BENGALURU NORTH UNIVERSITY

Sri Devaraj Urs Extension, Tamaka, Kolar – 563103,
Karnataka, India

A Project Based on

"PORTFOLIO MANAGEMENT"

Submitted for the partial fulfilment of the required for the award of degree of

BACHELOR OF SCIENCE

Submitted By

Mr SHAKTHI PRAKASH C [S1910140]

Under the Guidance of

Mr. Mohammed Kafeel

Project Internal Guide

Department of Computer science

GOVERNMENT FIRST GRADE COLLEGE

ESTD : 1948

KOLAR – 563101 KARNATAKA

GOVERNMENT FIRST GRADE COLLEGE

Kolar – 563101

DEPARTMENT OF COMPUTER SCIENCE

CERTIFICATE

This is certified that the project titled **“PORTFOLIO MANAGEMENT”** is an original work of Mr. **SHAKTHI PRAKASH C [S1910140]** and is being submitted in partial fulfilment for the award of the **BACHELORE OF SCIENCE** of requirement of a course of study or published / presented for any other purpose is to **Bengaluru North University, Government First Grade college,** and **Kolar – 563101.** This report or part of this report has not been submitted earlier either to this university or to any other university / institution for the fulfilment of the requirement of a course of study or published / presented for any other purpose.

Signature of the guide   Signature of Principal   Signature of HOD

Submitted for the viva-voice held on______________ at Government First Grade College, Kolar.

External Examiner

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I am very grateful to GOD **Adi Shakthi** who helped me all the way and who motivated me into what I am today.

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I also express my sincere thanks to all faculties who helped me during this project, Department of Computer Science, Government First Grade College, Kolar – 563101, for valuable guidance and timely suggestion at every stage of this project. This acknowledge would be incomplete without expressing my whole hearted thanks to my parents who motivated me during the tenure of the study for inspiration and encouragement throughout this project.

Mr. SHAKTHI PRAKASH C [S1910140]

ABSTRACT

The project entitled "PORTFOLIO MANAGEMENT" has been developed by using HTML, CSS, JAVASCRIPT as front-end and PHP, MySQL as back-end.

The main aim of this software is to overcome all the limitations of existing system. The system provides proper security and reduces the manual work.

To maintain the data of all active and inactive employees requires a significant amount of time if we do it without software. Every organization has their own Portfolio Management in order to perform the internal and external human resource activities.

The main function of Company Management is to recruit, manage and store the employee data which includes their personal information including their job roles, job streams, projects allotted, salaries and many more which allows them to face huge workload. In order to support the Management, there are some electronic based systems called Portfolio Management System.

Organizations should maintain [PMS] Portfolio Management System software with a huge number of client server applications, service providers as well as control tools. But this application is cost effective one that allows them to manage their employee's data in a simple manner.

DECLARATION

I am **SHAKTHI PRAKASH C** student of 6th semester **Bachelor of science [BSC]** at **Government First Grade College** of **Bangalore North University,** Kolar. Hereby declare that the project work entitled “**PORTFOLIO MANAGEMENT”** has been carried out by us, and submitted in partial fulfilment of the course requirements for the award of degree in BSC during the year **2021-22.** We further declare that the report has not been submitted to any other university for the award of any other degree.

Date: **Signature of the Candidate**

Place:

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INTRODUCTION

CHAPTER 1

INTRODUCTION

The "PORTFOLIO MANAGEMENT" is a suite of software that processes to ensure the easy management of portfolio, business processes and data. To maintain the data of all active and inactive employees requires a significant amount of time if we do it without software. Every organization has their own Portfolio Management in order to perform the internal and external human resource activities.

The main function of Manager or HR is to recruit, manage and store the employee data which includes their personal information including their job roles, job streams, departments, designations, projects allotted, salaries and many more which allows them to face huge workload. In order to support the company, there are some electronic based Portfolio Management called Portfolio Management System. Organizations should maintain Portfolio management software with a huge number of client server applications, service providers as well as control tools. The Portfolio Management Systems put information about a company's most valuable assets in front of the people who need them.

1.1 Objective of The Project

Portfolio Management is a function in every organization which is designed to increase employee performance in aligning with employer's strategic objectives. Primarily focused on how people are managed within organizations, human resource management is driven by systems and policies. The objectives of the HRM span right from the manpower needs assessment to management and retention of the same.

A good PMS can certainly enable the HR team to execute these plans swiftly and effectively. One of the important activities done by the HR department and company is maintaining accurate information about the employees. Some of the critical pieces of data that need to be maintained very effectively.

1.2 Scope of The Project

Portfolios and Human resources are undoubtedly the key resources in an organization, to this effect Portfolio management is responsible for effective designing and implementation of various policies, procedures and programs. It is all about developing and managing knowledge, skills, creativity, aptitude and talent and using them optimally.

Portfolio Management is not just limited to manage and optimally exploit human intellect. It also focuses on managing physical and emotional capital of employees. It covers but is not limited to HR planning, hiring (recruitment and selection), training and development, payroll management, rewards and recognitions, Industrial relations, grievance handling, legal procedures etc.

1.3 Language used

1.3.1 HTML:

The HyperText Markup Language or HTML is the standard Markup language for documents designed to be displayed in a web browser. It allows the creation and structure of sections, paragraphs, and links using HTML elements (the building blocks of a web page) such as tags and attributes.

1.3.2 CSS:

Cascading Style Sheets or CSS was developed by W3C (World Wide Web Consortium) is a style sheet language used for describing the presentation of a document written in a Markup language such as HTML. CSS is a cornerstone technology of the World Wide Web.

1.3.3 JAVASCRIPT:

JavaScript is a programming language that is one of the core technologies of the World Wide Web, alongside HTML and CSS. JavaScript is a prototype-based, multi-paradigm, single-threaded, dynamic language, supporting object-oriented, imperative and declarative styles.

1.3.4 BOOTSTRAP:

Bootstrap is a open-source front-end framework tool collection for creating responsive mobile-first websites and web applications. Bootstrap provides a collection of HTML and CSS based design templates for typography, forms, buttons, tables, navigation, modals, image carousels and many more.

1.3.5 PHP:

PHP is a server scripting language, and a powerful tool for making dynamic and interactive Web pages with databases. PHP originally stood for Personal Home Page, but now it stands for Hypertext Preprocessor. PHP is integrated with a number of databases.

1.3.6 MYSQL:

MySQL is an open-source relational database management system (RDBMS). MySQL works with an operating system to implement a relational database in a computer’s storage system, manages users, allows for network access and facilitates testing database integrity and creation of backups.

CHAPTER 2

LITERATURE SURVEY

2.1 Introduction

Information technology and systems has revolutionized the way businesses function and operate and has attracted interest of many researchers to investigate the resultant impact and outcomes. An information system is a unified set of techniques and methods to deliver information support for business decisions. Information comprises of relevant facts that have been treated so that they are of utility.

It adds value to the representation of ideas to existing business processes. It revises, upgrades, and ratifies information databases. It provides for the accumulation by gathering, processing by deleting extraneous information, deciding among divergent information and putting the information in a logical arrangement that promotes its understanding. Contemporary organizations depend on computer-assisted information systems in all functional domains.

Portfolio Management is also an information technology-oriented system, which is engaged by many organizations to carry out their internal processes by allocating substantial resources. In order to carry out an extensive research exercise on the subject the researcher first conducted an in-depth analysis of concepts and definitions that are embraced within the notion of Portfolio Management.

2.2 Overview

Human resources metrics, or tracking workforce data, is central to effective PMS. Several data is mandated to be maintained according to the law of the IT, while other data is helpful to delivering efficient services to employees and determining HR staffers' abilities to meet the needs of the workforce.

These days, human resources and PMO departments are collecting and storing vast amounts of employee-related data on account of legal obligations as well as a strategic input to business decisions. From turnover rates and workforce characteristics to payroll and employment history, HR database is rich with a plethora of employee relevant information. Such information plays a strategic role in identifying existing skill deficits, hiring new talent, and measure performance. Portfolio Management is the tools which all isolated system in one integrated system. Organization has to recognize that PMS is the system, which will challenge the currently used operating structures and HR related process. PMS helps in making changes in present environment and integrates the same into cluster of related system under one umbrella.

SYSTEM ANALYSIS

CHAPTER 3

SYSTEM ANALYSIS

3.1 Introduction

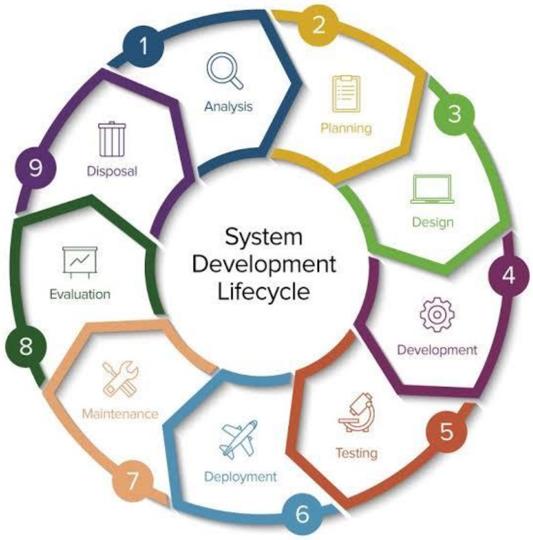


Fig 3.0.1: Software Development Life Cycle

➢ Modeling

During the evaluation and solution synthesis activity, the analyst creates models of the system in an effort to better understand data and control flow. The model serves as foundation for software design and as the basis for this creation of specification for the software. For the better understanding of data and control we use data flow diagram.

➢ Waterfall Model

The Waterfall Model was the first Process Model to be introduced. It is also referred to as a linear-sequential life cycle model. It is very simple to understand and use. In a waterfall model, each phase must be completed before the next phase can begin and there is no overlapping in the phases.

The Waterfall model is the earliest SDLC approach that was used for software development.

The waterfall Model illustrates the software development process in a linear sequential flow. This means that any phase in the development process begins only if the previous phase is complete. In this waterfall model, the phases do not overlap.

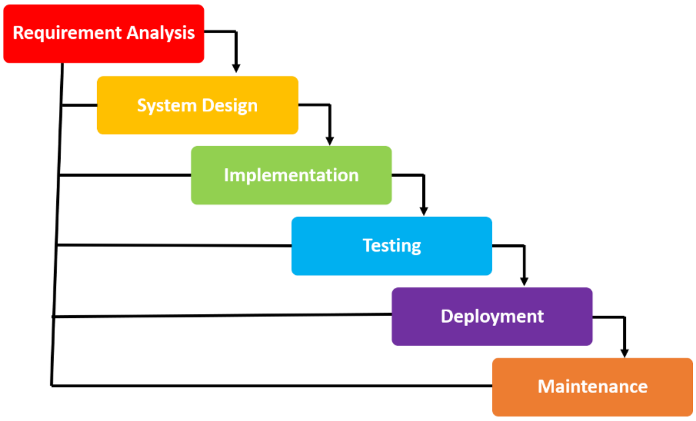


Fig 3.0.2: Waterfall Model

Stage 1: Requirement phase

All possible requirements of the system to be developed are captured in this phase and documented in a requirement specification document.

Stage 2: System Design phase

The requirement specifications from first phase are studied in this phase and the system design is prepared. This system design helps in specifying hardware and system requirements und helps in defining the overall system architecture.

Stage 3: Implementation phase

With inputs from the system design, the system is first developed in small programs called units, which are integrated in the next phase. Each unit is developed and tested for its functionality, which is referred to as Unit Testing.

Stage 4: Integration and Testing phase

All the units developed in the implementation phase are integrated into a system after testing of each unit. Post integration the entire system is tested for any faults and failures.

Stage 5: Deployment of system phase

Once the functional and non-functional testing is done, the product is deployed in the customer environment or released into the market.

