PROFESSIONAL TRAINING REPORT

AT

Sathyabama Institute of Science and Technology

(DEEMED TO BE UNIVERSITY)

Submitted in partial fulfillment of the requirements for the award of
Bachelor of Engineering Degree in
Computer Science and Engineering

By

VALLIAPPAN L

(Reg No: 39111054)

DEPARTMENT OF COMPUTER SCIENCE ENGINEERING

SCHOOL OF COMPUTING

SATHYABAMA INSTITUTE OF SCIENCE AND TECHNOLOGY

(DEEMED TO BE UNIVERSITY)

JEPPIAAR NAGAR, RAJIV GANDHI SALAI, CHENNAI – 600119, TAMILNADU.

APRIL 2022

SATHYABAMA

INSTITUTE OF SCIENCE AND TECHNOLOGY

(DEEMED TO BE UNIVERSITY)

Accredited with Grade "A" by NAAC
(Established under Section 3 of UGC Act, 1956)
JEPPIAAR NAGAR, RAJIV GANDHI SALAI, CHENNAI - 600 119

www.sathyabama.ac.in

DEPARTMENT OF COMPUTER SCIENCE ENGINEERING

BONAFIDE CERTIFICATE

This is to certify that this Project Report is the bonafide work of **VALLIAPPAN.L (Reg. No. : 39111054)** who carried out the project entitled **"EMPLOYEE MANAGEMENT SYSTEM"**

Internal Guide
Ms. S. NITHYA, M.E

Head of the Department

Submitted for Viva voce Examination held on

Internal Examiner   **External Examiner**

DECLARATION

I, **VALLIAPPAN L** hereby declare that the Project Report entitled **"EMPLOYEE MANAGEMENT SYSTEM"** done by me under the guidance of **Ms. S. NITHYA, M,E.** at Sathyabama Institute of Science and Technology is submitted in partial fulfillment of the requirements for the award of Bachelor of Engineering degree in Computer Science

DATE: 10/04/2022

PLACE: CHENNAI

SIGNATURE OF THE CANDIDATE

ACKOWLEDGEMENT

I am pleased to acknowledge my sincere thanks to the Board of management of **SATHYABAMA** for their kind encouragement in doing this project and for completing it successfully. I am grateful to them**.**

I convey my thanks to, **Dr. T. Sasikala M.E., Ph.D.**, Dean, School of Computing and **Dr.S.Vigneshwari - CSE,M.E.,Ph.D. and Dr.L.Lakshmanan - CSE,M.E., Ph.D.**, **Head of the Department, Department of Computer Science and Engineering** for providing me the necessary support and details at the right time during the progressive reviews.

I would like to express my sincere and deep sense of gratitude to my Project Guide **Ms. S. NITHYA, M.E** for her valuable guidance, suggestions which paved way for the successful completion of my project work.

I wish to express my thanks to all teaching and non-teaching staff members of the **Department of Computer Science and Engineering** who were helpful in many ways for the completion of project.

ABSTRACT

In the Employee management system website the details of the employee of the organisation are managed. The managed data are done by the admin or manager of the organization in our website.The added user details are stored in our mongodb server.The management sytem has the following details like id, name, branch, designation, salary, mail id, phone number. Admin or Manager can be able to update the details of the employee whenever they want. Admin can modify all the data of all the users in the organisation where Managers can only modify the data of the Employee users . Employee users can see the details of them when they log in but it can not be edit or delete it.It can be done by verifing that the user has the rights to perform the operation by using authorization in our nodejs. Admin and Managers can search the details of the employee by name, id, mail id to view it.For the Admin login and Manager login alone the management page is visible is in header. When admin click the management button it redirect to management page and we can see the employee details of the organisation. When the Admin or Manager add or delete or update tthe details of the user it will reflect immediately in management page and in specified Employee's page.

