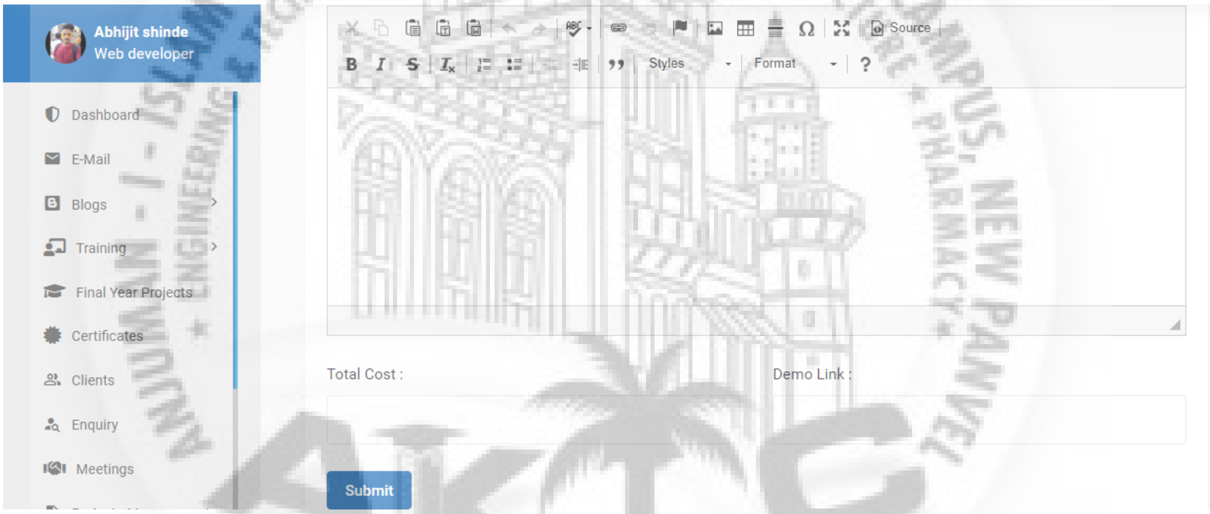


Figure 4.31: Add Project form

Once the project is added, we can see it on the project management section in the form of datatable.

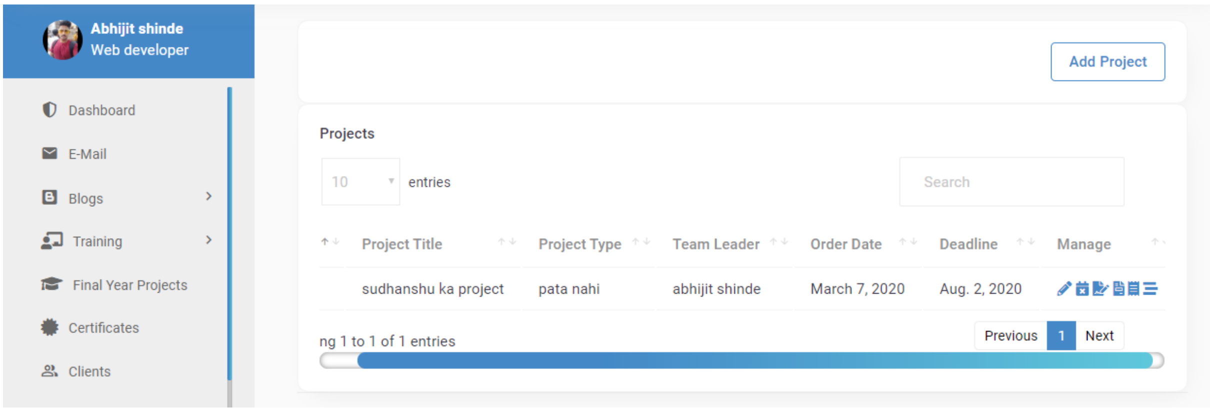


Figure 4.32: List of Projects

4.8.1 Agreement :

All this data is stored in the database where essential data is fetch into the table and the agreement regarding this project is generated by putting the simple information into the form according to the client specification. However the data fetched into the agreement is based on the client information stored in the client module and all his address, contact, Email, organization name this all details are fetched accordingly.

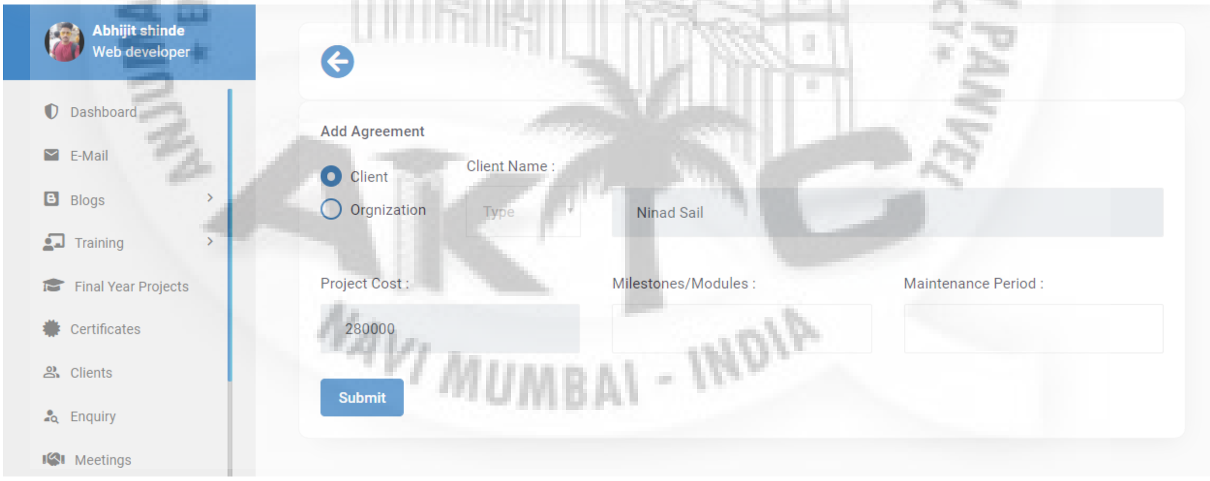


Figure 4.33: Add Agreement Form

4.8.2 Invoice :

In the invoice section the form contain the module and quotation feilds and there is plus icon which increases these fields according to the number of modules we use the JavaScript and jQuery to complete this operation. Also we generate the custom ID for the invoice which is unique to particular invoice.

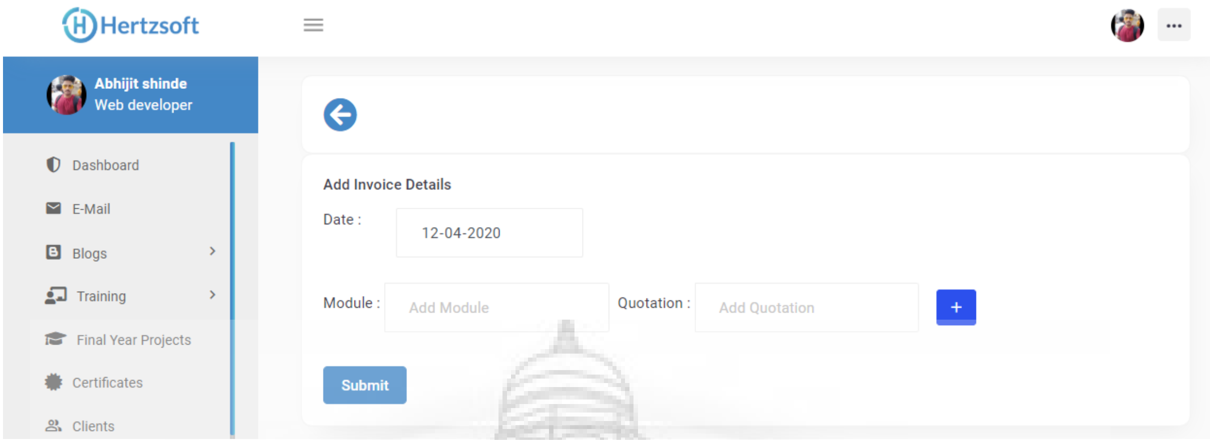


Figure 4.34: Add invoice form

The data that form contains is stored in the database where the current date is automatically stored in database according to the data present in the database. We provide the view button to view the final estimate invoice. This invoice again connected with the other tables from different modules like client table and estimate table and there is one entry that must be present that's why we programmed it like if we generate new invoice then the previous record is deleted immediately and the latest entry is shown in the table. In invoice there are some calculation is present like addition of all quotations which is done by the time through view function called.

Invoice

BILL TO
Ninad Sail 799, tuljabhawanni soc. near RTP highschool Dawadi Rd Dawadi goan dombivali (E) Thane, Maharshtra, India **Email:**creattogether@gmail.com

INVOICE	DATE
HIN202000001	March 7, 2020

ITEMIZED COSTS	QTY	UNIT PRICE	AMOUNT
Website Hosting	1	12000	12000
			-
			-
			-
			-
			-
Thank You for Business!	**Total Estimate:**		**₹12000/-**

Figure 4.35: Invoice format

4.8.3 Receipt :

This section is for receipt generation where we provide the data that is present like the invoice number which is in the invoice section. This receipt is the proof of payment and this all information required like payment by cash, cheque, account transfer, net banking , invoice number, amount, date and then the information is stored in the database once the form is submitted.

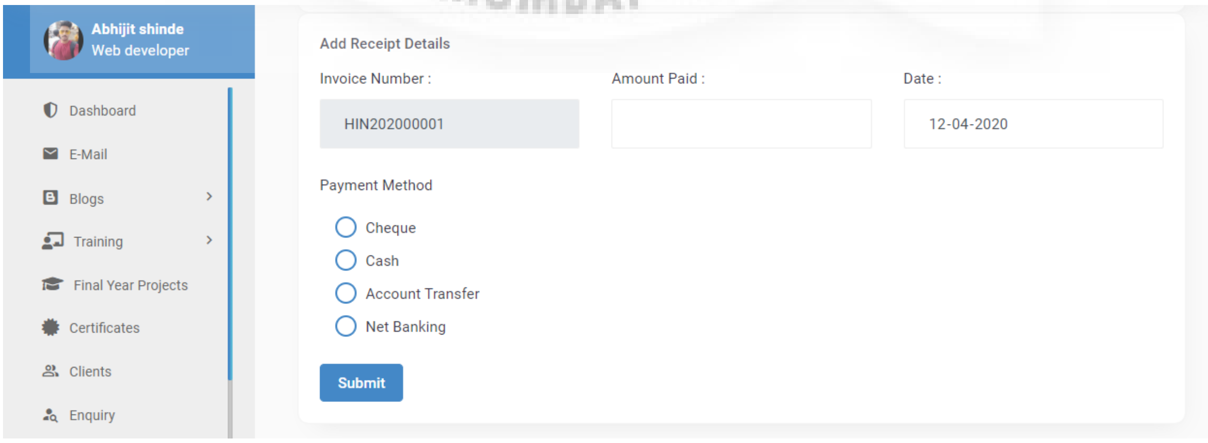
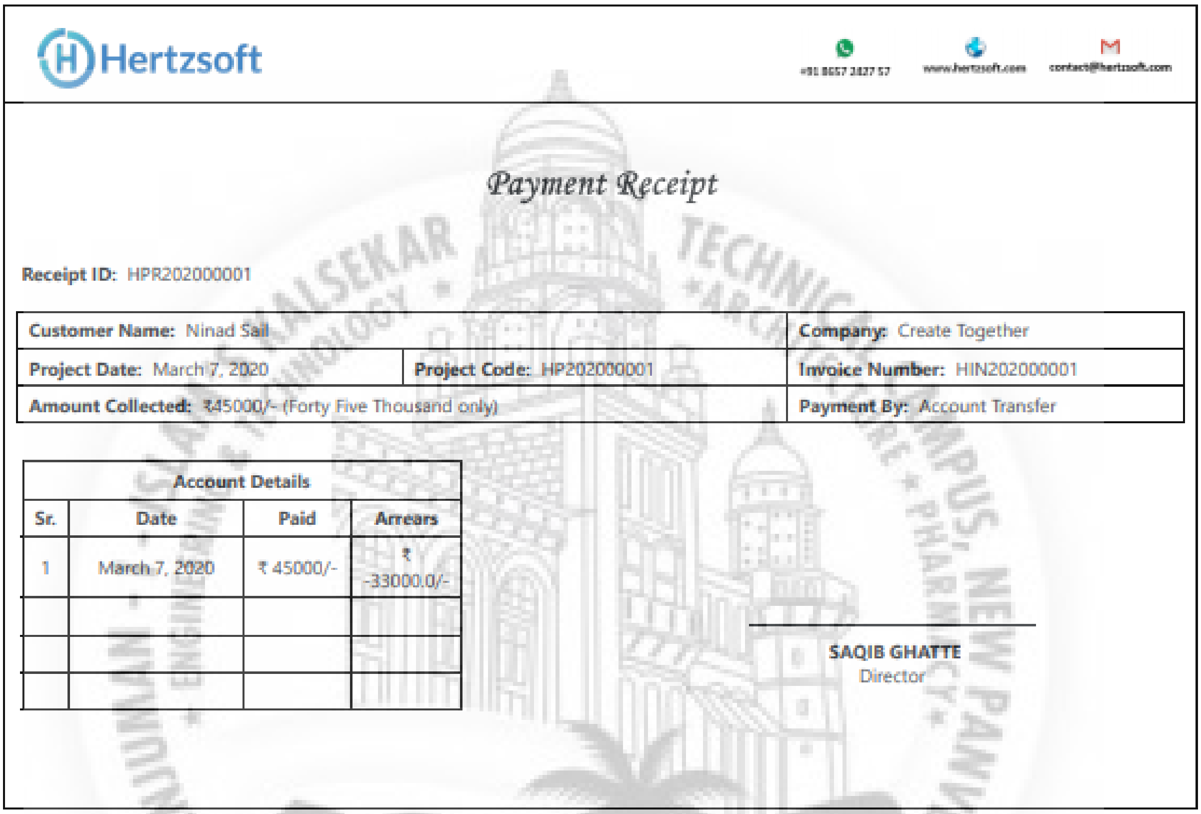


Figure 4.36: Add receipt form

When the data is stored in the database after that data is fetched in the table and we provide the view button to open the receipt for print. There is some calculations like some amount is paid from total and balance amount must be shown but in next time when user pays more amount then also the previous calculation must be carried out. This calculation is carried out by the time where the view button is pressed.