Stage 6: Maintenance phase

The cycle of the software development does not end with handling the software to the client. Software designers may have to constantly provide support to the client to resolve any issues which may arise. During the maintenance phase, support and debugging is provided for all such problems.

3.2. Requirements of New System

3.2.1 User Requirements

User requirements include minor details, but most importantly users must be aware that the system works properly with full availability, reliability, security and safety. The user responsibility is as follows: User should know how to use the application and should adhere to the guidelines and prescribed standards.

3.2.2 System Requirements

Functional Requirements

- Authentication
- Process data
- User roll check
- Management of events

Non-Functional Requirements

- **Usability**

  The UI of the Crest PMS should be user friendly so that users can navigate easily through it. As the user experience best interface, then the interaction time will be increased with the company.

- **Accuracy**

  As we were developing the application, we must make the system that is very accurate in its functions. All the data should keep working properly, keep getting perfect input, process accurately and produce the perfect output. Accuracy is the most important non-functional characteristic or requirement of the system.

- **Reliability**

  Error handling mechanism must be robust to avoid failure of operation and in case of failure the app reports it to the user without any due harm. The error control mechanism stops the errors from crashing and maintains the data very effectively.

- **Performance**

  Once the application starts, the user application should complete all tasks without errors. As the performance increased, the user reliability increases. To give the best performance we always keep our software's updated, and maintained very carefully.

3.3 Existing system

The HR Administration falls short of controlling the employee's activities in in analysing his/her strengths and weakness. The decision for appraisal of assigning next project to the employee or to train him/her to enhance the skills – where lies with proper projection. He is not provided with the detailed project information done or to be assigned based on Application / Verticals.

Need of extra manual effort. It used to take much time to find any employee Not very much accurate. Danger of losing the files in some cases. As there is a high amount of register in which information is stored consume a lot of space in the organisation while retrieving any information from that many files consume huge time and it is not easy process.

3.4 Proposed system

Decision in assigning proper skilful hands for the project is an important issue in HR Module. The HR Administrator should report with the personal holding the necessary skills required for the project assignment. The decision in making analysis about the employee's skills is a prime important before booting in. The proposed system of HR Module is the right software to be incorporated into the Automation of HR Software for helping the organization needs with respect to skilful Human Resource.

The proposed system provides detail general information about the employee along with Educational, Certification, Skill and Project details. It enhances the HR Management in adding, viewing and updating employees' details and generates various reports regarding employee's skill and experience. Suggestions and Grievances posted by the employees are upheld for taking care of the necessary steps in forwarding company's obligation.

Advantages of proposed system

- Very fast and accurate
- User friendly
- No fever of data loss
- Quick response.
- Make work easier
- Move towards paperless system.

3.5 Feasibility Study

Whatever we think need not be feasible. It is wise to think about the feasibility of any problem we undertake. Feasibility is the study of impact, which happens in the organization by the development of the system the impact, can be either positive or negative. When the positives nominate the negatives, then the system is considered feasible. Here the feasibility study can be performed in two ways such as technical feasibility and economic feasibility.

Once the problem is clearly understood, the next step is to conduct feasibility study, which is high-level capsule version of the entered systems and design process. The objective is to determine whether or not the proposed system is feasible. The three tests of feasibility have been carried out.

3.5.1 Technical Feasibility:

We can strongly say's that it is technically feasible, since there will not be much difficulty in petting required resources for the development and maintaining the system as well All the resources for the development of the software as well as the maintenance of the same is available in the organization here we are utilizing the resources which are available already.

In Technical Feasibility study, one has to test Whether the proposed system can be developed using existing technology or not. It is planned to implement the proposed system using java technology. It is evident that the necessary hardware and software are available for development and implementation of the proposed system. Hence, the solution is technically feasible.

3.5.2 Economical Feasibility:

Development of this application is highly economically feasible. The organization needed not spent much on one for the development of the system already available. The only thing is to be done is making an environment for the development with an effective supervision. If we are doing so, we can attain the maximum usability of the corresponding resources. Even after the development, the organization will not be in a condition to invest more in the organization. Therefore, the system is economically feasible.

As part of this, the costs and benefits associated with the proposed system compared and the project is economically feasible only if tangible or intangible benefits outweigh costs. The system development costs will be significant. So, the proposed system is economically feasible

3.5.3 Operational Feasibility:

It is a standard that ensures interoperability Without stifling competition and innovation among users, to the benefit of the public both in terms of cost and service quality. The proposed system is acceptable to users. So, the proposed system is operationally feasible.

3.5.4 Time Schedule Feasibility:

A time feasibility study will consider the period in which the project is going to take up to its completion. The project involved to be developed consists of total four different modules hence it is quite tedious to manage but considering that there are sufficient human resources available, it is feasible to develop the application in the allotted duration. And if the requirement changes, according to it duration will be changed.

CHAPTER 4

SYSTEM REQUIREMENTS

4.1 HARWARE REQUIREMENTS:

Processor	Intel Core i5 or above
RAM	4GB or Above
Hard disk	16GB or Above
Monitor	LED/LCD/AMOLED
Key Board	108 Keys Standard Keyboard

4.2 SOFTWARE REQUIREMENTS:

Operating System	Windows 7, and higher versions
Front End	HTML, CSS, JAVASCRIPT, PHP
Back End	PHP, MySQL
IDE	Visual Studio Code or any text editors

SYSTEM DESIGN

CHAPTER 5

SYSTEM DESIGN

5.1 System Architecture Design

Systems design is the process of defining the architecture, modules, interfaces, and data for a system to satisfy specified requirements. Systems design could be seen as the application of systems theory to product development. There is some overlap with the disciplines of systems analysis, systems architecture and systems engineering.

5.1.1 Architectural Design

The architectural design of a system emphasizes the design of the systems architecture that describes the structure, behaviour and more views of that system and analysis.

5.1.2 Logical Design

The logical design of a system pertains to an abstract representation of the data flows, inputs and outputs of the system. This is often conducted via modelling, using an over-abstract (and sometimes graphical) model of the actual system. In the context of systems, designs are included.

5.1.3 Physical Design

The physical design relates to the actual input and output processes of the system. This is explained in terms of how data is input into a system, how it is verified/authenticated, how it is processed, and how it is displayed.

Data Design is concerned with how the data is represented and stored within the system. Finally, Process Design is concerned with how data moves through the system, and with how and where it is validated, secured and/or transformed as it flows into, through and out of the system.

5.2 UNIFIED MODELING LANGUAGE

UML is the international standard notation for object-oriented analysis and design. The model abstracts the essential details of the underlying problem from its usually complicated real world. Several Modeling tools are wrapped under the heading of the **UML**™.

5.2.1 AN OVERVIEW OF UML:

The UML is a language for

- Visualizing
- Specifying
- Constructing
- Documenting

5.2.2 BASIC BUILDING BLOCKS OF THE UML:

The vocabulary of UML encompasses three kinds of building blocks:

- Things
- Relationships
- Diagrams

5.2.3 THINGS IN THE UML:

They are the abstractions that are first-class citizens in a model. There are four kinds of things in the UML

1. Structural things
2. Behavioural things.
3. Grouping things.
4. Annotation things.

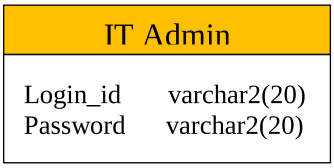
These things are the basic object-oriented building blocks of the UML. They are used to write well-formed models.

5.3 STRUCTURAL THINGS:

Structural things are the nouns of the UML models. These are mostly static parts of the model, representing elements that are either conceptual or physical. In all, there are seven kinds of Structural things.

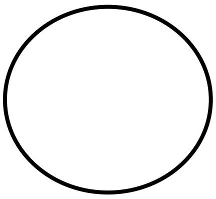
1. Class:

A class is a description of a set of objects that share the same attributes, operations, relationships, and semantics. A class implements one or more interfaces. Graphically a class is rendered as a rectangle, usually including its name, attributes and operations, as shown below.



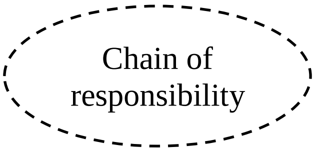
2. Interface:

An interface is a collection of operations that specify a service of a class or component. Graphically the interface is rendered as a circle together with its name.



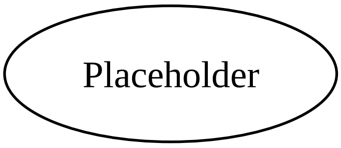
3. Collaboration

Collaboration defines an interaction and is a society of roles and other elements that work together to provide some cooperative behaviour that’s bigger than the sum of all the elements. Graphically, collaboration is rendered as an ellipse with dashed lines, usually including only its name.



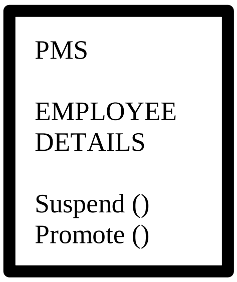
4. Use Case:

Use case is a description of a set of sequence of actions that a system performs that yields an observable result of value to a particular thing in a model. Graphically, Use Case is rendered as an ellipse with dashed lines, usually including only its name as shown below.



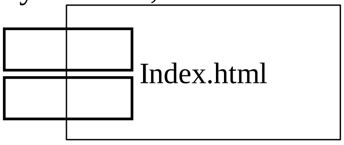
5. Active Class:

An active class is a class whose objects own one or more processes or threads and therefore can initiate control activity. Graphically, an active class is rendered just like a class, but with heavy lines usually including its name, attributes and operations as shown below.



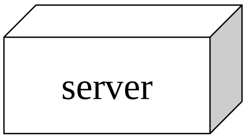
6. Component:

Component is a physical and replaceable part of a system that conforms to and provides the realization of a set of interfaces. Graphically, a component is rendered as a rectangle with tabs, usually including only its name, as shown below.



7. Node:

A Node is a physical element that exists at run time and represents a computational resource, generally having at least some memory and often, processing capability. Graphically, a node is rendered as a cube, usually including only its name, as shown in the figure.

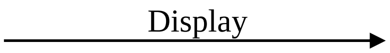


5.4 BEHAVIORAL THINGS:

Behavioural Things are the dynamic parts of UML models. These are the verbs of a model, representing behaviour over time and space.

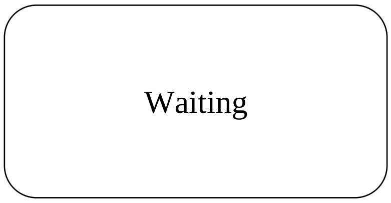
Interaction:

An interaction is a behaviour that comprises a set of messages exchanged among a set of objects within a particular context to accomplish a specific purpose. Graphically, a message is rendered as a direct line, almost always including the name if its operation.



State Machine:

A state machine is a behaviour that specifies the sequence of states an object are an interaction goes through during its lifetime on response to events, together with its responses to those events. Graphically, a state is rendered as a rounded rectangle usually including its name and its sub-states, if any, as shown below.



GROUPING THINGS:

Grouping things are the organizational parts of the UML models. These are the boxes into which a model can be decomposed.

5.5 DIAGRAMS IN UML:

Diagrams play a very important role in the UML. There are nine kind of modeling diagrams as follows:

5.5.1 CLASS DIAGRAM:

Class diagrams are the most common diagrams found in Modeling object-oriented systems. A class diagram shows a set of classes, interfaces, and collaborations and their relationships. Graphically, a class diagram is a collection of vertices and arcs.

5.5.2 USE CASES DIAGRAM:

Use Case diagrams are one of the five diagrams in the UML for modeling the dynamic aspects of systems (activity diagrams, sequence diagrams, state chart diagrams and collaboration diagrams are the four other kinds of diagrams in the UML for modeling the dynamic aspects of systems.