TABLE OF CONTENTS

CHAPTER - 1

INTRODUCTION

1.1   ABOUT THE CONCEPT

An Employee Management System is a management of Employee's data who works in this organisation. This application site has developed using MEAN STACK which enables all Employee to perform their work in system by authenticating the rights of the user. The main objective of this project is to make the work simple and work in a fast manner and to see the employees available holiday count.

The project uses a solid approach, by which provides authentication and encryption based on the role of the employee in the organisation for maximum security and privacy of data and organisation.

- Setting up the Backend NodeJS, ExpressJS Server with API routes to handle a wide array of use case and authentication using route modules and middleware.

- Setting up the Frontend framework (Angular), with advanced routings to enable highly efficient user navigation.Creating a reusable components for maximum reusability

- Using Localhosts run the application for working on it.

CHAPTER - 2

AIM AND SCOPE OF PRESENT INVESTIGATION

2.1 AIM

Employee Management System serve a range of purposes. A management system is meant collection of employee data and record on any number of things and put the happenings of each day into writing. In this way, the organisation officer's are able to better remember on the details of the employee. It builds corporate enthusiasm and supports on sustainability.

2.2 SCOPE

● Employee Management System are a rich source of information: they aim to continually challenge and build new detail about Employee of the organisation.

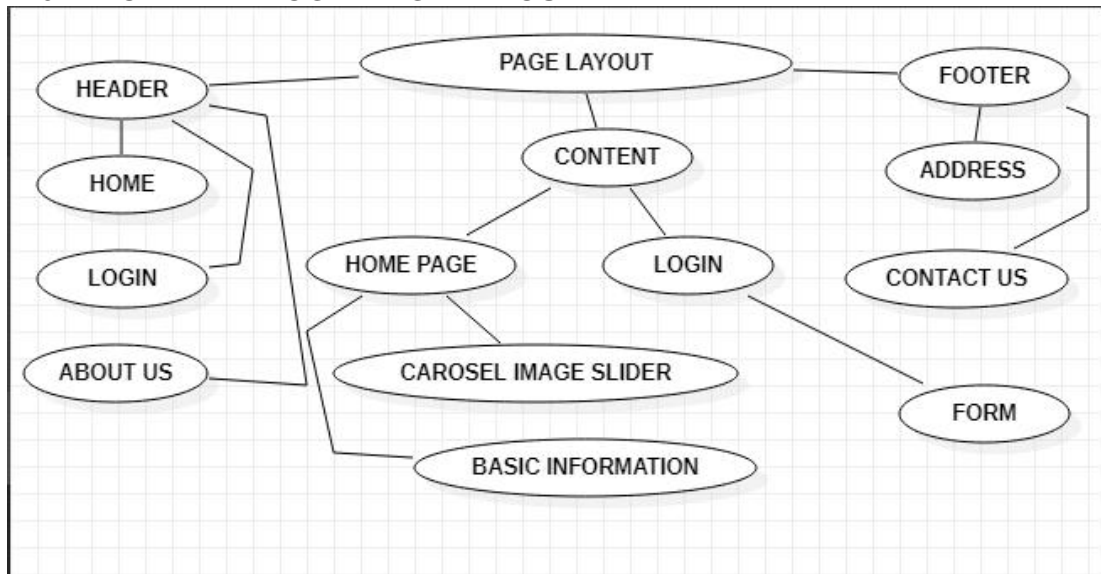● Employee Management System makes works eassier to find and access the data of the employee in the organisation