Hertzsoft

www.hertzsoft.com

contact@hertzsoft.com

Payment Receipt

Receipt ID: HPR202000001

Customer Name: Ninad Sail		**Company:** Create Together
Project Date: March 7, 2020	**Project Code:** HP202000001	**Invoice Number:** HIN202000001
Amount Collected: ₹45000/- (Forty Five Thousand only)		**Payment By:** Account Transfer

Account Details			
Sr.	Date	Paid	Arrears
1	March 7, 2020	₹ 45000/-	₹ -33000.0/-

SAQIB GHATTE
Director

Figure 4.37: Receipt Format

4.8.4 Timeline :

This is record or we can say timely report of the project from the start of the project to the end of the project. In this part where the team leader divide the project in the modules, that modules must be completed as planned. In the form of the timeline all the details like module, start date, end date, description and staff assigned are present and this form is also having a repeater button at the end of this form. The plus button add this fields again with the help of JavaScript and jQuery.

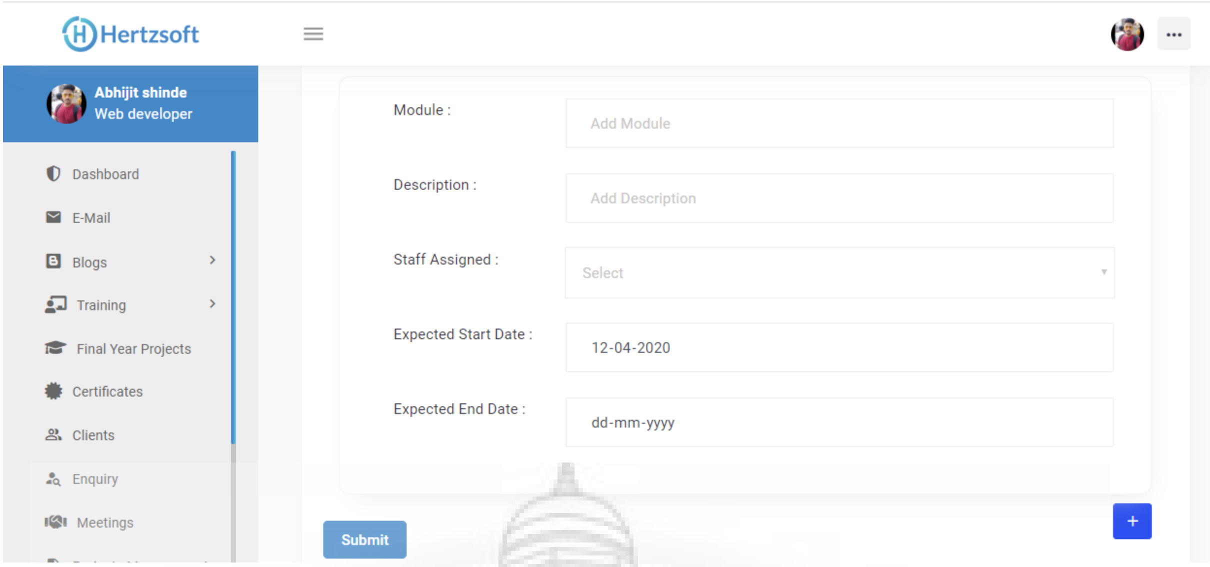


Figure 4.38: Add timeline form

This all the data is then stored in the database and displayed on the table. By the time of submission the status of the project is pending as in database we use the integer value to store by default the zero will be stored then by the time of displaying the data in the table.

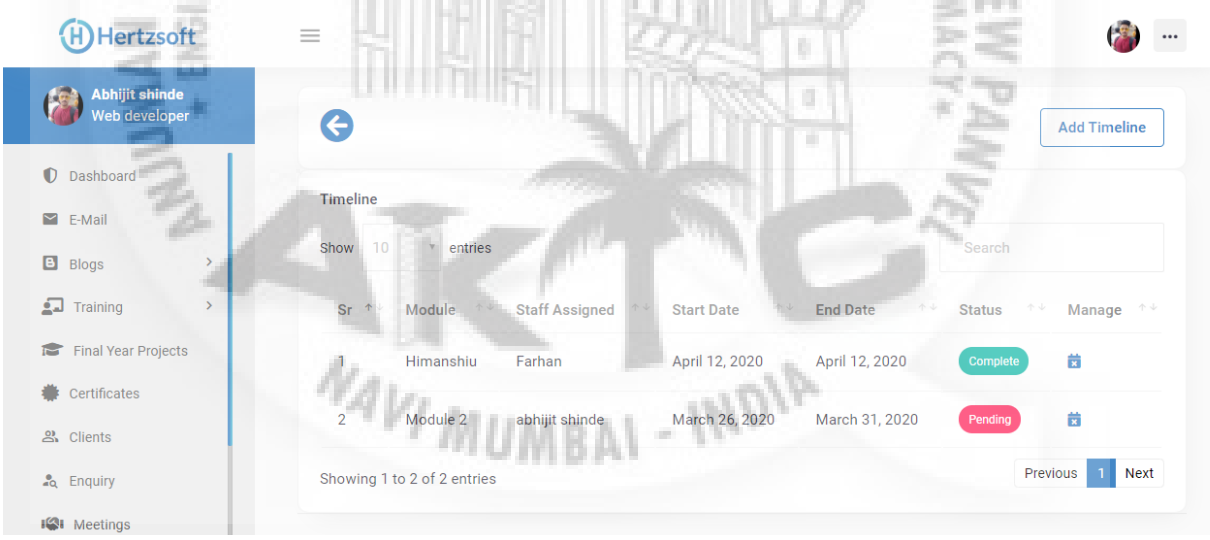


Figure 4.39: List of Timelines

Currently in database zero is stored it will represent the pending badge with the red color and when the work is started then just by clicking badge one time it changes the color to yellow and indicates that the work is started and also the start date is changed to the today's date and one more time when we click the badge it indicate complete with green color and the end date will change to today's date. Also we provide the delete button which deletes the whole entry.

4.9 Human Resource

This is one of the most important section in every ERP system. The main task of a HR is to hire the employees, interns which plays an important role in the success of the organization.

This section holds 6 subsections,

4.9.1 Employee :

From this sub section, admin can add an employee to his company by taking some information such as name, passport size photo, email id, password for login of system, contact number, DOB, date of joining, designation, department, their marksheet scanned Images, UID scanned image, UID number, PAN Number, PAN scanned image and salary which is going to be provided to the employee. Form is shown below.

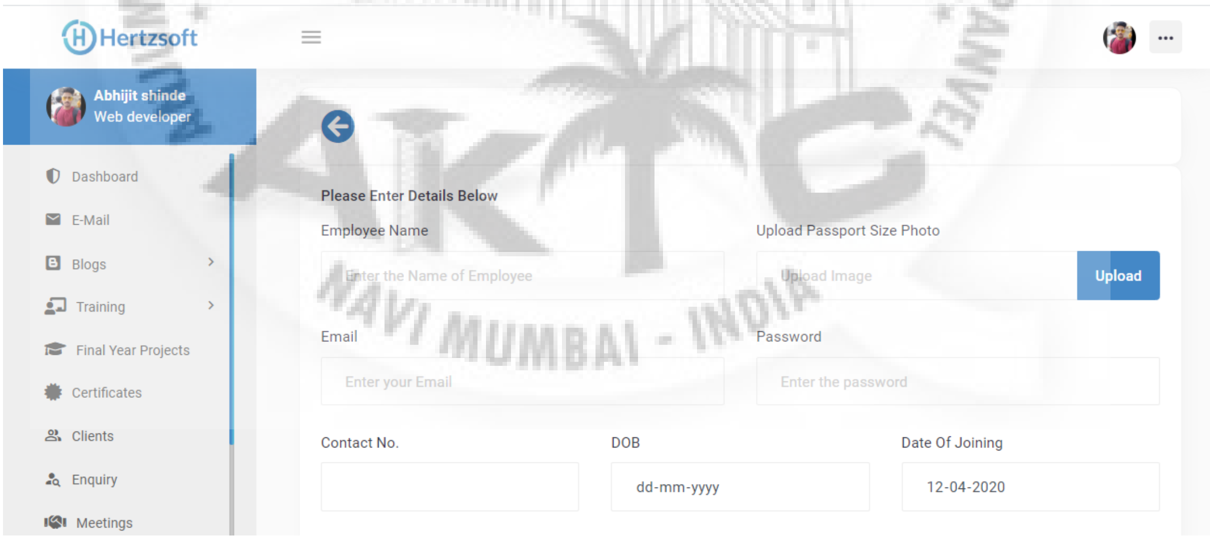


Figure 4.40: Add Employee Form

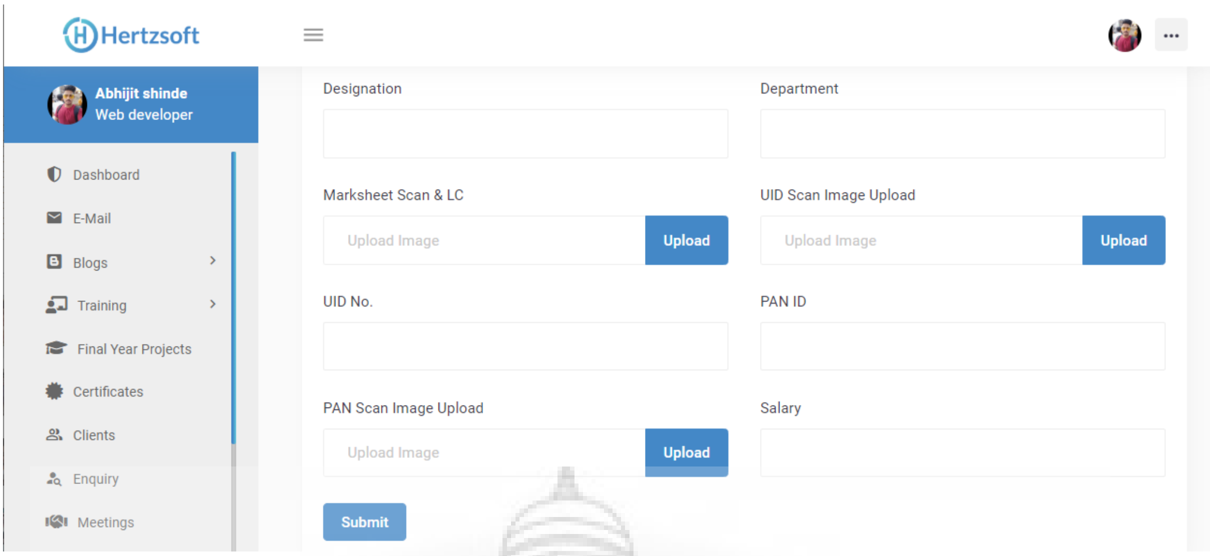


Figure 4.41: Add Employee Form

Once the data is submitted then the data related to the employee will be visible to the page in employee section. Also admin has an access to manage those employees whether to make changes in the detail of the employee or to remove employee from the enterprise by clicking on the delete icon as shown below.