5.5.3 INTERACTION DIAGRAMS

An Interaction diagram shows an interaction, consisting of a set of objects and their relationships, including the messages that may be dispatched among them. Interaction diagrams are used for modeling the dynamic aspects of the system.

A sequence diagram is an interaction diagram that emphasizes the time ordering of the messages. Graphically, a sequence diagram is a table that shows objects arranged along the X-axis and messages, ordered in increasing time, along the Y-axis and messages, ordered in increasing time, along the Y-axis.

5.5.4 SEQUENCE DIAGRAMS:

A sequence diagram is an interaction diagram that emphasizes the time ordering of the messages. Graphically, a sequence diagram is a table that shows objects arranged along the X-axis and messages, ordered in increasing time, along the Y-axis.

Sequence diagrams have two interesting features:

- **ACTIVITY DIAGRAM**

  An Activity Diagram is essentially a flow chart showing flow of control from activity to activity. They are used to model the dynamic aspects of as system.

- **STATE CHART DIAGRAMS**

  A state chart diagram shows a state machine. State chart diagrams are used to model the dynamic aspects of the system.

5.6 Data Flow Diagrams:

Data Flow Diagrams (DFD): A Data Flow Diagram (DFD) is a diagram that describes the flow of data and the processes that change data throughout a system. It's a structured analysis and design tool that can be used for flowcharting in place of or in association with information. Oriented and process-oriented system flowcharts. When analysts prepare the Data Flow Diagram, they specify the user needs at a level of detail that virtually determines the information flow into and out of the system and the required data resources.

This network is constructed by using a set of symbols that do not imply physical implementations. The Data Flow Diagram reviews the current physical system, prepares input and output specification, specifies the implementation plan etc... Four basic symbols are used to construct data flow diagrams. They are symbols that represent data source, data flows and transformations and data storage. The points at which data are transformed are represented by enclosed figures, usually circles, which are called nodes.

5.6.1 Context Diagram:

The top-level diagram is often called a “*context diagram”*. It contains a single process, but it plays a very important role in studying the current system. The context diagram defines the system that will be studied in the sense that it determines the boundaries. Anything that is not inside the process identified in the context diagram will not be part of the system study. It represents the entire software element as a single bubble with input and output data indicated by incoming and outgoing arrows respectively.

5.6.2 Types of Data Flow Diagrams:

Data Flow Diagrams are of two types as follows:

(a) Physical DFD
(b) Logical DFD

1. PHYSICAL DFD:

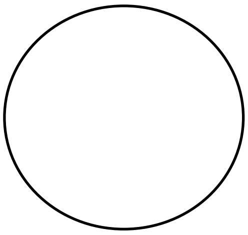
Structured analysis states that the current system should be first understand correctly. The physical DFD is the model of the current system and is used to ensure that the current system has been clearly understood. Physical DFDs shows actual devices, departments, and people etc., involved in the current system.

2. LOGICAL DFD:

Logical DFDs are the model of the proposed system. They clearly should show the requirements on which the new system should be built. Later during design activity this is taken as the basis for drawing the system’s structure charts.

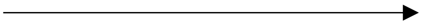
Main symbols used in the data flow diagrams are:

1. Circle represents a process that transforms incoming data flows in to outgoing data flows.

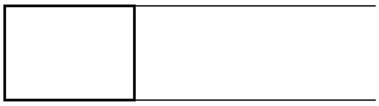


2. A square defines a source and destination of system data

3. Arrow identifies data in motion.



4. An open rectangle defines a data store, data at rest or temporary repository of data.



Steps to Construct Data Flow Diagrams:

Four steps are commonly used to construct a DFD, they are:

1. Process should be named and numbered for easy reference. Each name should be representative of the process.
2. The destination of flow is from top to bottom and from left to right.
3. When a process is exploded in to lower level details they are numbered.
4. The names of data stores, sources and destinations are written in capital letters.

Rules for constructing a Data Flow Diagram: reference.

1. Process should be named and numbered for easy reference.
2. The direction of flow is from top to bottom and from left to right.
3. When a process is explored into lower details they are numbered**.**
4. The name of data stores, sources and destinations are written in capital letter.

5.7 Design:

Design is the first step in moving from problem domain to the solution domain. Design is essentially the bridge between requirements specification and the final solution.

The goal of design process is to produce a model or representation of a system, which can be used later to build that system. The produced model is called the “Design of the System”. It is a plan for a solution for the system.