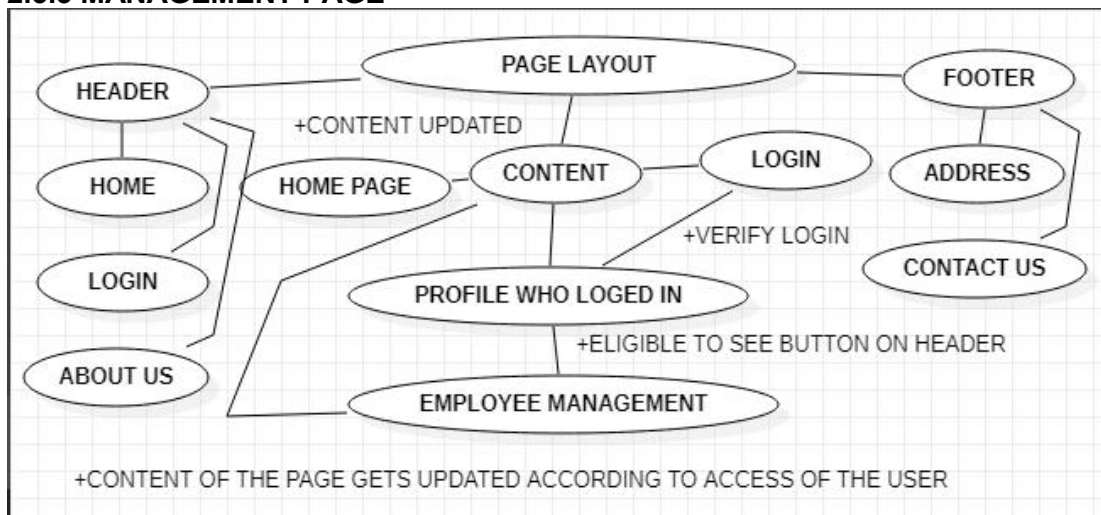## 2.3 PROJECT FLOW

2.3.1 EMPLOYEE MANAGEMENT SYSTEM COMPONENTS
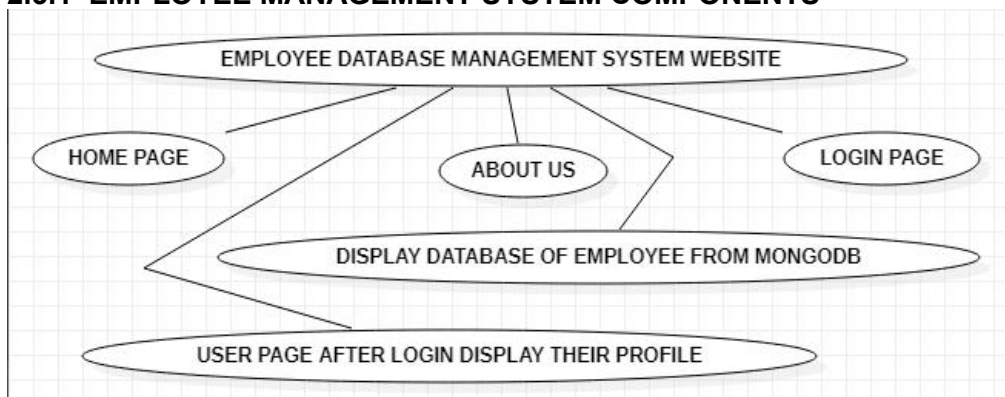
2.3.2 HOME AND LOGIN PAGE LAYOUT

2.3.3 MANAGEMENT PAGE

2.3.4 ADD USER PAGE LAYOUT

2.3.5 EDIT USER PAGE (USER PAGE)

```
HOME  ABOUT US  MANAGEMENT  LOG OUT

                        EDIT USER
/* PHOTO IF AVAILABLE */
NAME:              [_____]
ID:                [_____]
DESIGNATION:       [_____]
BRANCH:            [_____]
                   [ EDIT USER ]
                              ADDRESS  CONTACT US
```

CHAPTER 3

EXPERIMENTAL OR MATERIALS AND METHODS

3.1 SOFTWARE REQUIREMENT

- Windows 10 or above
- Node JS
- Angular CLI
- Database

3.1.1 Windows 10 or above

Windows 10 is a Microsoft operating system for personal computers, tablets, embedded devices and internet of things devices.

Microsoft released Windows 10 in July 2015 as a follow-up to Windows 8. The company has said it will update Windows 10 in perpetuity rather than release a new, full-fledged operating system as a successor.