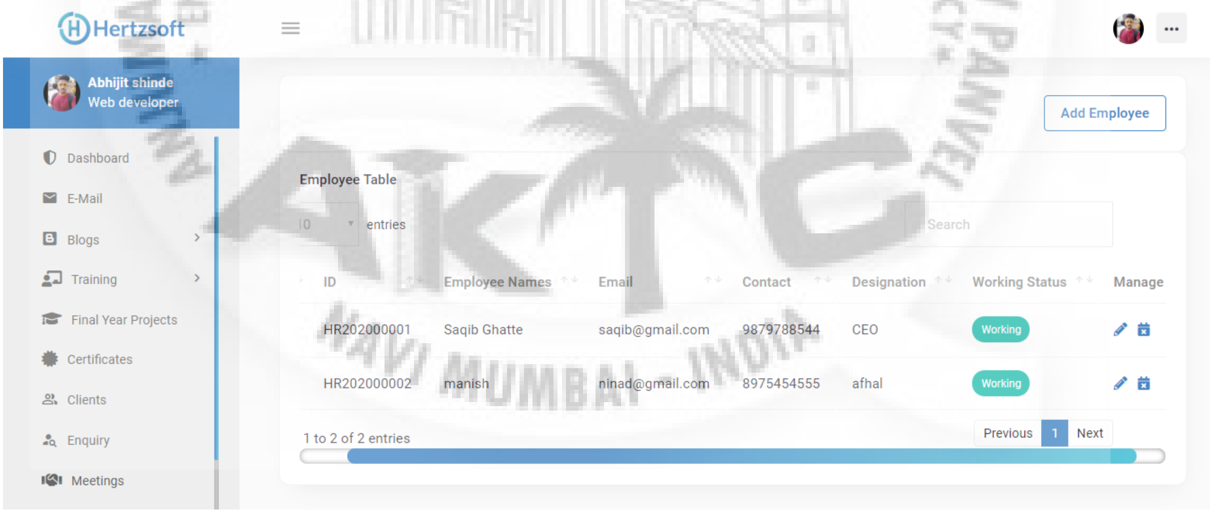


Figure 4.42: List of Employees

4.9.2 Intern

From this sub section, admin can add an intern to his company by taking some information such as name, passport size photo, email id, password for login of system, contact number, DOB, date of joining, designation, department, their marksheet scanned Images, UID scanned image, UID number, PAN Number, PAN scanned image and stipend which is going to be provided to the intern. Form is shown below.

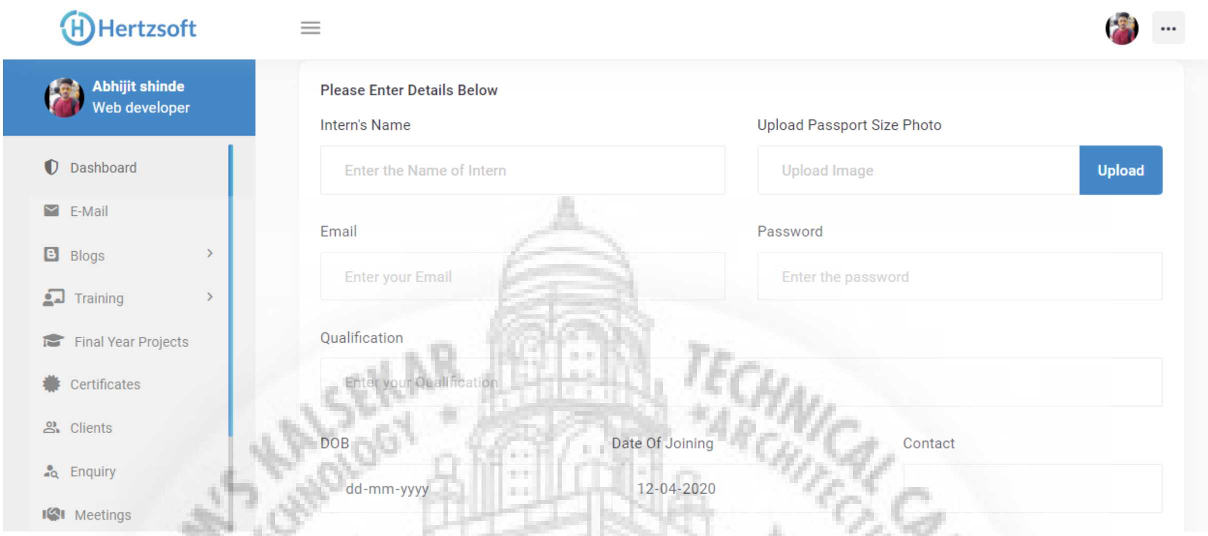


Figure 4.43: Add Intern Form

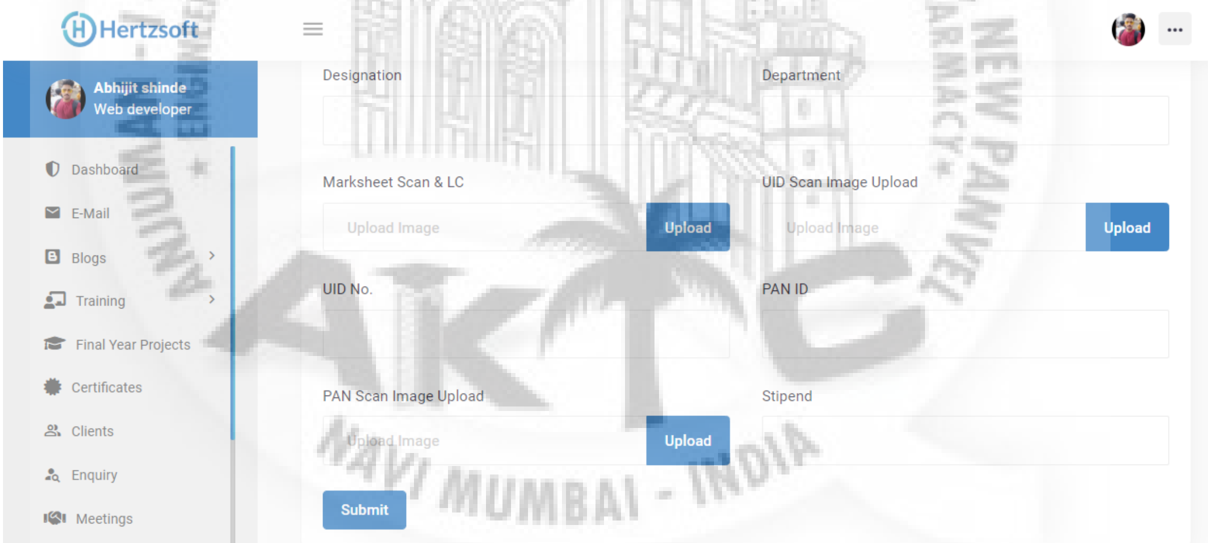


Figure 4.44: Add Intern Form

Once the data is submitted then the data related to the intern will be visible to the page in intern section. Also admin has an access to manage those interns whether to make changes in the detail of the intern or to remove intern from the enterprise by clicking on the delete icon as shown below.

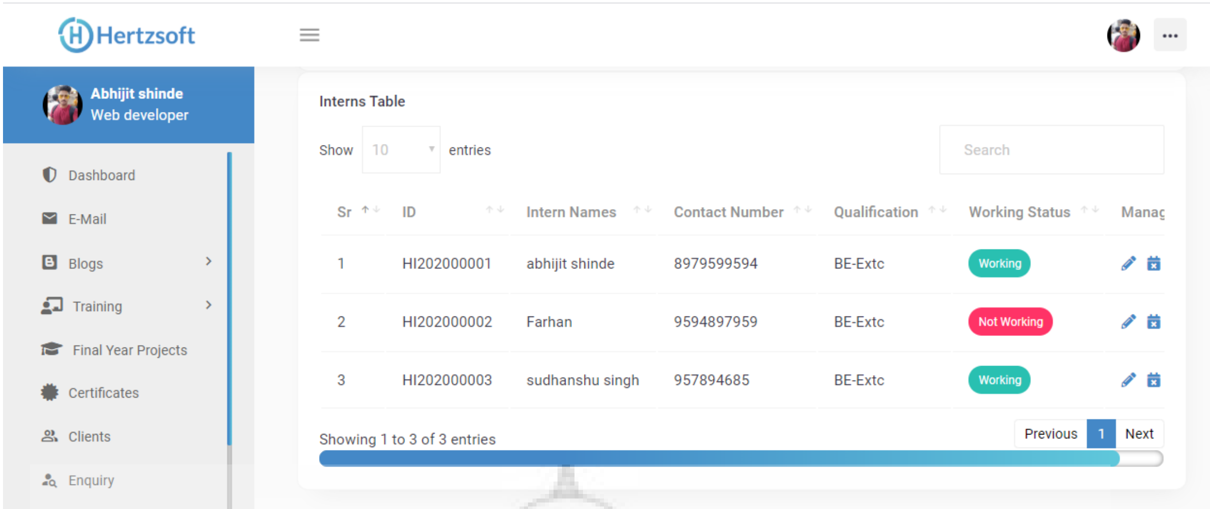


Figure 4.45: List of Interns

4.9.3 Attendance

This section holds the attendance record of the staff that are associated to the company. Here the attendance will be stored in the form of in-time and the out-time of the staff. The attendance record having the record of attendance of each day is shown in figure below.

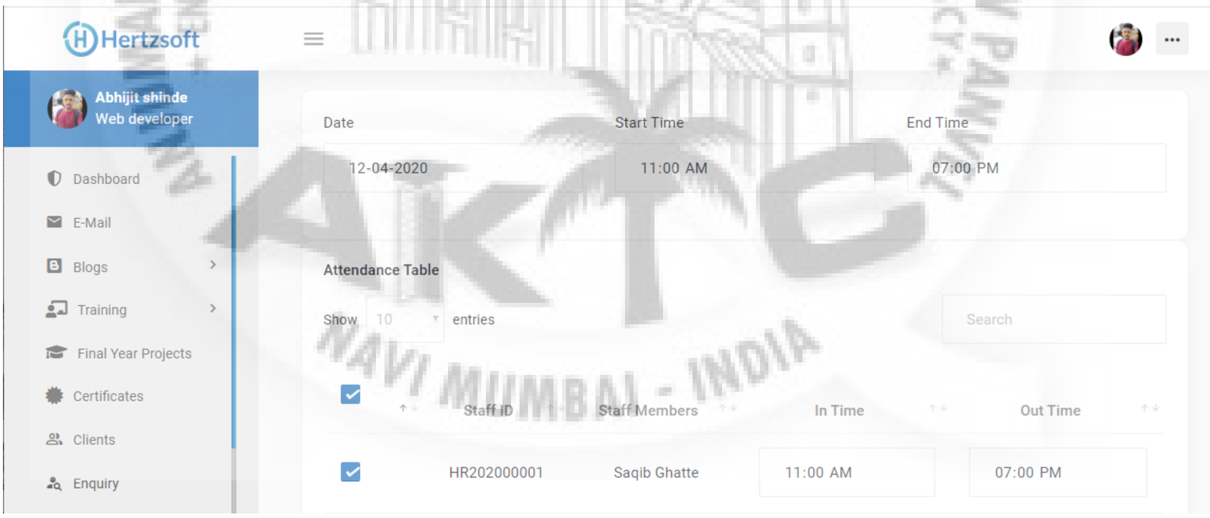


Figure 4.46: Add Attendance Form

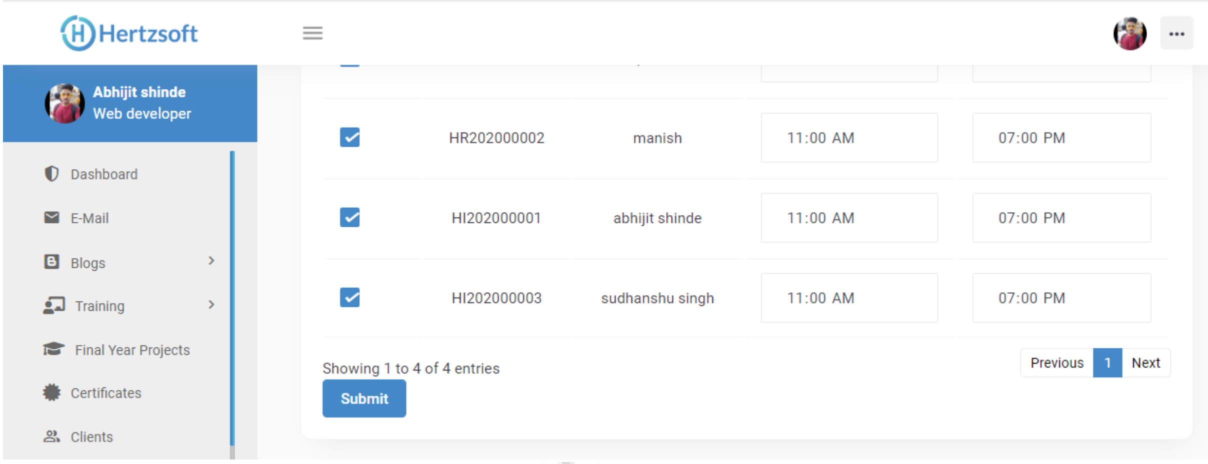


Figure 4.47: Add Attendance Form

4.9.4 Leave Management

If any staff from the company wants a leave for specific amount of days, then they can raise a request to the leader by filling some data such as their name, leave type, leave date from, leave date till and reason for leave as a input to the form as shown below.