5.8 Process flow diagrams:

5.8.1 Login Process:

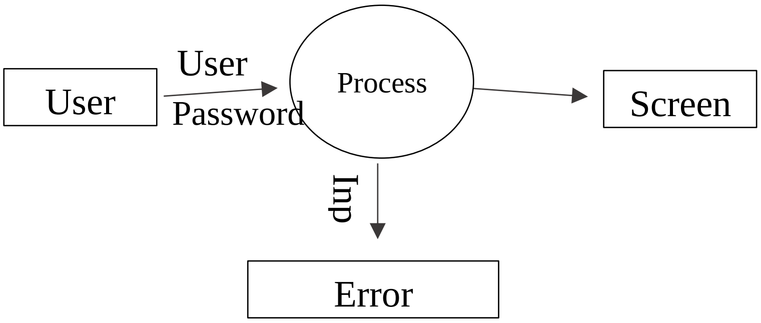


Fig 5.0.1: Login Process

5.8.2 Main Screen Process:

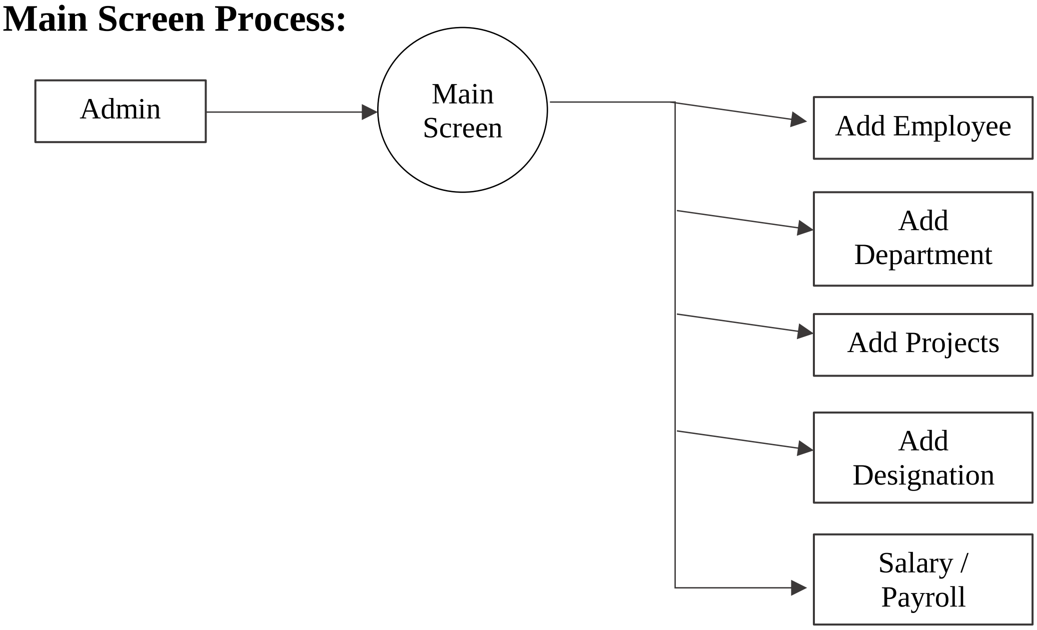


Fig 5.0.2: Main Screen Process

5.8.3 Activity Diagram

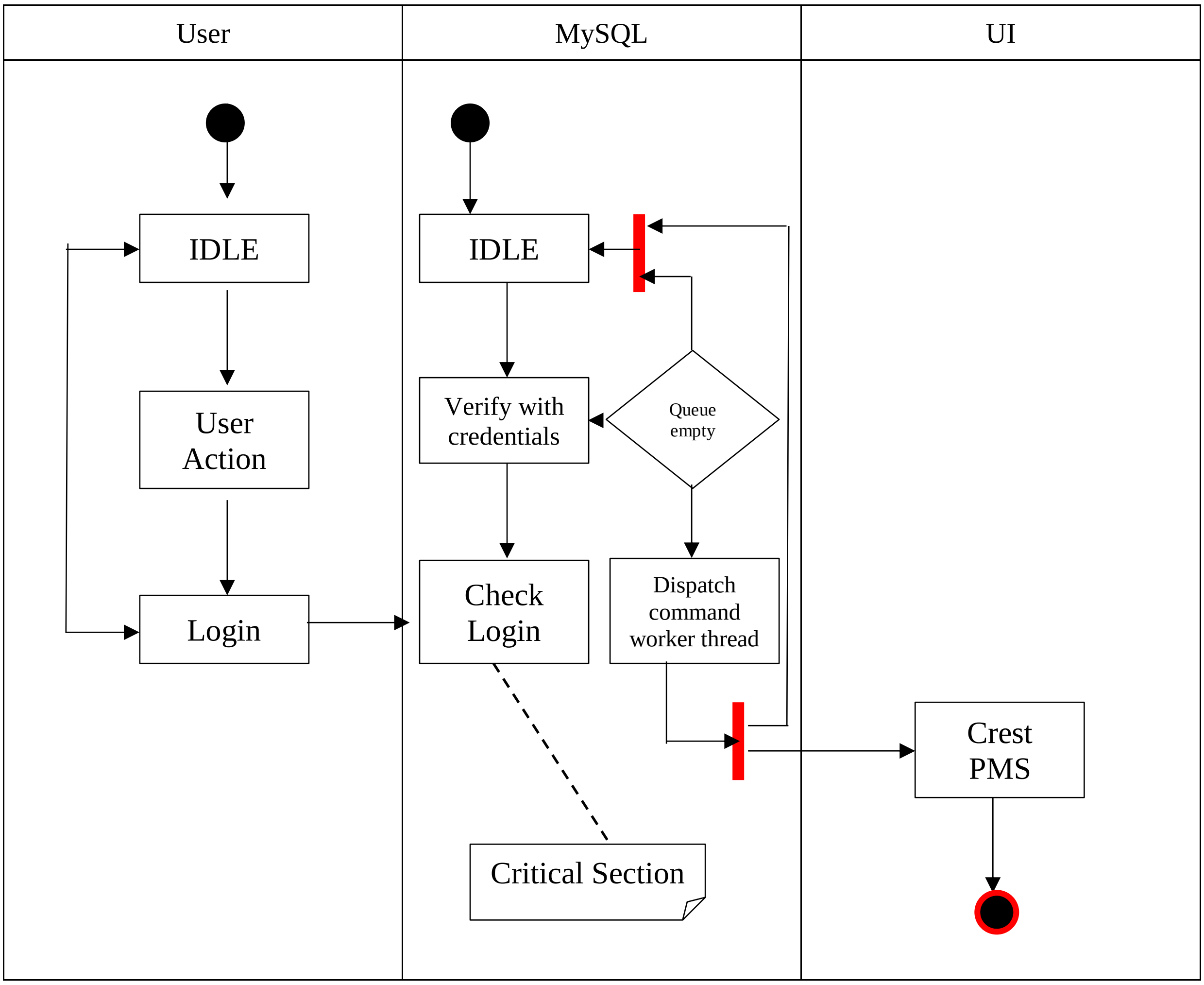


Fig 5.0.3: Activity Diagram of User Process

5.8.4 Use Case Diagram:

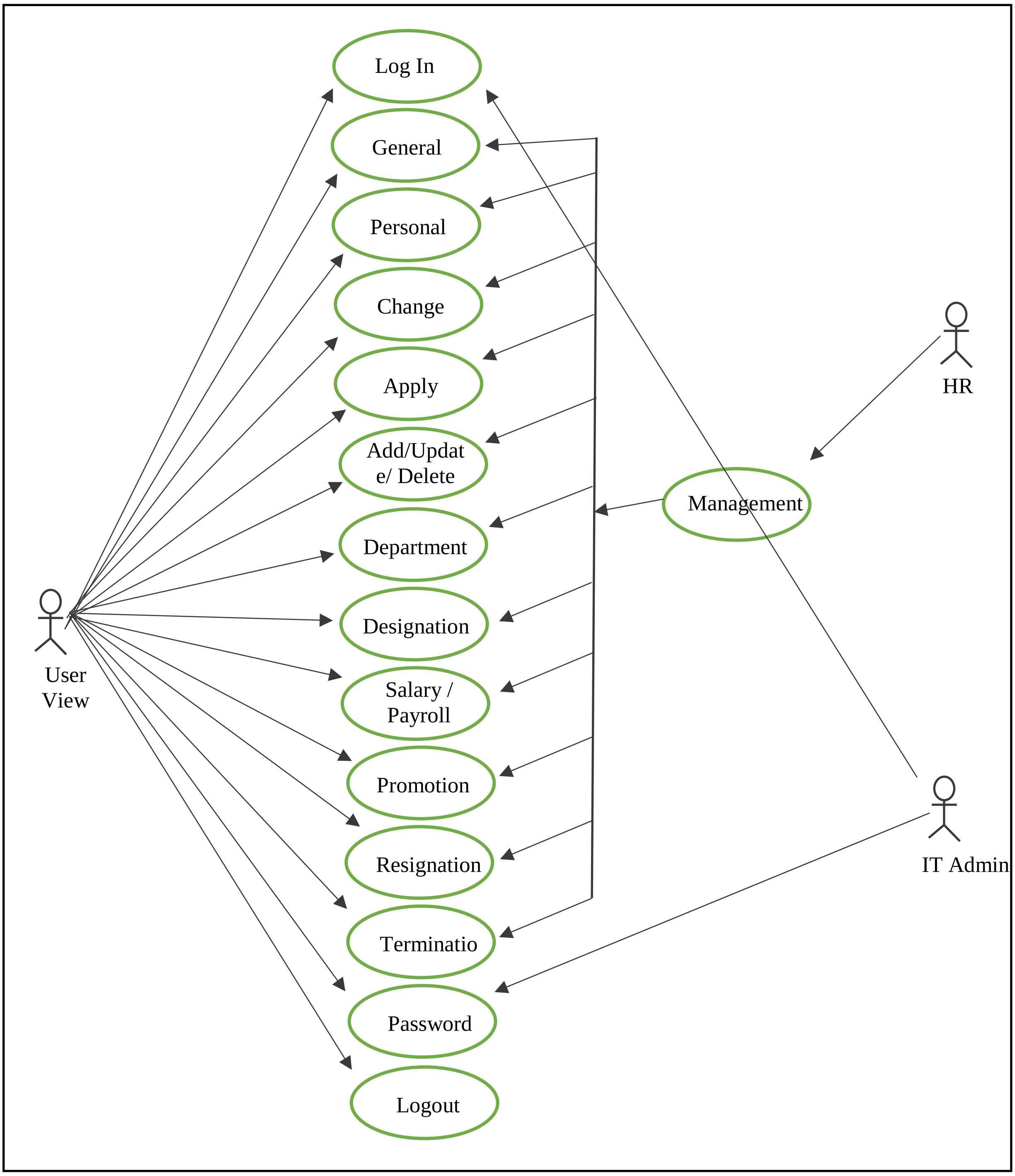


Fig 5.0.4: Use Case Diagram of a User

5.8.5 Class Diagram:

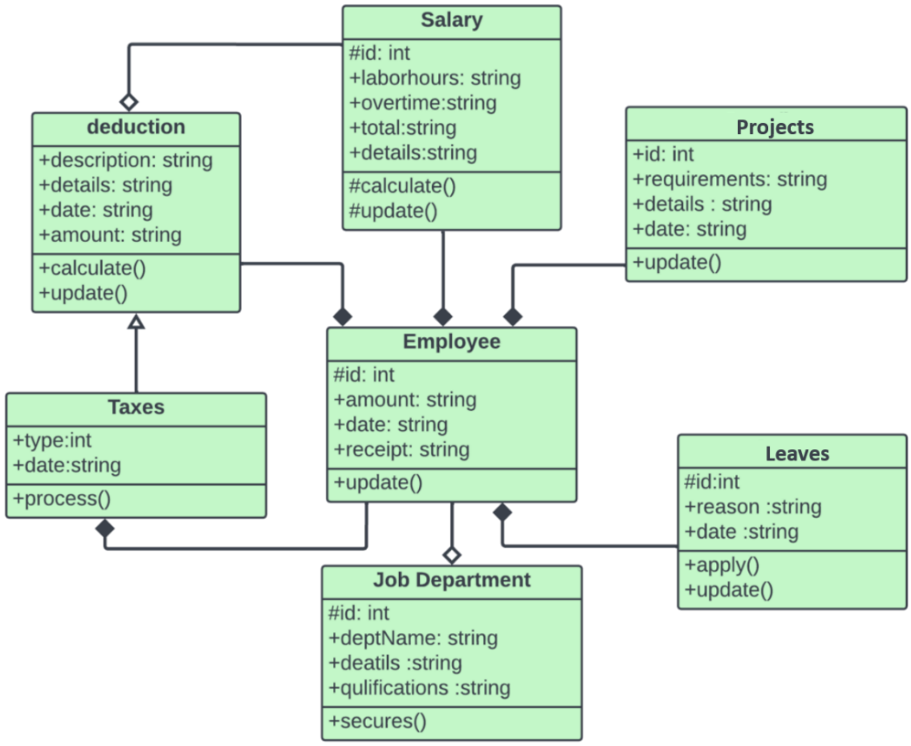


Fig 5.0.5: Class Diagram of Employees

5.8.6 Entity Relationship Diagram:

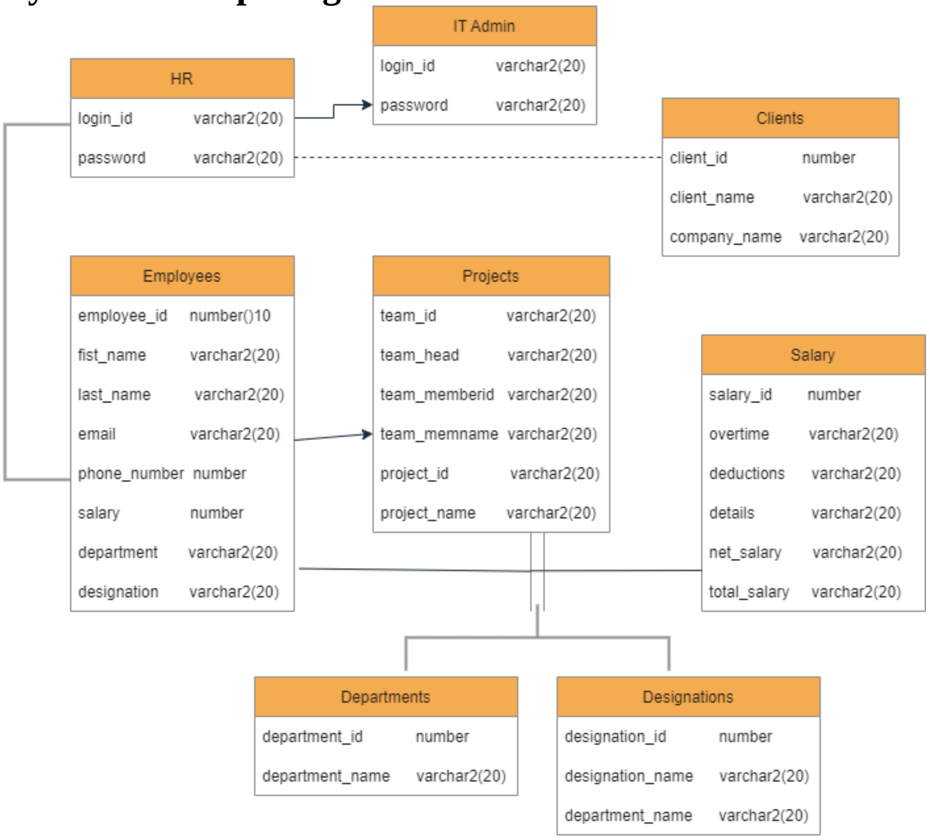


Fig 5.0.6: E R Diagram of Employee

CHAPTER 6

IMPLEMENTATION

The implementation is the final and important phase. It involves User training, system testing and successful running of the developed system. The users test the developed system when changes are made according to the needs. The testing phase involves the testing of the developed system using various kinds of data. An elaborate testing of data is prepared and system is tested using the tests data.

Implementation is the stage where theoretical design turned into a working system. Implementation is planed carefully to propose system to avoid unanticipated problems. Many preparations involved before and during the implementation of proposed system. The system needed to be plugged in to the organization’s network then it could be accessed from anywhere, after a user login into the portal. The tasks that had to be done to implement the system were to create the database tables in the organization database domain. Then the administrator was granted his role so that the system could be accessed.

The next phase in the implementation was to educate the system. A demonstration of all the functions that can be carried out by the system was given to examination department person, who will make extensive use of the system.

6.1 Implementation Environment

The application is a single server multiple client application. Multiple users can login to use the system.

6.2 Multi-user vs. Single-user

Single user applications are the application where it is useful to only one user at a time. While in Multi user given application is used by many users at the same time and thus web application is used by many users at the same time. Our system is a multi-user system as we have more than one user who can use the system at the same time.

6.3 GUI vs. Non-GUI

Non-GUI application uses command Prompt for input and output while GUI application has graphics form to interface and other graphics property for various I/O operations and are easy to use Our System is a GUI based and thus easy and effective to use therefore user can easily give input and take input.

SOURCE CODE

CHAPTER 7

SOURCE CODE

[Main frame - HTML]

```
<!-- 2022 Shakthi Prakash Copyright all rights reserved
Author       : Shakthi
Name: Shakthi - IT Portfolio
-->

<!DOCTYPE html>
<html lang="en">

<head>
  <meta charset="UTF-8">
  <meta http-equiv="X-UA-Compatible" content="IE=edge">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Shakthi - Technologies</title>

  <!--- custom css link-->
  <link rel="stylesheet" href="./assets/css/style.css">
</head>

<body>
  <div class="overlay" data-overlay></div>
  <!--  - HEADER  -->
  <header>
    <div class="header-top">
      <div class="container">
        <ul class="header-social-container">
          <li>
            <a target="https://facebook.com/" href="https://facebook.com/"
class="social-link">
              <img src="./assets/images/icons/Facebook color.svg" alt="facebook"
width="20" height="20">
            </a>
          </li>
        </ul>

        <div class="header-alert-news">
          <p><span class="om">ॐ</span><br>
            <b>❀ शक्ति | प्रेम | शांति | आनंदश्च ❀</b>
          </p>
        </div>
        <div class="header-top-actions">
          <select name="currency">
            <option value="inr">INR ₹</option>
            <option value="usd">USD $</option>
            <option value="eur">EUR &euro;</option>
          </select>
      <select name="language">
            <option value="en-US">English</option>
            <option value="san-ind">संस्कृत</option>
            <option value="hin-ind">हिन्दी</option>
          </select>

        </div>
      </div>
    </div>

<!--      - BANNER    -->

    <div class="banner">
      <div class="container">
        <div class="slider-container has-scrollbar">
          <div class="slider-item">
            <img src="./assets/images/banner 1.png" alt="New Platform"
class="banner-img">
            <div class="banner-content">
              <p class="banner-subtitle">New Platform</p>
              <h2 class="banner-title">Shākthi Technologies to launch a unified
Cyber-recovery platform.</h2>
           <a href="#" class="banner-btn">Read More</a>
            </div>
          </div>
        </div>

<!--           - TESTIMONIALS          -->

          <div class="testimonial" id="testimonials">
            <h2 class="title">testimonial</h2>
            <div class="testimonial-card">
              <img src="./assets/images/icons/avatar 1.svg" alt="Shākthi"
class="testimonial-banner" width="80" height="80">
              <a href="./Personel Portfolio/index.html"><p class="testimonial-
name">Shakthi Prakash</p></a>
              <p class="testimonial-title">Founder & CEO</p>
              <img src="./assets/images/icons/quotes.svg" alt="quotation"
class="quotation-img" width="26">
              <p class="testimonial-desc">
                You don't build a business, you build people, then people build
the business.
              </p>
            </div>
          </div>
```

```
<!--            - Copyright Section          -->
<div class="footer-bottom">
      <div class="container">
        <img src="./assets/images/mirks.png" alt="mirks png" class="mirks-img">
        <p class="copyright">
           copyright &copy;<a href="#">Shākthi</a> all rights
reserved.<br>Designed and Developed By Shākthi Prakash C&reg;<br>
        </p>
      </div>
    </div>
</body>
</html>
```