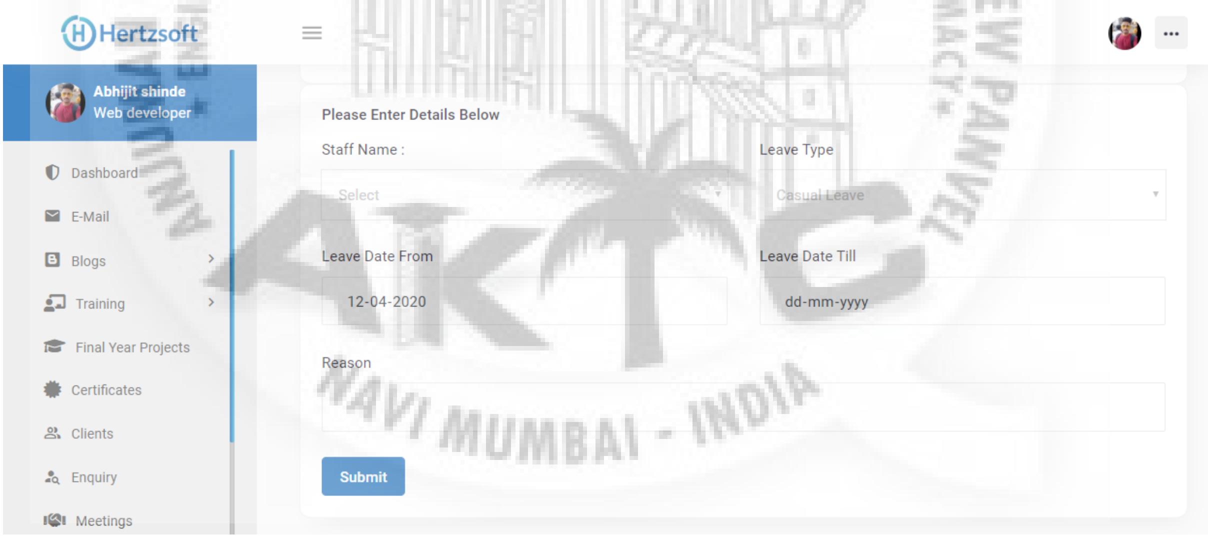


Figure 4.48: Add Leave

Once the form is submitted to the database, an request will be raised and the data which staff has provided for the leave will be displayed in the form of data table on the webpage as shown below.

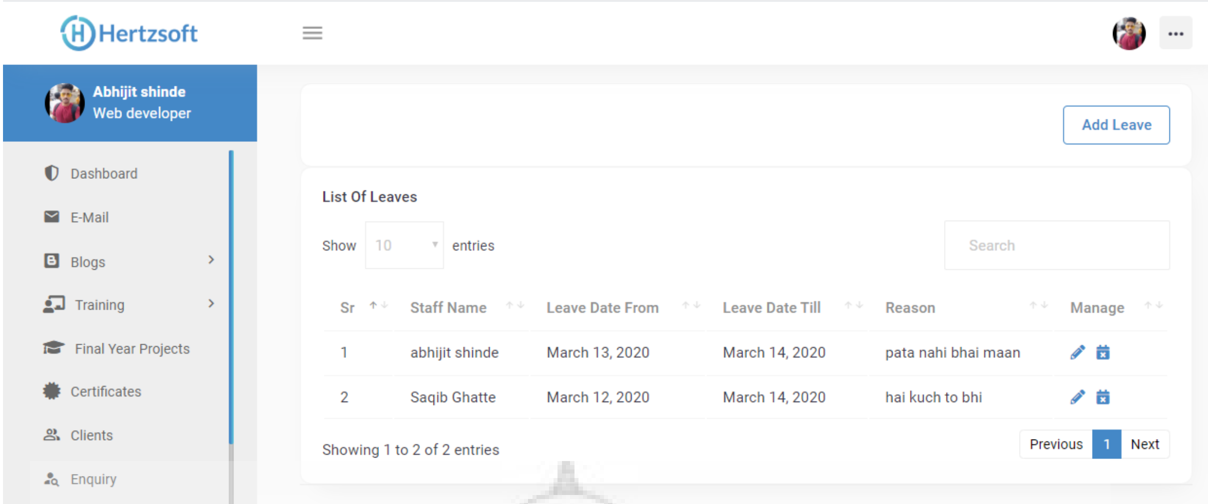


Figure 4.49: List of Leaves

4.9.5 Feedback

From this section, staff can provide their feedback regarding any topic that is undergoing. This is the important section for the staff as the interaction and understandings becomes stronger with the leaders with the help of feed backs.

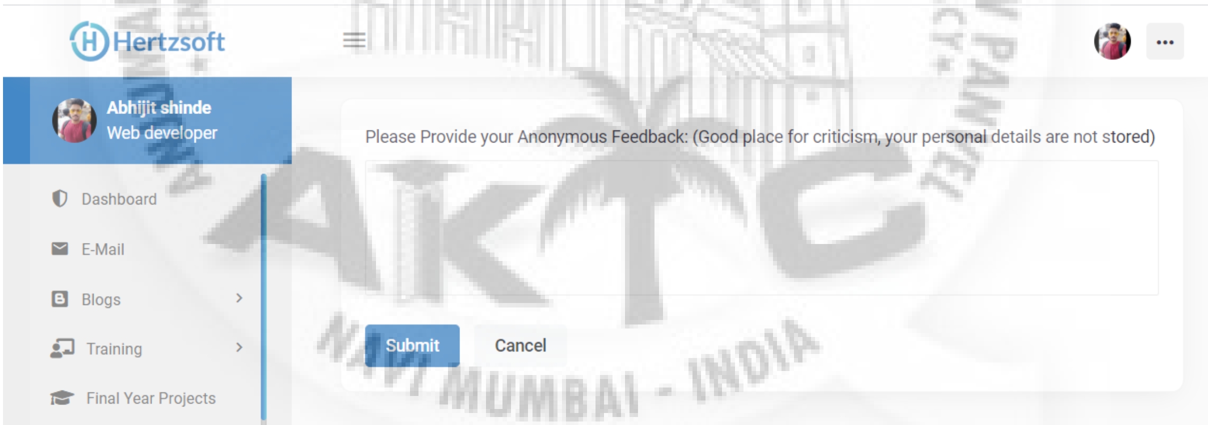


Figure 4.50: Add Feedback

4.9.6 Appreciation

This section is accessible from the admin only as if the admin wants to appreciate any staff related to work or any reason, admin can do it with the help of this section. Here admin need to provide the name of the staff, date, type of appreciation and content as a input in the form.

Once the data is submitted, a certificate will be generated for the appreciation of staff.

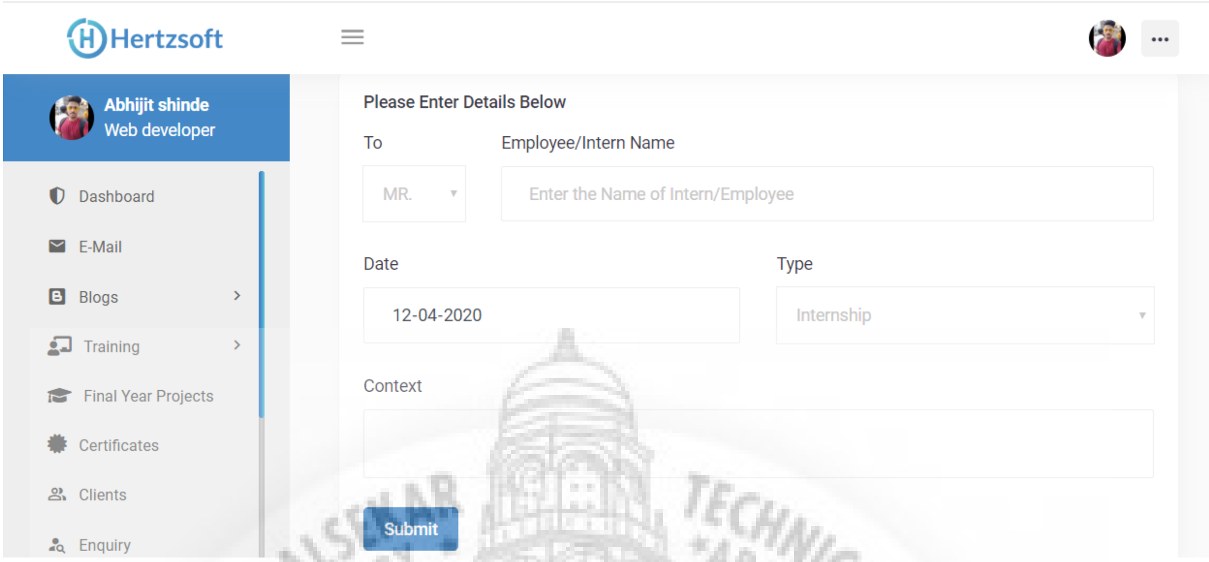


Figure 4.51: Add appreciation Form

4.10 Finance management

The financial management is very important in any organization because every organization has an financial management stream which handle the financial need and financial records of sales and expenses. From the profit point of view is most important section in the company. Hence, our ERP system has an section called finance management which contains the records of Donation, Salary, Expenditure, Contract Pay and Reports.

4.10.1 Donations :

This section contain the donations to the Hertzsoft Technologies. In this section the form contains Donor name | Amount | Reason for Donation | Date and all this data will store in the database.

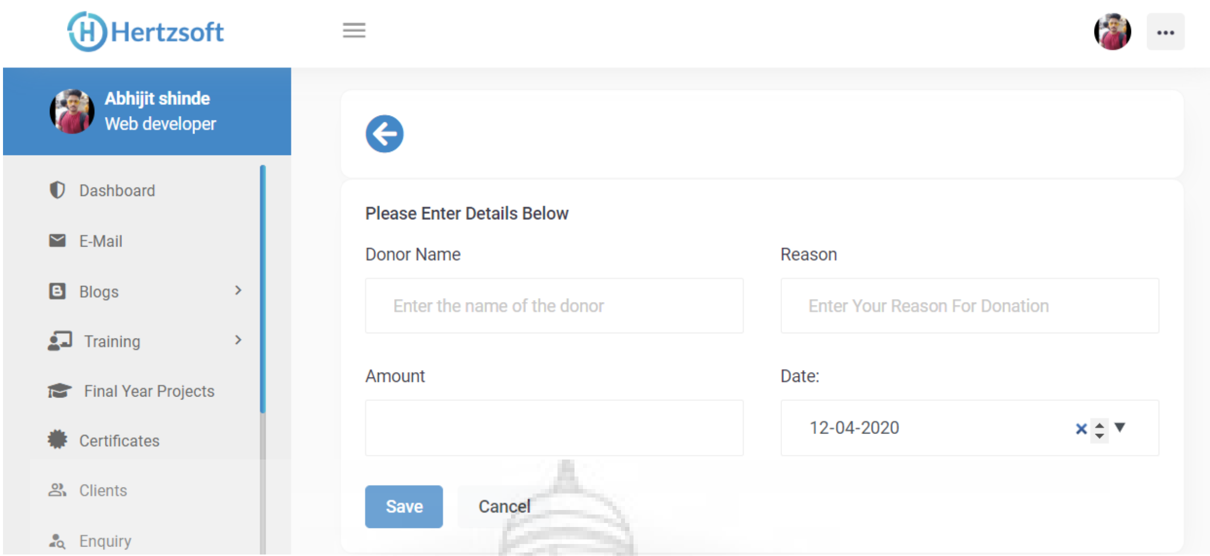


Figure 4.52: Add Donation Form

These data will be displayed in the table from the database which contains donor name, reason for donation, amount, date and time of donation. And finally the delete button to delete the entry.

Figure 4.53: List of Donations

4.10.2 Expenditure :

In any organization there is record of all the expense. This record is mandatory to maintain the balance of company to become financially strong.

In our ERP system there is section to maintain all the expenses which contain the form to fill the all details regarding the Expense who made the expense, date, time, amount of expense, Reason for expense. This all data will be send to the server and this all details are save in to the database.