[Main frame - CSS]

```
*, *::before, *::after {
  margin: 0;
  padding: 0;
  box-sizing: border-box;
}
img, ion-icon, button, a {
  display: block;
}
span {
  display: inline-block;
}
html {
  font-family: "Poppins", sans-serif;
  -ms-scroll-chaining: none;
  overscroll-behavior: contain;
}
input {
  display: block;
  width: 100%;
  font: inherit;
}
.row{
  display: flex;
  flex-wrap: wrap;
}
/*----------------#HEADER-------------------*/
.header-top,
.header-user-actions,
.desktop-navigation-menu {
  display: none;
}
.header-main {
  padding: 20px 0;
  border-bottom: 1px solid var(--cultured);
}
```

```
.copyright {
  color: var(--sonic-silver);
  font-size: var(--fs-8);
  font-weight: var(--weight-500);
  text-transform: capitalize;
  letter-spacing: 1.2px;
}
.copyright a {
  display: inline;
  color: inherit;
}
```

[Main frame - JAVASCRIPT]

```
"use strict";

// modal variables
const modal = document.querySelector("[data-modal]");
const modalCloseBtn = document.querySelector("[data-modal-close]");
const modalCloseOverlay = document.querySelector("[data-modal-overlay]");

// modal function
const modalCloseFunc = function () {
    modal.classList.add("closed");
};
// modal eventListener
modalCloseOverlay.addEventListener("click", modalCloseFunc);
modalCloseBtn.addEventListener("click", modalCloseFunc);
// mobile menu variables
const mobileMenuOpenBtn = document.querySelectorAll(
    "[data-mobile-menu-open-btn]"
);
const mobileMenu = document.querySelectorAll("[data-mobile-menu]");
const mobileMenuCloseBtn = document.querySelectorAll(
    "[data-mobile-menu-close-btn]"
);
const overlay = document.querySelector("[data-overlay]");

for (let i = 0; i < mobileMenuOpenBtn.length; i++) {
    // mobile menu function
    const mobileMenuCloseFunc = function () {
        mobileMenu[i].classList.remove("active");
        overlay.classList.remove("active");
    };
    mobileMenuOpenBtn[i].addEventListener("click", function () {
        mobileMenu[i].classList.add("active");
        overlay.classList.add("active");
    });

    mobileMenuCloseBtn[i].addEventListener("click", mobileMenuCloseFunc);
    overlay.addEventListener("click", mobileMenuCloseFunc);
}
```

[Employee frame - php]

```
<?php
    session_start();
    error_reporting(0);
    include_once('includes/config.php');
    if(strlen($_SESSION['userlogin'])==0){
        header('location:login.php');
    }
 ?>

<div class="row">
   <div class="col-md-12">
       <div class="table-responsive">
           <table id="myTable" class="table table-striped datatable">
           <thead>
                 <th>Full Name</th>
                 <th>Employee ID</th>
                 <th>E-mail</th>
                 <th>Mobile</th>
                 <th>Join Date</th>
                 <th>Roll</th>
           </thead>
                   <tbody>
                    <?php
                       $sql = "SELECT * FROM employees";
                       $query = $conn->query($sql);
                       while($row = $query->fetch_assoc()){
                   ?>
                   <tr>
                       <td>
                           <h2 class="table-avatar">
                             <a class="avatar">
                            <img alt="picture"<?php echo $row['Picture'];?>"> </a>
                           <?php echo $row['FirstName']; ?><span></a>
                           </h2>
                       </td>
                       <td><?php echo $row['Employee_Id']; ?></td>
                       <td><?php echo $row['Email']; ?></td>
                       <td><?php echo $row['Phone']; ?></td>
                       <td><?php echo $row['Joining_Date']; ?></td>
                       <td><?php echo $row['Designation']; ?></td>
                       <?php echo
                             "<td>
                             <a href='#edit_".$row['id']."' > Edit</a>
                             <a href='#delete_".$row['id']."'> Delete</a>
                             </td>";
                       ?>
                   </tr>
                   <?php include('employ_add_edit_delete.php');
                   }
                   ?>
```

[Login frame - php]

```
<?php
    session_start();
    error_reporting(0);
    include_once("includes/config.php");
    if($_SESSION['userlogin']>0){
        header('location:index.php');
    }elseif(isset($_POST['login'])){
        $_SESSION['userlogin'] = $_POST['username'];
        $username = htmlspecialchars($_POST['username']);
        $password = htmlspecialchars($_POST['password']);
        $sql = "SELECT UserName,Password from users where UserName=:username";
        $query = $dbh->prepare($sql);
        $query->bindParam(':username',$username,PDO::PARAM_STR);
        $query-> execute();
        $results=$query->fetchAll(PDO::FETCH_OBJ);
        if($query->rowCount() > 0){
            foreach ($results as $row) {
                $hashpass=$row->Password;
            }//verifying Password
            if (password_verify($password, $hashpass)) {
                $_SESSION['userlogin']=$_POST['username'];
                echo "<script>window.location.href= 'index.php'; </script>";
            }
            else {
                $wrongpassword='
                <div class="alert alert-danger alert-dismissible" role="alert">
                <strong>Oh Snapp!😕</strong> Alert <b class="alert-
link">Password: </b>You entered wrong password.
                <button type="button" class="close" data-dismiss="alert" aria-
label="Close">
                    <span aria-hidden="true">&times;</span>
                </button>
                </div>';
            }
        }
        //if username or email not found in database
        else{
            $wrongusername='
            <div class="alert alert-danger alert-dismissible fade show"
role="alert">
                <strong>Oh Snapp!😬</strong> Alert <b class="alert-
link">UserName: </b> You entered a wrong UserName.
                <button type="button" class="close" data-dismiss="alert" aria-
label="Close">
                    <span aria-hidden="true">&times;</span>
                </button>
            </div>';
        }
    }
```

[Client frame - php]

```
<?php
    $invid=intval($_GET['id']);
    $sql="select * from clients where id=:invid";
    $query = $dbh -> prepare($sql);
    $query->bindParam(':invid',$invid,PDO::PARAM_STR);
    $query->execute();
    $results=$query->fetchAll(PDO::FETCH_OBJ);
    $cnt=1;
    if($query->rowCount() > 0)
    {
    foreach($results as $row)
    {
    ?>
<div class="card mb-0">
    <div class="card-body">
       <div class="row">
           <div class="col-md-12">
               <div class="profile-view">
                   <div class="profile-img-wrap">
                       <div class="profile-img">
                           <img alt="picture" src="img clients/<?php
echo  htmlentities($row->Picture);?>">
                       </div>
                   </div>
                   <div class="profile-basic">
                       <div class="row">
                           <div class="col-md-5">
                               <div class="profile-info-left">
                                   <h3 class="user-name m-t-0">
                                   <?php echo  htmlentities($row->Company);?></h3>
                                   <h5 class="company-role m-t-0 mb-0">
                                   <?php echo  htmlentities($row->FirstName);?>
                                   <?php echo  htmlentities($row->LastName);?>
                                   </h5>
                                   <small class="text-muted">CEO</small>
                                   <div class="staff-id">Employee ID :<?php
echo  htmlentities($row->ClientId);?>
                                   </div>
                                   <div class="staff-msg"><a href="chat.php"
                                   class="btn btn-custom">Send Message</a></div>
                                   </div>
                                   </div>
                                   <div class="col-md-7">
                                       <ul class="personal-info">
                                         <li>
                                             <span class="title">Phone:</span>
                                                 <span class="text"><a
                href=""><?php echo  htmlentities($row->Phone);?></a></span>
                                         </li>
```

CHAPTER 8

TESTING

8.1 Introduction

Testing is a process of executing a program with the interest of finding error. A good test is one that has high probability of finding the yet undiscovered error. Testing should systematically uncover afferent classes of errors in a minimum amount of time with a minimum amount of efforts. Two classes of inputs are provided to test the process

1. A software configuration that indicates a software requirement specification, a design specification and source code.

2. A software configuration that indicates a test plan and procedure, any testing tool and test cases and their expected results testing is divided into several distinct operations:

8.2 Software Testing

Software testing is a critical element of software quality assurance and represents the ultimate review of specifications, design and coding. In fact, testing is the one step in the software engineering process that could be viewed as destructive rather than constructive.

Software Testing is any activity aimed at evaluating an attribute or capability of a program or system and determining that it meets it required results. Testing is more than just debugging the purpose of testing can be quality assurance, verification and validation, or reliability estimation. Testing can be used as a generic metric as well. Correctness testing and reliability testing are two major areas of testing. Software testing is a trade-off between budget, time and quality.

8.3 Testing Methods

1. Black Box Testing
2. White Box Testing
3. Grey Box Testing

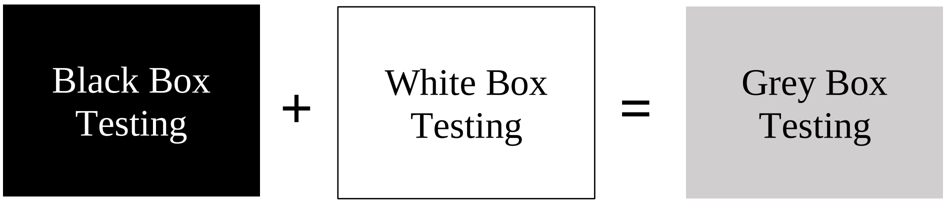


Fig 8.0.1: Testing methods

1. Black Box Testing

Simply an Unknown Internal Code Structure. The Black Box approach is a testing method in which test data are derived from the specified functional requirements without regard to the final program structure. It is also termed data driven; input/output driven or requirement-based testing. Because only the functionality of the software module is of concern, Black Box testing also mainly refers to functional testing. A testing method emphasized on executing the functions and examination of their inputs, outputs and specification of data. The research in Black Box testing mainly focuses on how to maximize the effectiveness of testing with minimum cost, usually the number of test cases. Good partitioning requires knowledge of the software structure. A good testing plan will not only contain Black Box Testing but also White Box approaches and combinations of the two.

2. White Box Testing

It is Fully Known Internal Code Structure. Contrary to Black Box testing, software is viewed as a White Box or Glass Box in white Box testing, as the structure and flow of the software under test are visible to the tester. Testing plans are made according to the details of the software implementation, such as programming language, logic and styles.

Test cases are derived from the program structure. White Box testing is also called Glass Box testing, logic driven testing or design-based testing. There are many techniques available in White Box testing because the problem of intractability is eased by specific knowledge and attention on the structure of software under test.