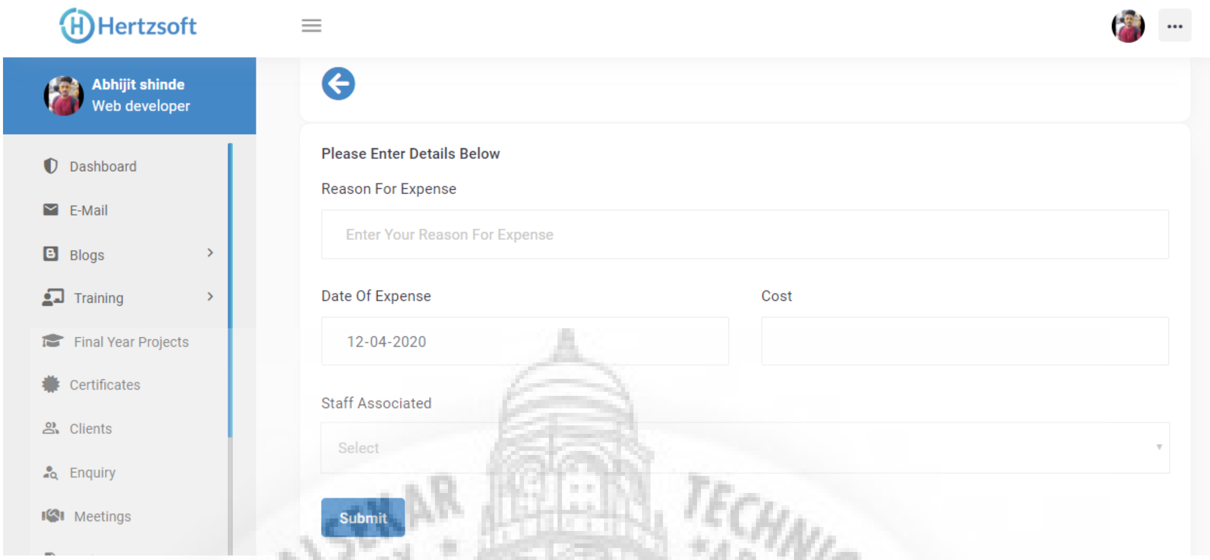


Figure 4.54: Add Expense Form

This data is store in database will displayed in the table in the form of list. Also there is a delete button to delete the particular entry.

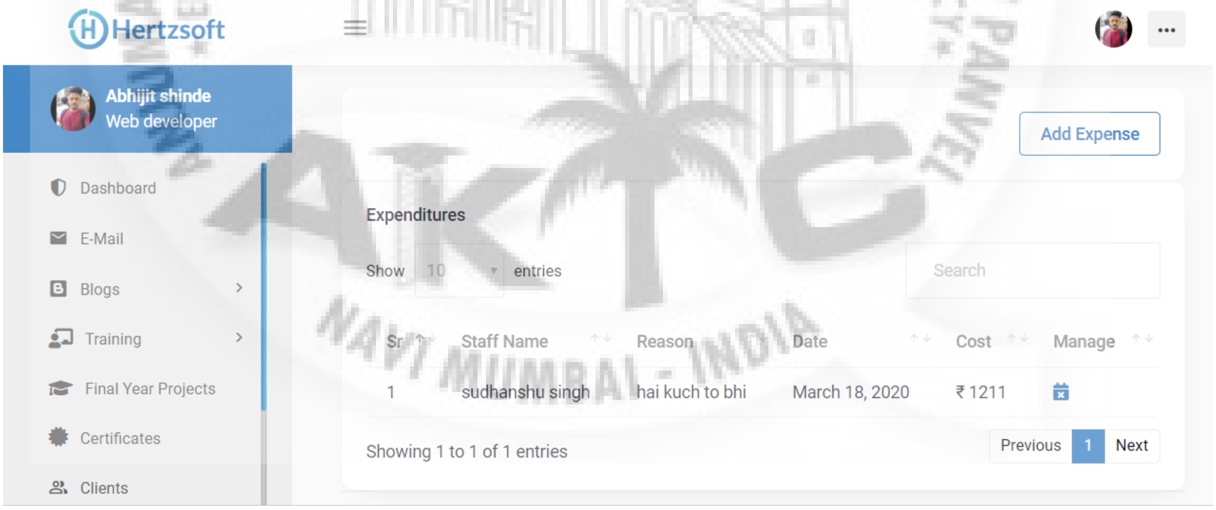


Figure 4.55: List of Expenses

4.10.3 Salary :

Organization must maintain the all record regarding the employee salary. In this section the salary slip generation is done and the record of each and every slip is maintained. This section have the salary generation form which has the fields like name of salary received , Amount, month of salary, payment by or salary by check boxes. This all data is submitted in to the database.

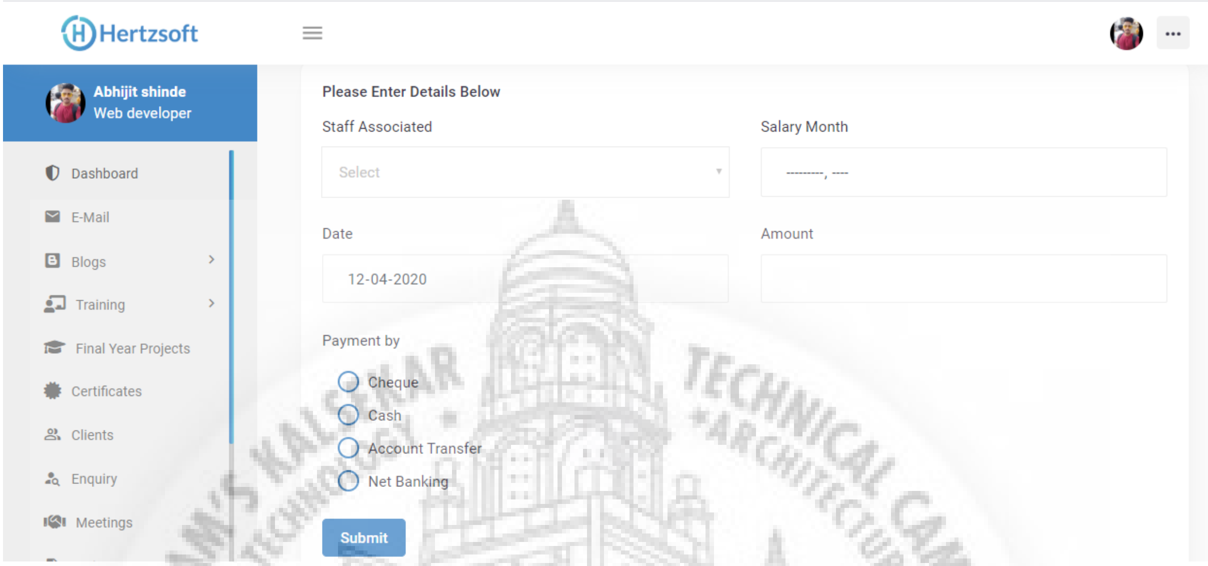


Figure 4.56: Generate Salary Slip

These data from the database is displayed in the table as an entry. We provide the view button to generate the slip which shows details regarding the staff who receiving the salary and the all his details like number of days he worked, leaves, basic salary, total salary, travelling allowance, special allowance, PF, income tax, prof tax all these details is calculated on the function on which the view button is click.

Figure 4.57: List of Salary Slips

The salary slip format is shown below.

HERTZSOFT TECHNOLOGIES PVT. LTD.

Room No. 14 Ground Floor, 15-B Siddika Manzil, Opp. Bombay Hotel, Nishanpada Road, Umerkhadi Cross Lane, Dongri, Mumbai: 400 009

Payslip for the month of March 2020

Name: Sudhanshu singh		
Designation: Web developer	**Joining Date:** Dec. 16, 1998	**Duration:** 01-Mar-2020 to 01-Apr-2020
Total Days: 11	**No of Days Worked:** 10	**Location:** Mumbai

SALARY STRUCTURE:			**DEDUCTIONS:**	
	Full	**Actual**		**Actual**
BASIC	909.1	1000		
DA	-	-		
VARIABLE ALLOWANCE	-	-	PF	0
C.L.A.	-	-	INCOME TAX	0
H.R.A.	-	-	PROF TAX	0
T.A.	-	-	LEAVES DEDUCTION	90.91
SPECIAL ALLOWANCE	-	-		
Gross Salary Rs:-	909.1	1000	Total Deduction Rs.: -	90.91
(By Cash) NET SALARY : - 909.1 IN RUPEES :- Nine Hundred and Nine Point One Only				

sudhanshu singh
Employee
I SAY RECEIVED

SAQIB GHATTE
Director

Figure 4.58: Salary Slip Format

4.10.4 Contract pay :

In contract pay there are the form which contain the staff name, task, amount, date and payment by this all data is store in to the database.

Retrieval of this data is done by the SQL query and this data is displayed in the table to the website also we provide the view button to display the contract pay slip and to take print out of it. On the view button click function is called in that function the calculation of the data like paid amount and arrears id to be done and at the final document is displayed.

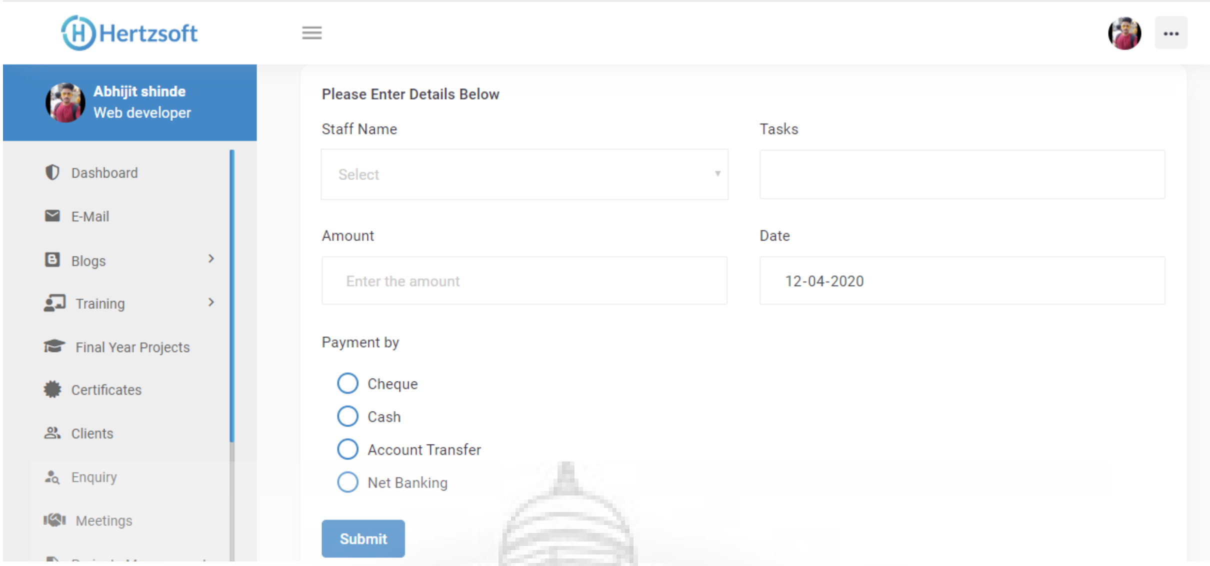


Figure 4.59: Add contract pay Form

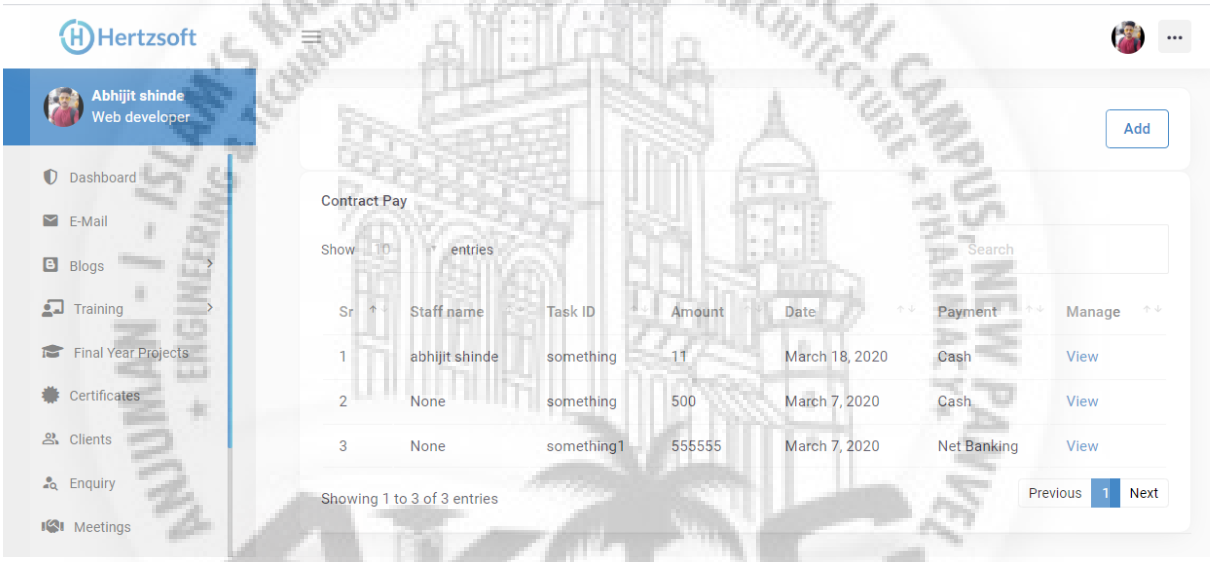


Figure 4.60: List of contract pay

4.10.5 Reports :

In this section, we hold all the records related to the payment that was incoming as well as outgoing for the company. Since from our company many bills get issued such as Invoice, Donations, Expense, Fee Receipt, Payment Receipt, Contract Pay and Salary. Now if we want to filter all the records related to individual receipts, this section is really useful for it.