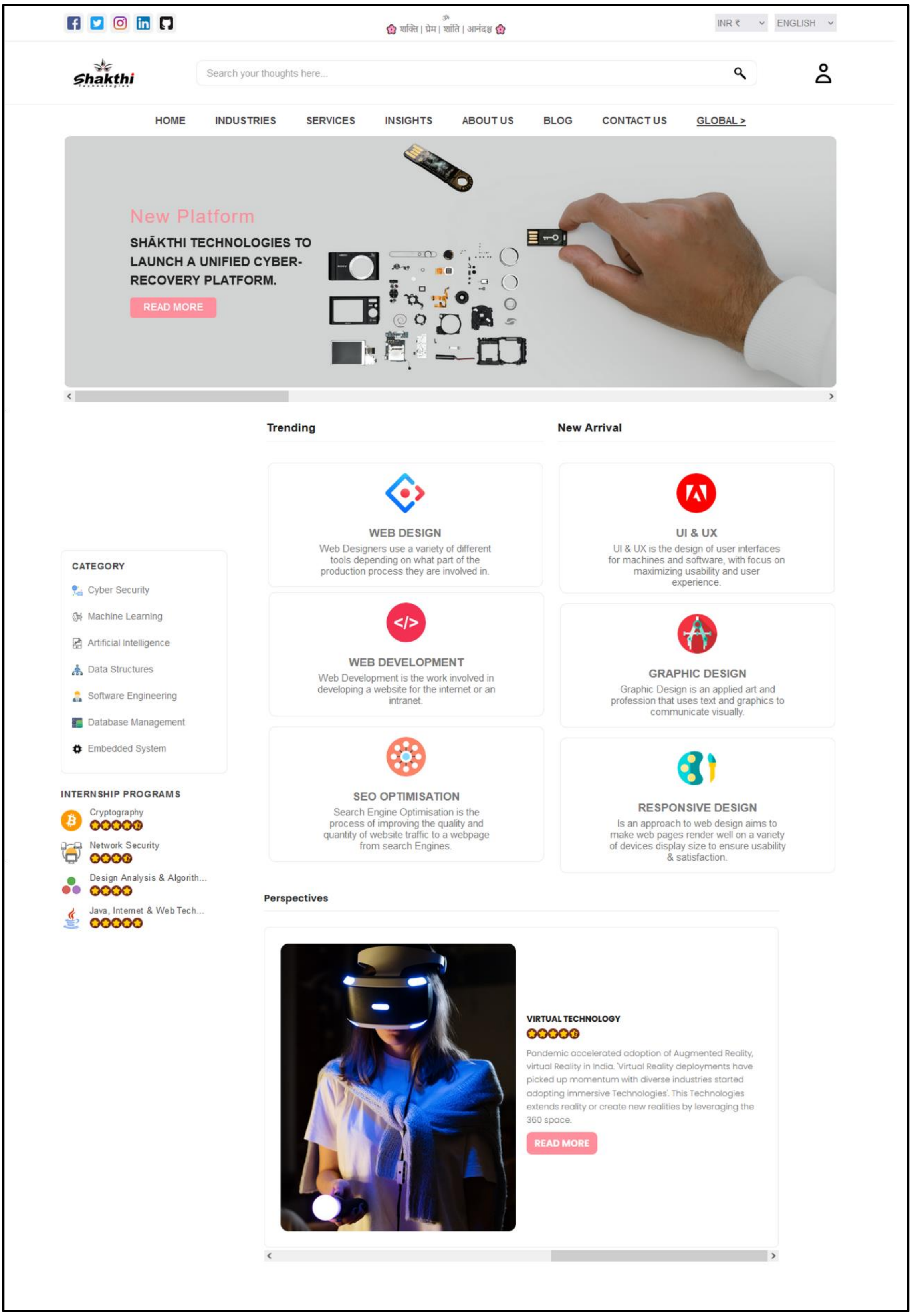
3. Grey Box Testing

Internal Code Structure Partially Known. It comes from the combination of the black box and white box testing. Grey Box Testing is also one of the methods of software testing. It helps to test the partial or limited paths of the internal structure of a software application. It is known as Gray Box or semi-transparent box testing. The name itself says that the tester can access limited paths of an application

SNAPSHOTS

CHAPTER 9

SNAPSHOTS



ॐ
शक्ति | प्रेम | शांति | आनंदश

INR ₹ ENGLISH

Shakthi Technologies

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New Platform

SHĀKTHI TECHNOLOGIES TO LAUNCH A UNIFIED CYBER-RECOVERY PLATFORM.

READ MORE

Trending

WEB DESIGN

Web Designers use a variety of different tools depending on what part of the production process they are involved in.

WEB DEVELOPMENT

Web Development is the work involved in developing a website for the internet or an intranet.

SEO OPTIMISATION

Search Engine Optimisation is the process of improving the quality and quantity of website traffic to a webpage from search Engines.

New Arrival

UI & UX

UI & UX is the design of user interfaces for machines and software, with focus on maximizing usability and user experience.

GRAPHIC DESIGN

Graphic Design is an applied art and profession that uses text and graphics to communicate visually.

RESPONSIVE DESIGN

Is an approach to web design aims to make web pages render well on a variety of devices display size to ensure usability & satisfaction.

CATEGORY

- Cyber Security
- Machine Learning
- Artificial Intelligence
- Data Structures
- Software Engineering
- Database Management
- Embedded System

INTERNSHIP PROGRAMS

- Cryptography ★★★★½
- Network Security ★★★½
- Design Analysis & Algorith... ★★★★
- Java, Internet & Web Tech... ★★★★★

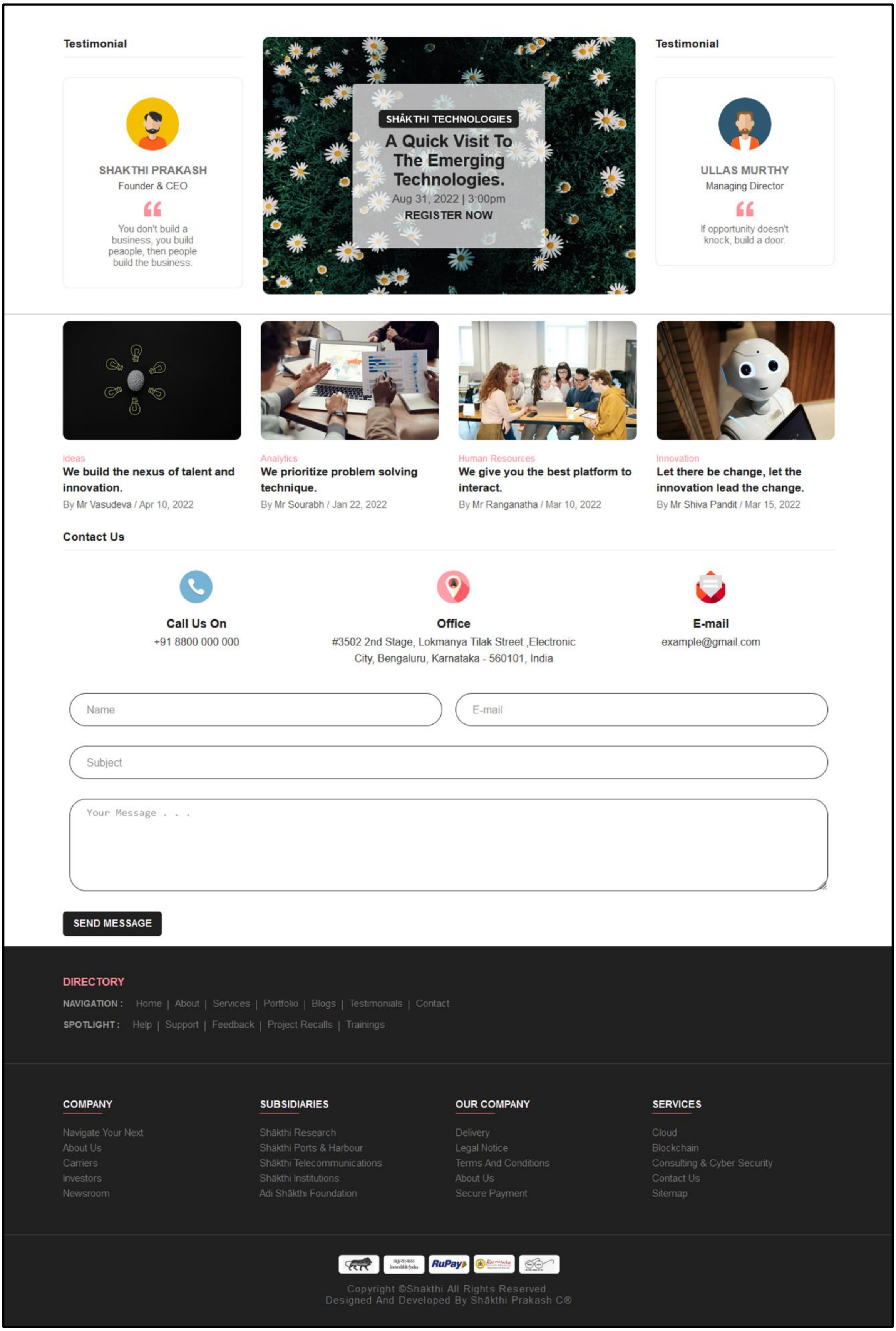
Perspectives

VIRTUAL TECHNOLOGY ★★★★½

Pandemic accelerated adoption of Augmented Reality, virtual Reality in India. 'Virtual Reality deployments have picked up momentum with diverse industries started adopting immersive Technologies'. This Technologies extends reality or create new realities by leveraging the 360 space.

READ MORE

Fig 9.0.1. Main Frame



Testimonial

SHAKTHI PRAKASH
Founder & CEO

You don't build a business, you build peaople, then people build the business.

SHĀKTHI TECHNOLOGIES

A Quick Visit To The Emerging Technologies.

Aug 31, 2022 | 3:00pm

REGISTER NOW

Testimonial

ULLAS MURTHY
Managing Director

If opportunity doesn't knock, build a door.

Ideas
We build the nexus of talent and innovation.
By Mr Vasudeva / Apr 10, 2022

Analytics
We prioritize problem solving technique.
By Mr Sourabh / Jan 22, 2022

Human Resources
We give you the best platform to interact.
By Mr Ranganatha / Mar 10, 2022

Innovation
Let there be change, let the innovation lead the change.
By Mr Shiva Pandit / Mar 15, 2022

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#3502 2nd Stage, Lokmanya Tilak Street ,Electronic City, Bengaluru, Karnataka - 560101, India

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E-mail

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Your Message . . .

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Investors
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SUBSIDIARIES
Shākthi Research
Shākthi Ports & Harbour
Shākthi Telecommunications
Shākthi Institutions
Adi Shākthi Foundation

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Delivery
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Terms And Conditions
About Us
Secure Payment

SERVICES
Cloud
Blockchain
Consulting & Cyber Security
Contact Us
Sitemap

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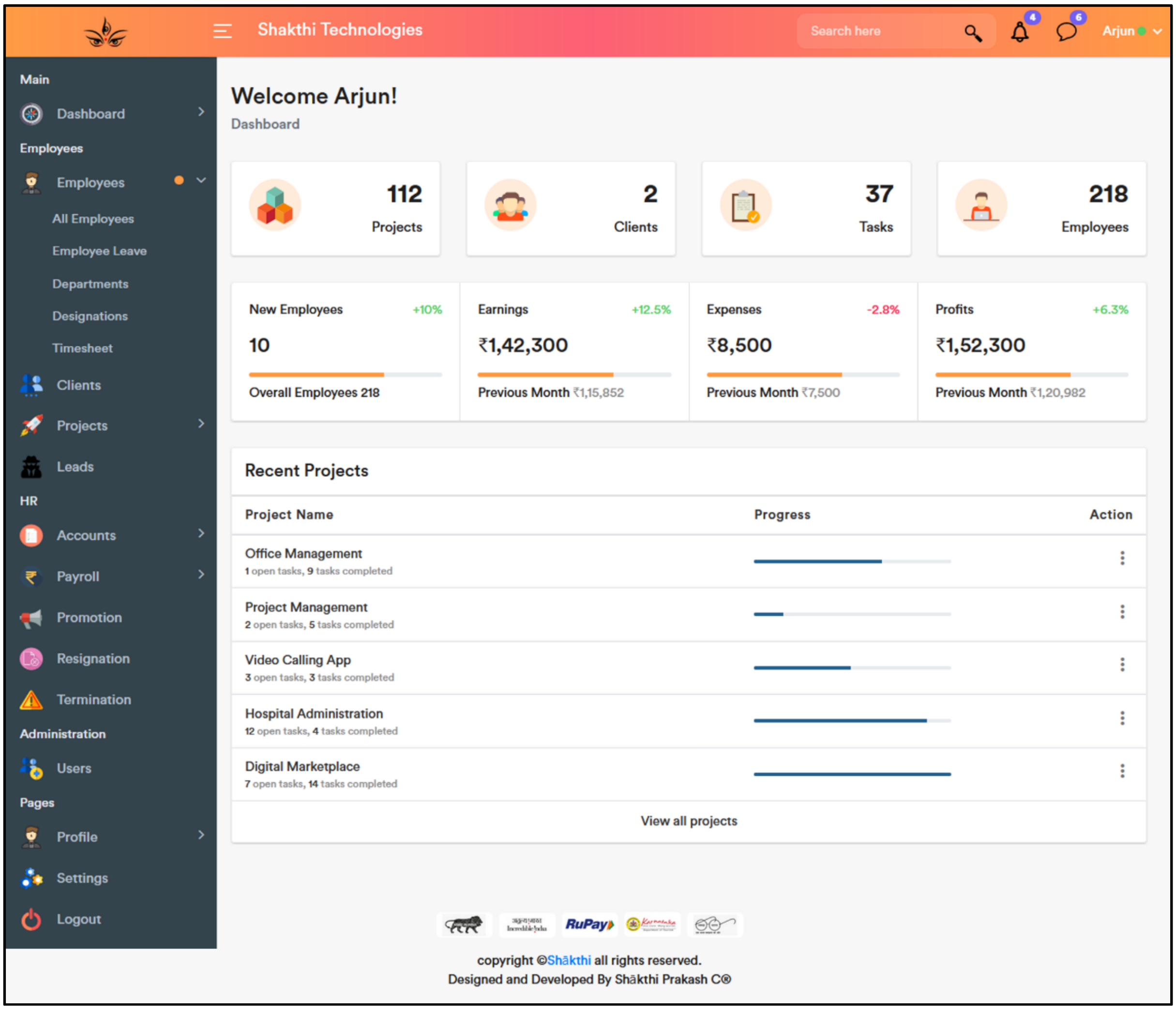
Fig 9.0.2. Main Frame



Welcome Arjun!

Dashboard

112 Projects

2 Clients

37 Tasks

218 Employees

New Employees +10%	Earnings +12.5%	Expenses -2.8%	Profits +6.3%
10	₹1,42,300	₹8,500	₹1,52,300
Overall Employees 218	Previous Month ₹1,15,852	Previous Month ₹7,500	Previous Month ₹1,20,982

Recent Projects

Project Name	Progress	Action
Office Management 1 open tasks, 9 tasks completed		⋮
Project Management 2 open tasks, 5 tasks completed		⋮
Video Calling App 3 open tasks, 3 tasks completed		⋮
Hospital Administration 12 open tasks, 4 tasks completed		⋮
Digital Marketplace 7 open tasks, 14 tasks completed		⋮

View all projects

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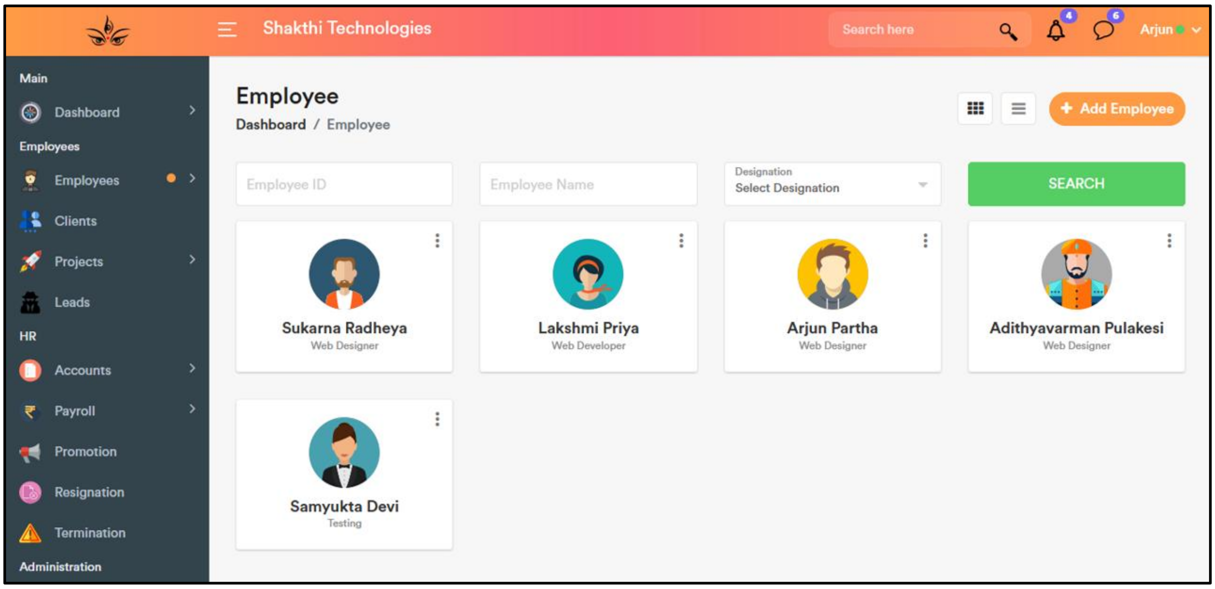
Designed and Developed By Shākthi Prakash C®

Fig 9.0.3. Office Dashboard



Employee

Dashboard / Employee

Employee ID

Employee Name

Designation
Select Designation

Sukarna Radheya
Web Designer

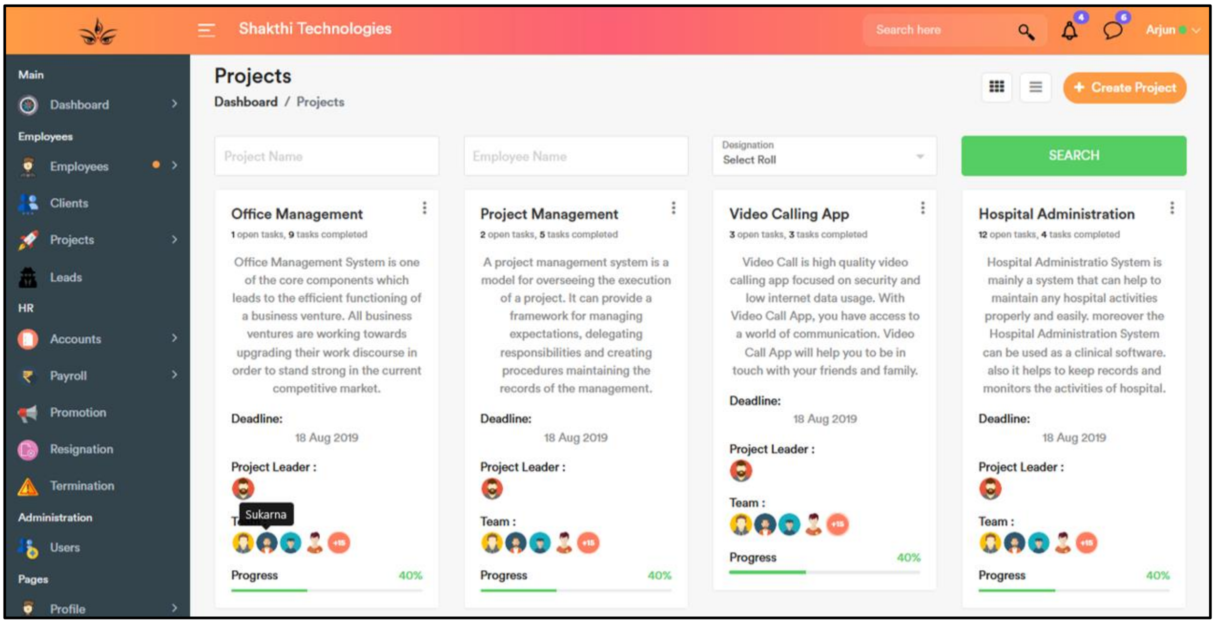
Lakshmi Priya
Web Developer

Arjun Partha
Web Designer

Adithyavarman Pulakesi
Web Designer

Samyukta Devi
Testing

Fig 9.0.4. Employee Dashboard



Office Management
1 open tasks, 9 tasks completed

Office Management System is one of the core components which leads to the efficient functioning of a business venture. All business ventures are working towards upgrading their work discourse in order to stand strong in the current competitive market.

Deadline: 18 Aug 2019

Project Leader :

Team :

Progress 40%

Project Management
2 open tasks, 5 tasks completed

A project management system is a model for overseeing the execution of a project. It can provide a framework for managing expectations, delegating responsibilities and creating procedures maintaining the records of the management.

Deadline: 18 Aug 2019

Project Leader :

Team :

Progress 40%

Video Calling App
3 open tasks, 3 tasks completed

Video Call is high quality video calling app focused on security and low internet data usage. With Video Call App, you have access to a world of communication. Video Call App will help you to be in touch with your friends and family.

Deadline: 18 Aug 2019

Project Leader :

Team :

Progress 40%

Hospital Administration
12 open tasks, 4 tasks completed

Hospital Administratio System is mainly a system that can help to maintain any hospital activities properly and easily. moreover the Hospital Administration System can be used as a clinical software. also it helps to keep records and monitors the activities of hospital.