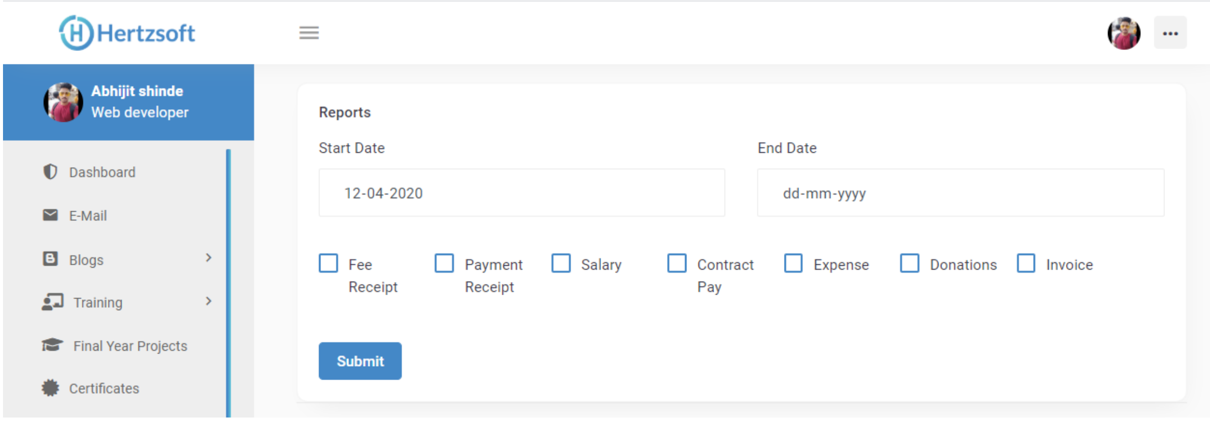


Figure 4.61: Form to View Reports

From above fig, we can see there are two input fields i.e. start date, and end date. Now lets say we need to find all the records between particular dates related to Invoice. For that, all we have to do is that enter the start date, end date and just click the checkbox labelled Invoice.

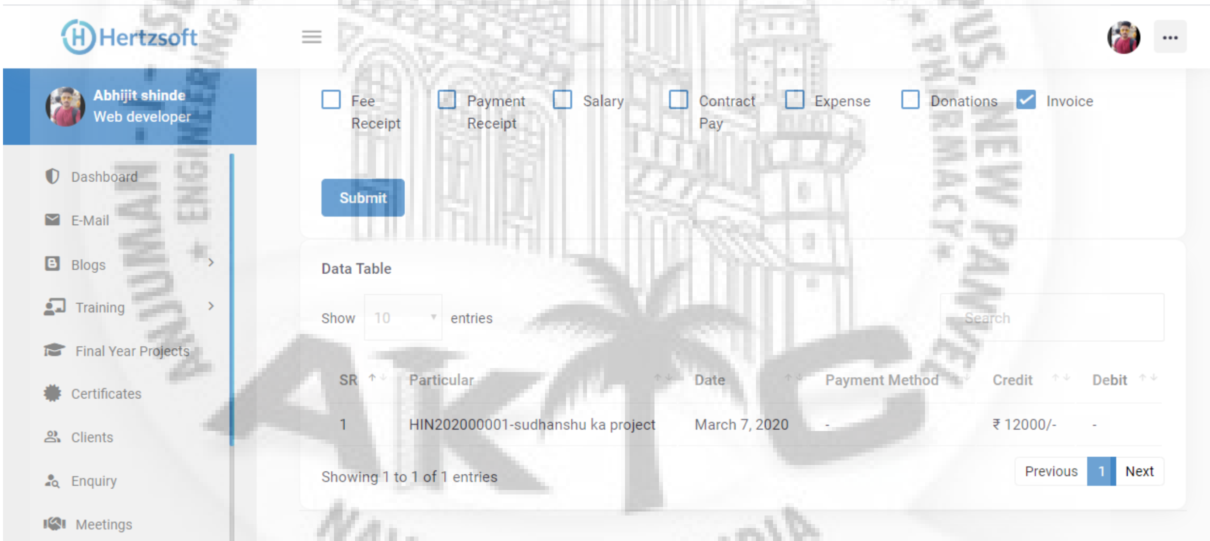


Figure 4.62: List of Reports

Once the form is submitted, then on the same page we will have all the payment record related to invoice. With the help of this, we can see all the payment done towards the company and through the company.

4.11 Domain Hosting

As the Hertzsoft provides web solutions hence for every project they provide domain and the hosting of the website but this is not free and this services are time limited hence all records is to be maintain correctly related to the due dates of domain and hosting

In our ERP system there is the section to record these details and form is use to add the data in the database which has the fields domain name, platform, type whether it is for domain or hosting, registration date and expiry date. All this data is stored in the database in the form of table.

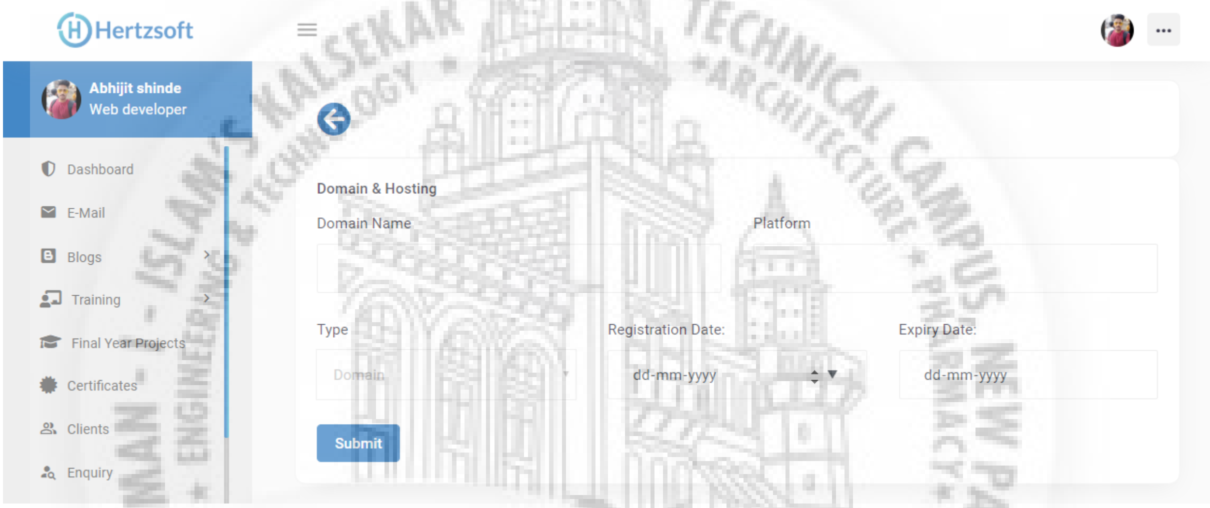


Figure 4.63: Add Domain Hosting Form

The retrieval of data from table in the database is done by the SQL query and this data is displayed in the table on the UI where the we put the remainder button to make sure the client received the message and email regarding the expiry date of services.

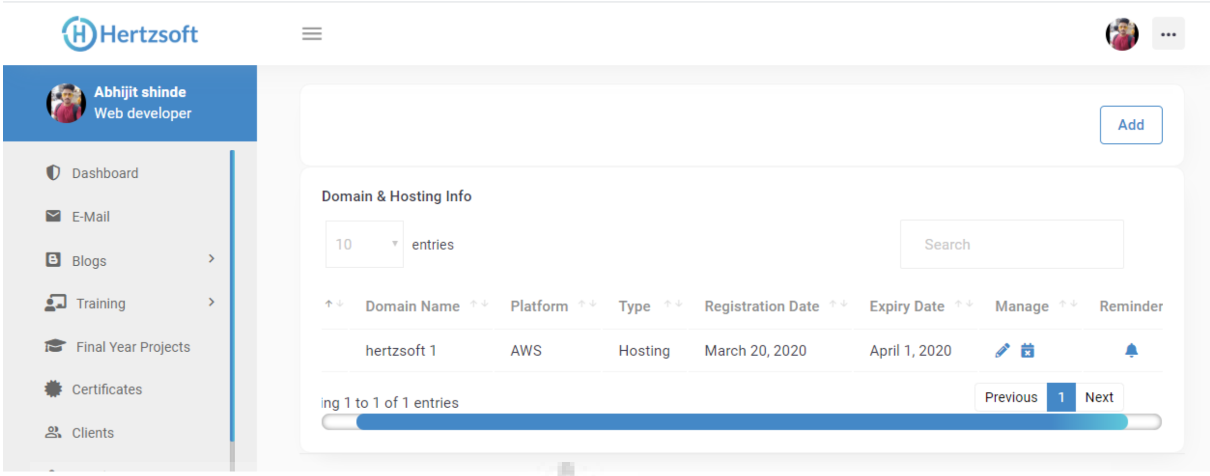


Figure 4.64: List of Domain Hosting

4.12 Marketing

Every organization has strategies to increase their business hence to maintain the records of every action made towards the successes and loss is to be identify.

In our ERP system there is section to maintain records of every marketing done by particular staff we consist of the form and table to maintain details where form has fields like associated person to marketing, type of marketing, expense for marketing, outreach number, details regarding the marketing and date of marketing all this data will save to the table in the database.

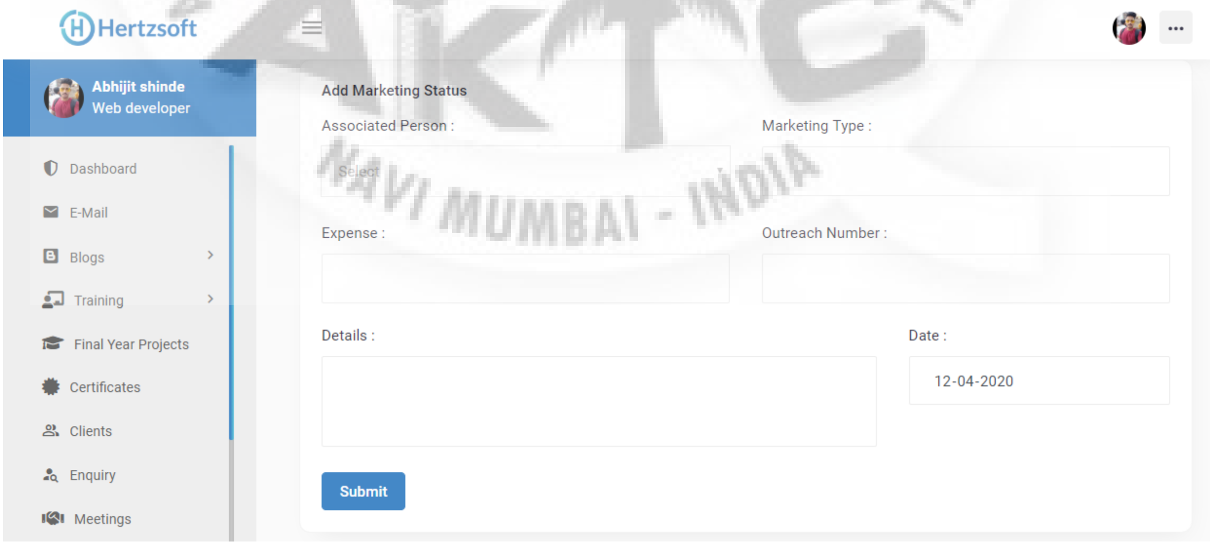


Figure 4.65: Add Marketing Form

The retrieval of this data from table in the database is done by the Query of SQL and this data is show in the table on the UI. Where we are provide the edit details and also delete the records buttons