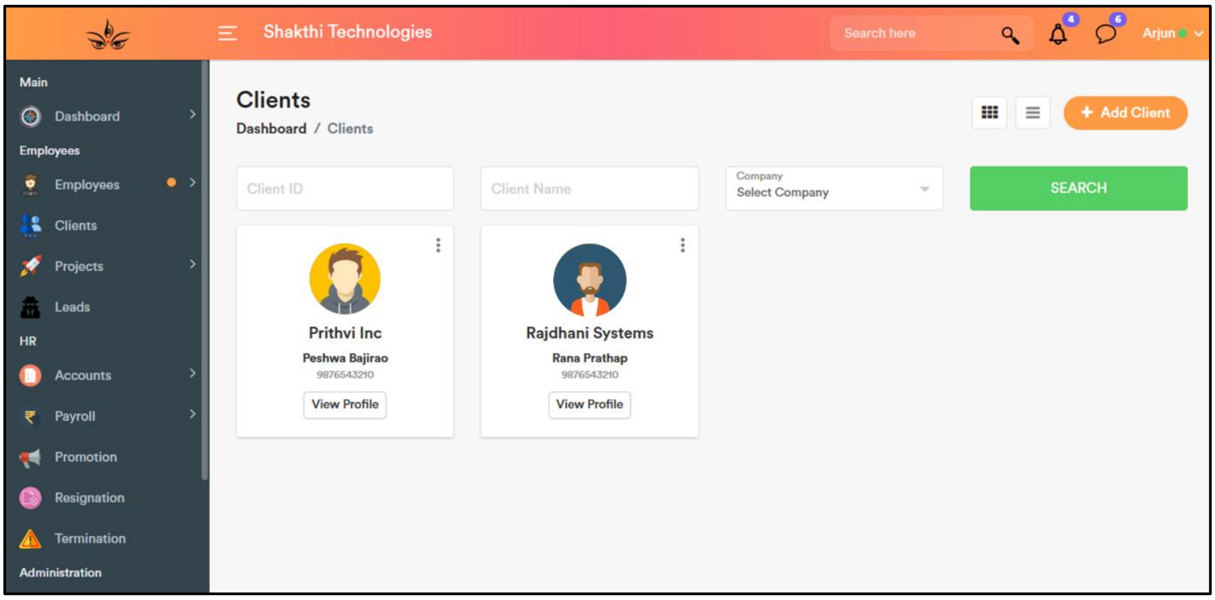
Deadline: 18 Aug 2019

Project Leader :

Team :

Progress 40%

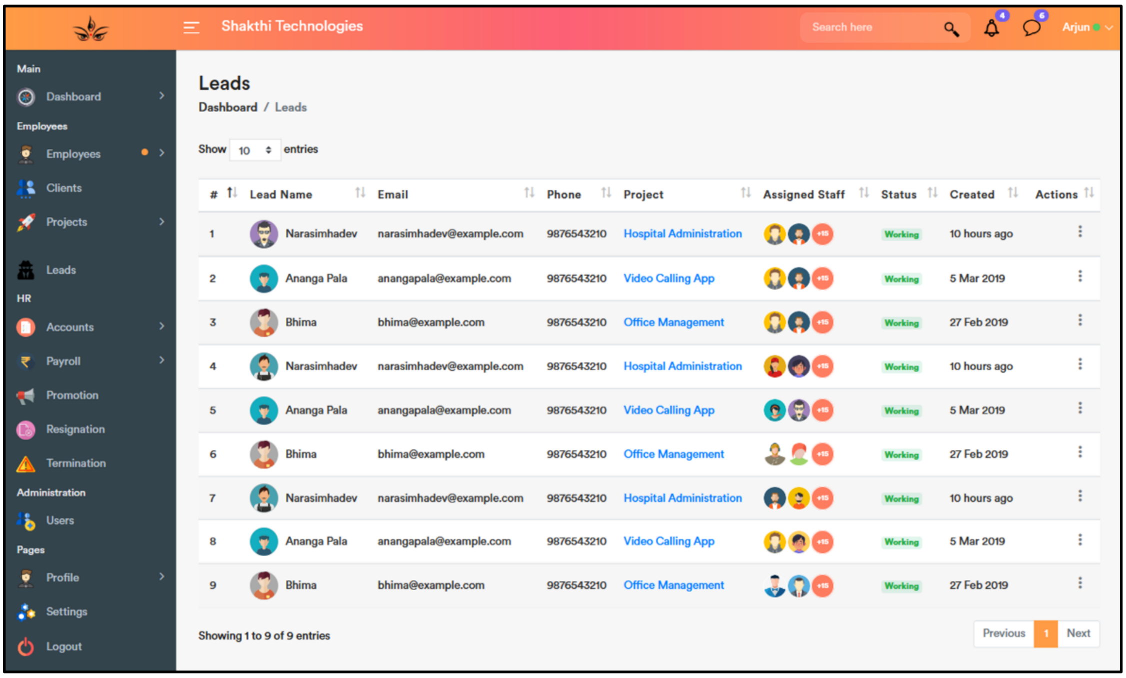
Fig 9.0.5. Projects Dashboard



Prithvi Inc
Peshwa Bajirao
9876543210

Rajdhani Systems
Rana Prathap
9876543210

Fig. 9.0.6. Clients Dashboard



Leads

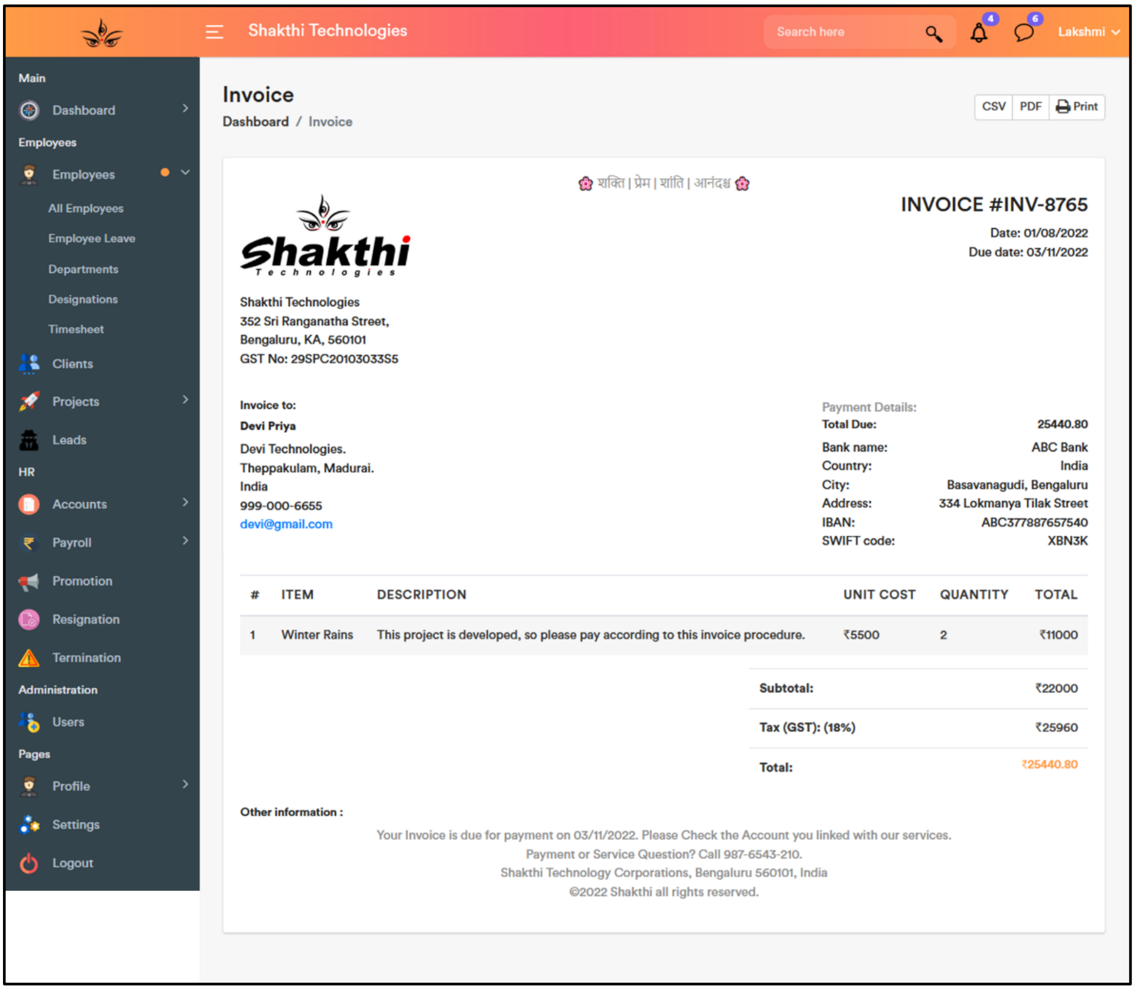
Dashboard / Leads

Show 10 entries

#	Lead Name	Email	Phone	Project	Assigned Staff	Status	Created	Actions
1	Narasimhadev	narasimhadev@example.com	9876543210	Hospital Administration	+15	Working	10 hours ago	⋮
2	Ananga Pala	anangapala@example.com	9876543210	Video Calling App	+15	Working	5 Mar 2019	⋮
3	Bhima	bhima@example.com	9876543210	Office Management	+15	Working	27 Feb 2019	⋮
4	Narasimhadev	narasimhadev@example.com	9876543210	Hospital Administration	+15	Working	10 hours ago	⋮
5	Ananga Pala	anangapala@example.com	9876543210	Video Calling App	+15	Working	5 Mar 2019	⋮
6	Bhima	bhima@example.com	9876543210	Office Management	+15	Working	27 Feb 2019	⋮
7	Narasimhadev	narasimhadev@example.com	9876543210	Hospital Administration	+15	Working	10 hours ago	⋮
8	Ananga Pala	anangapala@example.com	9876543210	Video Calling App	+15	Working	5 Mar 2019	⋮
9	Bhima	bhima@example.com	9876543210	Office Management	+15	Working	27 Feb 2019	⋮

Showing 1 to 9 of 9 entries

Fig. 9.0.7 Project Leads



Invoice

Dashboard / Invoice

शक्ति | प्रेम | शांति | आनंदश्च

INVOICE #INV-8765

Date: 01/08/2022
Due date: 03/11/2022

Shakthi Technologies
352 Sri Ranganatha Street,
Bengaluru, KA, 560101
GST No: 29SPC2010303355

Invoice to:

Devi Priya

Devi Technologies.
Theppakulam, Madurai.
India
999-000-6655
devi@gmail.com

Payment Details:

Total Due:	**25440.80**
Bank name:	ABC Bank
Country:	India
City:	Basavanagudi, Bengaluru
Address:	334 Lokmanya Tilak Street
IBAN:	ABC377887657540
SWIFT code:	XBN3K

#	ITEM	DESCRIPTION	UNIT COST	QUANTITY	TOTAL
1	Winter Rains	This project is developed, so please pay according to this invoice procedure.	₹5500	2	₹11000

Subtotal:	₹22000
Tax (GST): (18%)	₹25960
Total:	₹25440.80

Other information :

Your Invoice is due for payment on 03/11/2022. Please Check the Account you linked with our services.
Payment or Service Question? Call 987-6543-210.
Shakthi Technology Corporations, Bengaluru 560101, India
©2022 Shakthi all rights reserved.

Fig. 9.0.8 Invoice of a Client

CONCLUSION

CHAPTER 10

CONCLUSION

This Portfolio management its proposed Software is accurately programmed making it portable, coefficient and user friendly. And it is very easy to operate anyone, we can easily convert all types of conversions in this software

Due to this Portfolio Management System [PMS], lots of work which was done Manually by the HR and PMO team will be automated. From now on the HR team does not have to maintain an excel sheet (Employee Leave) for the leaves of all employees. Employees can apply and the DM can approve/reject leaves from PMS itself and track the leave status. Using the Bulk change module HR and PMO can directly change the grade, designation, department etc. of many employees in bulk. Most crucial thing is that PMS is operated and maintained by Crest itself, so it can save money on outsourcing the software and the company can make all required changes according to their needs. Using the feature of filter under employee directory HR and PMO team can filter out employee's data they require based on skills, previous experience and various other parameters.

CHAPTER 11

FUTURE ENHANCEMENT

Thank you for using Portfolio Management. We regularly update the app with great new features, bug fixes, and performance improvements. It is not possible to develop a system that makes all the requirements of the user. User requirements keep changing as the system being used. Some of the future enhancements that can be done to this system are:

- Bug Fixes.
- Performance Improvement.
- We are introducing a new storage management tool to help you easily manage the databases.
- Provided more data encoding formats like pdf, xlsx Formats.

CHAPTER 12

BIBLIOGRAPHY

Books used:

- ✓ JavaScript by McGraw hill Publication
- ✓ PHP Beginners Guide
- ✓ HTML & CSS – design and build websites
- ✓ JAVASCRIPT & JQUERY – interactive front-end web development
- ✓ Adobe Photoshop CC Classroom in a Book

Web Reference:

- ✓ https://www.geeksforgeeks.org
- ✓ https://www.wikipedia.org
- ✓ https://app.diagrams.net
- ✓ https://www.w3schools.com
- ✓ https://www.developer.mozilla.org
- ✓ https://www.javatpoint.com
- ✓ https://www.tutorialspoint.com
- ✓ https://www.svgrepo.com
- ✓ https://www.pexels.com