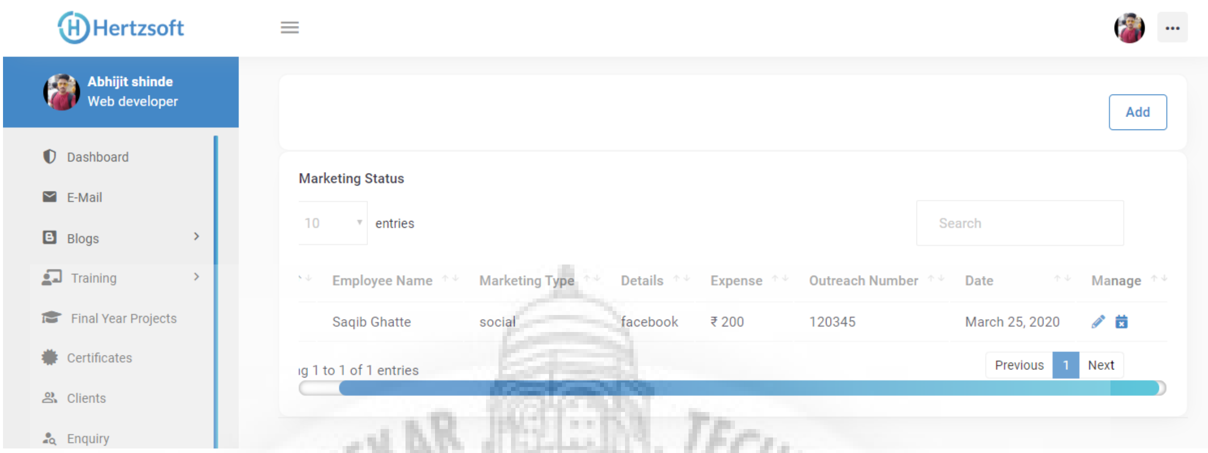


Figure 4.66: List of Marketing Entries

4.13 Research and Development

Every organization who is in the development sectors has the research and development department and all the records regarding each and every research and development is to be recorded. Hence we have one section to record these data is RD.

This section consist of form and the table. The form contains the fields like employee name, details, date and expense all this data is save to the table in the database.The data displayed in the table is done by the SQL query.

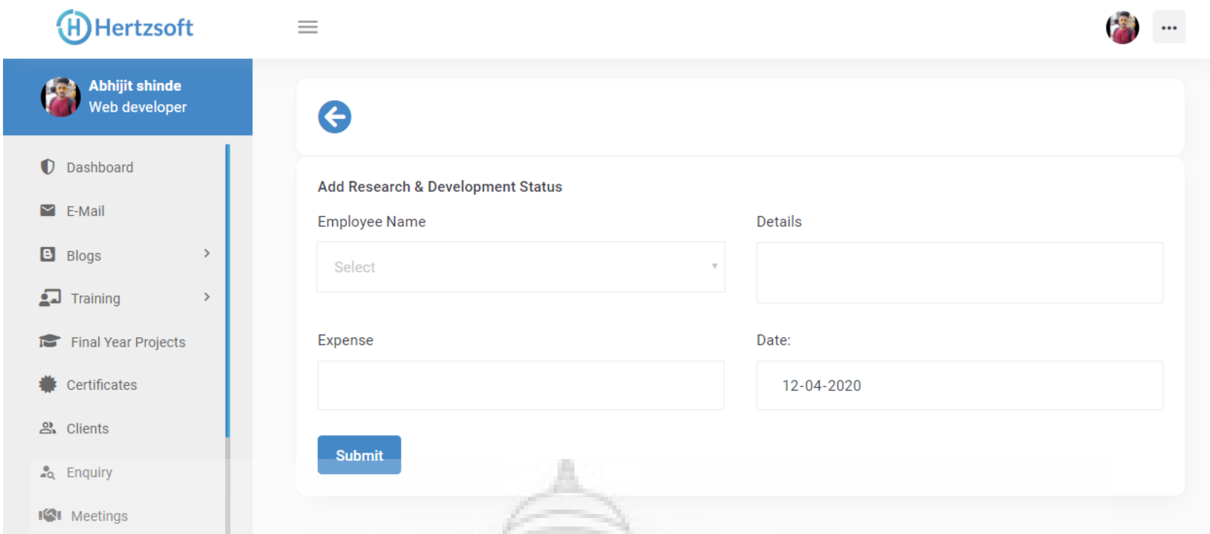


Figure 4.67: Add Research Development Form

Figure 4.68: List of Research Development Entries

Chapter 5

Marketing Plan for an ERP system

The landscape of Software-as-a-service industry saw drastic changes over years viz. origin of the 21st century. The boom of upgrading Technologies an industrial revolution in the software industry grew competitors across the globe. The software revolution emphasizes only on depth of growing skills and logic among the experts but not the complete model. Launching a SAAS product was an easy task but a complete protocol/planning of selling that service was never revised. The case that occurred with SAAS product such as ERP system was similar. The entrepreneurial hubs of developing ERP's were set up on the verge of few protem clients. But the growing competition and poor implication of an ERP system resulted in shut down of entrepreneurial companies. A complete model of implementation and marketing strategies to increase brand awareness for an ERP system is vital.

The entrepreneurs who jump into this industry of developing a SAAS product, only focus on its implementation stage. Most of the entrepreneurs startup company employees are with technical capabilities. Hence, it became very important for the company to hire marketing executives for creating brand awareness about their company to stand still in the competitive market.

The company has to plan accordingly, the pre-marketing and post-marketing strategies for branding before they end up getting not a single client.

5.1 Marketing for Brand advocacy

The marketing is very important for the startup company whose maximum source of profit comes through selling ERP. The marketing for an ERP startup company mainly focus on creating brand advocacy of the product. Making the company a brand is the only target.
Marketing focused on delivering value to the consumers and increasing the customer satisfaction rate through marketing for profit and interest groups. [16] The success rate of marketing corresponds to the different strategies planned.

5.2 Marketing strategies for an ERP system

Traditional marketing and Digital marketing are modern means of marketing techniques primarily used while marketing strategies are concerned. Generally, a proper SWOT analysis is prepared with the primary data available. The data is usually fetched through research including the competitor's information. The marketing strategy is also very important because it helps the vendor to focus only on the target audience. SWOT analysis answers the few questions which are subordinate to the product-ERP. What is the current market position for our developed ERP? [11] How it strongly holds the market? What would be its estimated ranking among the other competitors?
Marketing strategies also focus on what actually is served to the consumers and what they need? It corresponds towards the dominance of their preference from the product. The target audience, Customer relationships Sales processes are the Key indicators for marketing.[2] The ERP should be implemented on the basis of the preference, priority pricing of the consumers. The preference, priority pricing are the few factors which affect the overall performance in the market.

5.2.1 Factors affecting the marketing strategies

The market strategy is summarized with product development parameters. They are

1. Target Audience Market specific target to be achieved. 2. Cost Analysis on competitors profit margin selling price. 3. Marketing agents Marketing professionals to sell products. 4. Production limit/cost Depends upon the workforce and advance Technologies 5. Upgradation Specific, full dependency on time. 6. Ranking Market position to be achieved.

5.3 Branding through Traditional Marketing

Traditional marketing is nothing, but the conventional mode of marketing using offline marketing channels such as cold calls, Tele-calling, pamphlets, posters, etc. to reach out the semi-targeted audience. It is carried out for a specific audience throughout from generating campaign ideas up to selling a product or a service. Sometimes it is often referred to as the best suitable type of marketing as the direct interaction takes place. The client can get convinced to buy a SAAS such as ERP with intervention of Human marketing skills such as spoken words, pitch presentation and practical demonstration.
The service from the provider should speak the best. Happy clients spreading the word can easily help to generate consumers through making them aware that their connection is using our own product.

5.4 Branding through Social-media Marketing

Social media marketing is the type of digital marketing which involves traffic generation through social networking sites. Social networking sites for marketing creates a platform for every marketer to promote any SAAS product in a highly anticipated way. The people's engagement towards the product will correspond with no. of viewers. Are all the viewers defined as target audience? The viewers will be rectified from the target audience to limited leads based on Funnel theory of marketing.
The engagement of people to your post also involves customers which analyses other people's comments to determine the review of the product.

5.4.1 Branding through Facebook

Facebook is a low-cost marketing strategy with less than a fraction of cost. The ideal solution for running a small marketing campaign for every medium or small scale businesses with a limited budget plan. The networking site has observed tremendous growth over the year with more than one billion users. Every new product has a sure launch on Facebook due its features and versatility of using it. Every marketing agent will prefer promoting the product on Facebook due to its popularity. Marketing over Facebook can be achieved by creating a page of that product. The next assigned task would be to increase likes of the page. One can use the "Promote your Page" option which is readily available which lues a few bucks. The easiest way to increase the traffic is to ask the people and make them share it with their friends.. But again this is quite a lengthy process. Once your page reaches top insights, you do not need to be worried about the likes and popularity of the page. The regular updates and posts will show activeness and passion towards your business which again is effective in lead generation.
The business page does come with all marketing tactics that need to be used wisely as well as patiently. The Facebook business page provides a platform to set your business name, entity, address and availability. Hence it became an easy tool for the consumer to contact you for further queries.

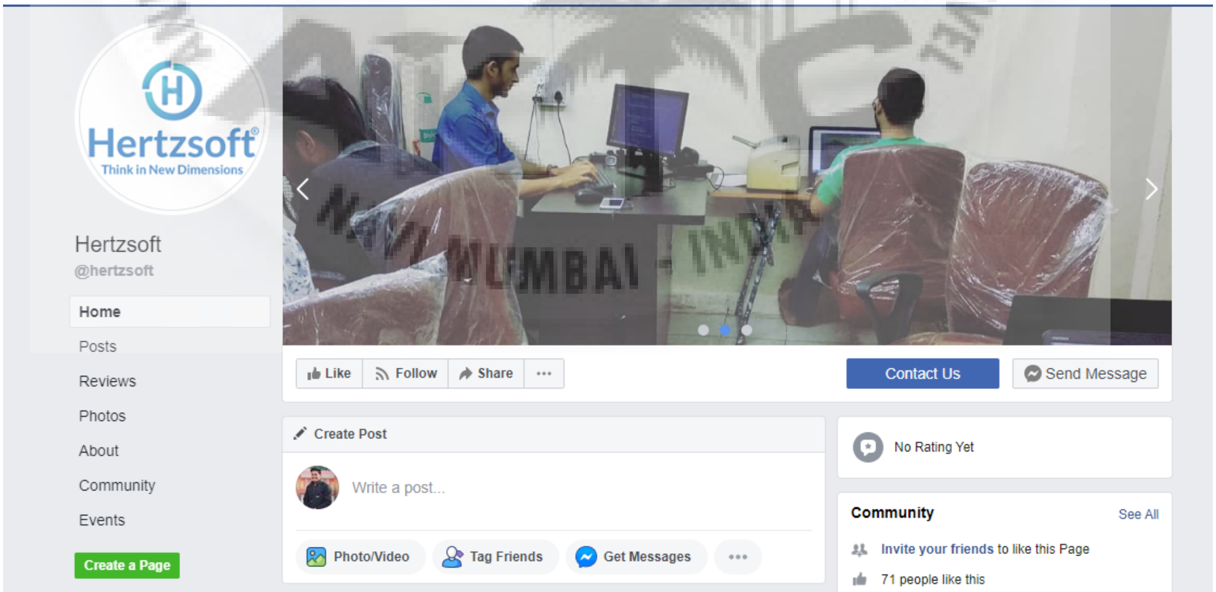


Figure 5.1: Branding through Facebook

5.4.2 Branding through Instagram

Instagram is a modern social networking site which started as a picture sharing platform. It has gained immense popularity within less time. With its growing popularity, the developers have launched new features which include feed, filters, stories, etc. The easy connectivity to Facebook, Tumblr, Foursquare makes one go platform to share your pictures. When marketing is concerned, it's again a way effective tool that can reach the target audience. Instagram also sources a platform where people can promote their business and can generate leads. The communication with customers can be easily achieved through Direct Feed.
The marketing through Instagram is facilitated through the developed visual environment where the users and company can hold conversation publicly and sell their products.

Figure 5.2: Branding through Instagram

5.4.3 Branding through Linkedin

Linkedin is another professional social employee-oriented service which can be wisely used to promote the product. Linkedin connects huge no. of professionals on a single platform and hence creating a page on Linkedin is very effective. Many Founders, CEO's use Linkedin to reflect their professional status. Hence for possibility, if they are looking for ERP vendor while surfing and dynamically choose your service.

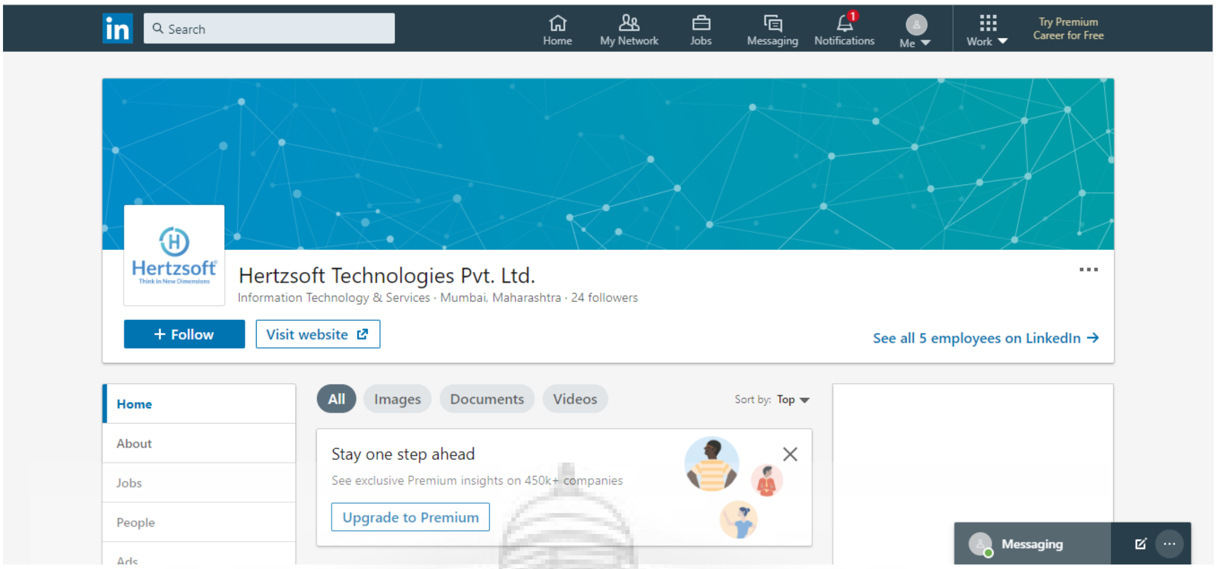


Figure 5.3: Branding through Linkedin

Chapter 6

Conclusion

In order to maintain multiple records for the organisation's members there is a need of such softwares. This makes more easier to access the details of the employee. Since this software is completely based on CRUD(Create, Read, Update, Delete) operations it doesn't takes much time to upload the content to the database. Hence its time efficient. Also these kind of software can be customize according to the requirement and in future development there is a possibility that accessing and maintaining the products is possible.

Chapter 7

Thesis Plagiarism Report

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Chapter 8

International Conference

Title of Conference : Convergence-2020

Venue of Conference : Poornima Institute Of Engineering Technology, Jaipur

Title of Paper I : Implementation and use of ERP System In Organization and Educational Institution

Author Names : Ghatte Saqib Nisar, Singh Sudhanshu Somnath, Shinde Abhijit Jagganath, Fakih Awab Habib

Paper Acceptance Date : 05-03-2020

Accepted : Springer AIS [ISSN: 2524-7565]

Date of Conference : 20th March, 2020

Mode of Presentation : Online

Title of Paper II : Design, Implementation Marketing of an ERP system.

Author Names : Ninad sail and Awab fakih

Paper Acceptance Date : 05-03-2020

Accepted : Scopus Indexed Publication

Date of Conference : 20th March, 2020

Mode of Presentation : Online

8.1 Abhijit and Sudhanshu's Paper Acceptance Letter

Reminder Regarding Registration for CONVERGENCE-2020
1 message

Convergence 2020 <convergence2020@easychair.org> Thu, 12 Mar, 2020 at 10:26 am
To: Sudhanshu Singh <sudhanshusingh334@gmail.com>

Dear Sudhanshu Singh,

!!Greetings from CONVERGENCE-2020!!

Your paper entitled Implementation and use of ERP System in Organization and Educational Institution. was accepted and recommended for publication.

We have decided to extend the deadline for submission for the copyright form, camera ready paper with registration details (e.g. Transaction ID). We hope that the additional time will allow those of you who could not make it in time to registration for the conference due to Holi vacations.

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4. Maximum 8 pages are allowed.

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For any queries contact:
icsis@poornima.org
icsec@poornima.org
icsie@poornima.org

Contact Details: 9694802324, 9983175627

Thanking you
Dr. Dinesh Goyal
(General Chair Convergence-2020)

8.2 Ninad's Acceptance Paper Letter

4/15/2020 Gmail - Congratulation for Paper Acceptance

Gmail **Ninad Sail <sailninad@gmail.com>**

Congratulation for Paper Acceptance
2 messages

Convergence 2020 <convergence2020@easychair.org> 5 March 2020 at 12:31
To: Ninad Sail <sailninad@gmail.com>

Dear Ninad Sail,
!!Greetings from ICSEC-2020!!
Thank you for submission of your paper in ICSEC-2020, publication partner Springer and Scopus/UGC Care Indexed Journals. We appreciate your contribution towards ICSEC-2020 scheduled on 20-21 March 2020 at Poornima Institute of Engineering & Technology, Jaipur
Your paper entitled Design, Implementation & Marketing of an ERP system was accepted and recommended for presentation in one of the followings Series/special issue of journals:
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For any queries contact
icsec@poornima.org

Thanking you
Dr. Dinesh Goyal
(General Chair ICSEC-2020)

Ninad Sail <sailninad@gmail.com> 15 March 2020 at 19:14
To: abhijit shinde <abhishinde703@gmail.com>

[Quoted text hidden]

8.3 Abhijit and Sudhanshu's Paper Plagiarism Report

Implementation and use of ERP System in Organization and Educational Institution

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Ninad 1

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Ghatte Saqib Nisar, [Room No. 14, Ground Floor, 15-B Siddika Manzil Umerkhadi X Lane, Opp: Bombay Hotel, Near DCB Bank Mohammed, Nishanpada Road, Mohammed, Umer Kokil Marg, Dongri, Mumbai, Maharashtra-400009],
Singh Sudhanshu Somnath, [C/004, Mohan Hieght's, Near Ganpati Mandir, Goveli Road, Opp. VJ Honda, Titwala(E), Maharashtra-421605],
Shinde Abhijit Jagganath[799, Tulja Bhavani Society, Near RTP High School, Dawadi Road, Dawadi Gaon, Dombivali(E), Maharashtra-421203].
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1

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The Corresponding Author signs this Agreement on behalf of any and all co-authors.

Signature of Corresponding Author: **Date:**

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Chapter 9

Internship

Role of Sudhanshu and Abhijit in Hertzsoft : We both joined Hertzsoft Technologies Pvt. Ltd. from 22nd of August, 2019. We joined this company as a web intern. First two months was our training period where we learned all the necessary skills for the completion of the project. The day we recieved this project, company assigned us to complete the whole project. We played a full-stack web developer role and successfully completed the project.

Role of Ninad in Spyn : I joined Spyn (Atzos Ventures Pvt. Ltd) from 14th Aug 2019. I joined this company as a Digital Marketing Intern and having area of specialization in Social Media Marketing (SMM), Content Writing, Search Engine Optimization (SEO), Google Adwords Copy writing. My duties towards the company was,

- To efficiently handle the social media accounts of the company and track the engagement of people on them.
- To plan the Social Media Calendar (SMC) for the sites and track the performance of the posts.
- To focus on new campaigns for Facebook Google Adwords to analyze how effective the ads can be written.
- To write the blogs that will generate the traffic for the website.
- To plan new strategies for generating organic traffic using SEO tactics.

9.1 Sudhanshu's Internship Offer Letter

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Room No. 14, Grnd Flr., Siddika Manzil
Umerkhadi X Lane, Opp: Bombay Hotel,
Near DCB Bank, Mohammed Umer
Kokil Marg, Dongri, Mumbai: 400 009

Dated: 19th August 2019

OFFER LETTER

MR. SINGH SUDHANSHU SOMNATH
Student, Electronics & Telecom. Department
SoET, Kalsekar Technical Campus, New Panvel,
Mumbai: 410 206

Sub: Offer Post of **Web Developer Intern** at Hertzsoft Technologies Pvt. Ltd.

Dear **Sudhanshu,**

With reference to application from Kalsekar Technical Campus, it is our pleasure to inform you that you are appointed as a Web Developer Intern in Hertzsoft Technologies Pvt. Ltd., Mumbai for a period of **SEVEN MONTHS** from 21st August 2019 to 20th March 2020. You may receive Travelling Allowance (T.A.) upto Rs. 1,000/- p.m. depending upon your performance as admissible under the rules and approval of the Board of Directors of Hertzsoft Technologies Pvt. Ltd.

You need to report office 4 days in a week i.e. Wednesday, Thursday, Friday & Saturday. Moreover, you need to compensate on other days if you are unable to attend within these 4 days due to any reasons.

You will get training in various Front End and Back End Technologies during your first month. Later you will be requested to work on a live industry project in your remaining internship period, which shall be completed within the specified time.

Yours truly,

HERTZSOFT TECHNOLOGIES PVT. LTD.

SAQIB GHATTE
Director
Hertzsoft Technologies Pvt. Ltd.

Accepted & Agreed

+91 8657 2427 57 www.hertzsoft.com contact@hertzsoft.com

9.2 Abhijit's Internship Offer Letter

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Room No. 14, Grnd Flr., Siddika Manzil
Umerkhadi X Lane, Opp: Bombay Hotel,
Near DCB Bank, Mohammed Umer
Kokil Marg, Dongri, Mumbai: 400 009

Dated: 19th August 2019

OFFER LETTER

MR. ABHIJIT SHINDE
Student, Electronics & Telecom. Department
SoET, Kalsekar Technical Campus, New Panvel,
Mumbai: 410 206

Sub: Offer Post of **Web Developer Intern** at Hertzsoft Technologies Pvt. Ltd.

Dear **Abhijit,**

With reference to application from Kalsekar Technical Campus, it is our pleasure to inform you that you are appointed as a Web Developer Intern in Hertzsoft Technologies Pvt. Ltd., Mumbai for a period of **SEVEN MONTHS** from 21st August 2019 to 20th March 2020. You may receive Travelling Allowance (T.A.) upto Rs. 1,000/- p.m. depending upon your performance as admissible under the rules and approval of the Board of Directors of Hertzsoft Technologies Pvt. Ltd.

You need to report office 4 days in a week i.e. Wednesday, Thursday, Friday & Saturday. Moreover, you need to compensate on other days if you are unable to attend within these 4 days due to any reasons.

You will get training in various Front End and Back End Technologies during your first month. Later you will be requested to work on a live industry project in your remaining internship period, which shall be completed within the specified time.

Yours truly,

HERTZSOFT TECHNOLOGIES PVT. LTD.

SAQIB GHATTE
Director
Hertzsoft Technologies Pvt. Ltd.

Abhijit
Accepted & Agreed

+91 8657 2427 57 www.hertzsoft.com contact@hertzsoft.com

9.3 Ninad's Internship Offer Letter

spynPRO
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Internship Agreement

14 August, 2019

Sub: ***Offer of internship***

Dear **Ninad Sail**,

On behalf of Atzos Ventures Pvt Ltd and team Spyn, I am pleased to confirm our offer of internship. We extend this offer, and the opportunity it represents, with great confidence in your abilities. This offer is conditional upon (i) satisfactory reference check of all qualifications (ii) the acceptance of the terms & conditions of your assignments as set forth below.

Position: **Digital Marketing Intern**
Reporting and assignment: You will be reporting to *Sudarshan Karnavat*, Co-Founder
Date of Internship commencement: **16 Aug 2019**
Duration: **6 months**
Stipend: **Rs.2000.00** per month

Our values

Energy	Be proactive. Be cheerful. Go all in.
Passion	Work with passion. Get guaranteed satisfaction. Keep stress away.
Creativity	Your creative juices can change the world. Let them out.
Integrity	In Sports and in Spyn, rules are not meant to be broken. Be a Sport.
Determination	It ain't over until it's over. Keep at it. Own it.
Fun	The underlying principle of any sport. And of life.

Terms and conditions:
Your Internship with us will be governed by our Terms and Conditions as detailed in ***Annexure B***. At the time of joining, it is mandatory for you to submit the documents mentioned in the acceptance agreement.

Ninad, we wish you all the best and hope you will achieve your learning goals with Atzos Ventures Pvt. Ltd.

Sincerely,
For Atzos Ventures Pvt. Ltd.

Authorized Signatory

spynPRO is a brand of Atzos Ventures Pvt Ltd
CIN U74900MH2015PTC264123

Plot 84-85 Sector 8A CBD Navi Mumbai 400614
+91 22 2757 9099 info@spyn.co

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Codes

To See the programming codes regarding the project scan the QR code mention below.

Figure 9.1: Project Codes