3.1.2 Node JS

As an asynchronous event-driven JavaScript runtime, Node.js is designed to build scalable network applications. In the following "hello world" example, many connections can be handled concurrently. Upon each connection, the callback is fired, but if there is no work to be done, Node.js will sleep.

This is in contrast to today's more common concurrency model, in which OS threads are employed. Thread-based networking is relatively inefficient and very difficult to use. Furthermore, users of Node.js are free from worries of dead-locking the process, since there are no locks. Almost no function in Node.js directly performs I/O, so the process never blocks except when the I/O is performed using synchronous methods of Node.js standard library. Because nothing blocks, scalable systems are very reasonable to develop in Node.js.

If some of this language is unfamiliar, there is a full article on Blocking vs. Non-Blocking.

Node.js is similar in design to, and influenced by, systems like Ruby's Event Machine and Python's Twisted. Node.js takes the event model a bit further. It presents an event loop as a runtime construct instead of as a library. In other systems, there is always a blocking call to start the event-loop. Typically, behavior is defined through callbacks at the beginning of a script, and at the end a server is started through a blocking call like **EventMachine::run()** In Node.js, there is no such start-the-event-loop call. Node.js simply enters the event loop after executing the input script. Node.js exits the event loop when there are no more callbacks to perform. This behavior is like browser JavaScript — the event loop is hidden from the user.

HTTP is a first-class citizen in Node.js, designed with streaming and low latency in mind. This makes Node.js well suited for the foundation of a web library or framework.

Node.js being designed without threads doesn't mean you can't take advantage of multiple cores in your environment. Child processes can be spawned by using our **child_process.fork()** API, and are designed to be easy to communicate with. Built upon that same interface is the **cluster** module, which allows you to share sockets between processes to enable load balancing over your cores.

3.1.3Angular CLI

This topic can help you understand Angular: what Angular is, what advantages it provides, and what you might expect as you start to build your applications.

Angular is a development platform, built on TypeScript. As a platform, Angular includes:

A component-based framework for building scalable web applications

A collection of well-integrated libraries that cover a wide variety of features, including routing, forms management, client-server communication, and more

A suite of developer tools to help you develop, build, test, and update your code

With Angular, you're taking advantage of a platform that can scale from single-developer projects to enterprise-level applications. Angular is designed to make updating as straightforward as possible, so take advantage of the latest developments with a minimum of effort. Best of all, the Angular ecosystem consists of a diverse group of over 1.7 million developers, library authors, and content creators.

This section explains the core ideas behind Angular. Understanding these ideas can help you design and build your applications more effectively.

● *Components*

Components are the building blocks that compose an application. A component includes a TypeScript class with a **@Component()** decorator, an HTML template, and styles. The **@Component()** decorator specifies the following Angular-specific information:

A CSS selector that defines how the component is used in a template. HTML elements in your template that match this selector become instances of the component.
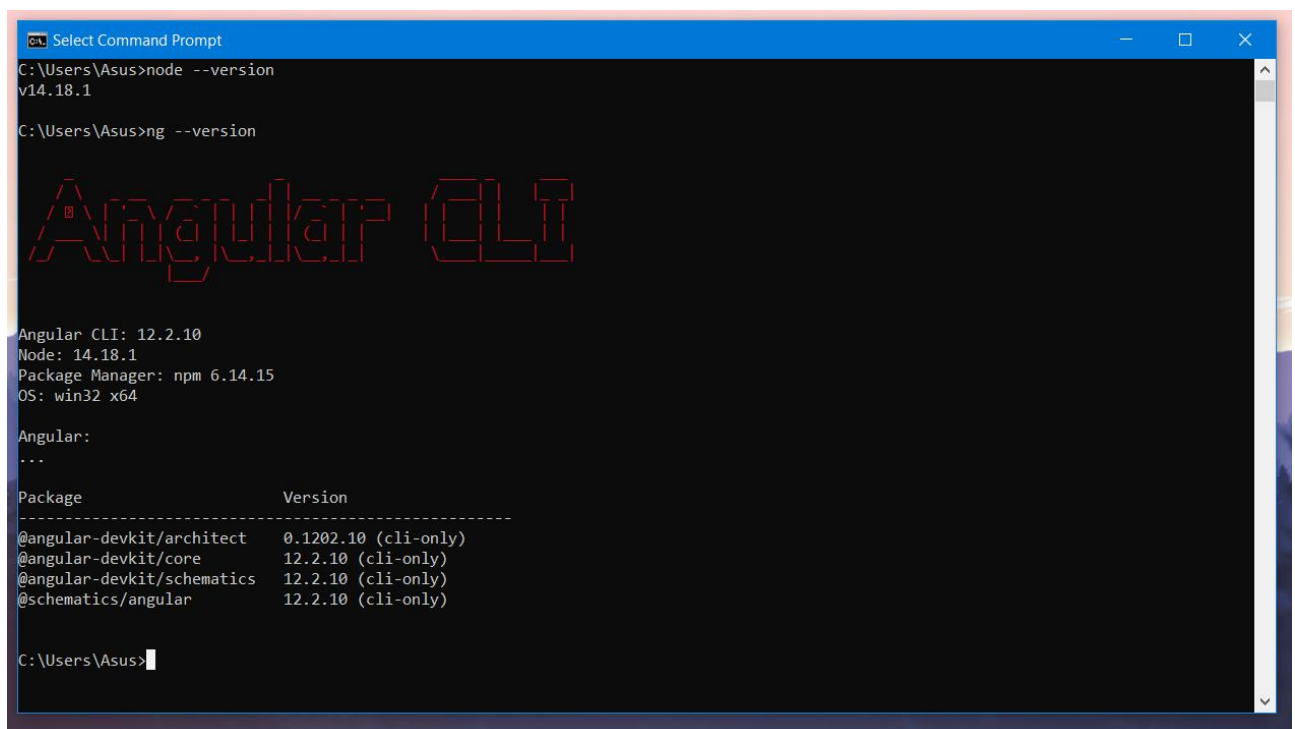
An HTML template that instructs Angular how to render the component.

An optional set of CSS styles that define the appearance of the template's HTML elements.

- *Templates*

Every component has an HTML template that declares how that component renders. You define this template either inline or by file path.

Angular extends HTML with additional syntax that lets you insert dynamic values from your component. Angular automatically updates the rendered DOM when your component's state changes. One application of this feature is inserting dynamic text, as shown in the following example.

3.2 HARDWARE REQUIREMENT

- Hard Disk
- RAM – 1 GB
- Processor – Dual Core or Above
- Mouse
- Keyboard
- Monitor

3.2.1 Hard Disk

A hard disk or fixed disk, is an electro-mechanical data storage device that uses magnetic storage to store and retrieve digital information using one or more rigid rapidly rotating disks (platters) coated with magnetic material.

During the mid-1990s the typical hard disk drive for a PC had a capacity of about 1 gigabyte. As of January 2019, desktop hard disk drives typically had a capacity of 1 to 6 terabytes, with the largest-capacity drives reaching 15 terabytes

3.2.2 RAM

Random access memory (RAM) is a type of data storage used in computers that is generally located on the motherboard. This type of memory is volatile and all information that was stored in RAM is lost when the computer is turned off.

The RAM chip may be individually mounted on the motherboard or in sets of several chips on a small board connected to the motherboard. Older memory types were in the form of chips called dual in-line package (DIP). Although DIP chips are still used today, the majority of memory is in the form of a module, a narrow printed circuit board attached to a connector on the motherboard. The three main memory circuit boards types containing chips are: RIMMs (Rambus in-line memory modules), DIMMs (dual in-line memory modules) and SIMMs (single in-line memory modules). Most motherboards today use DIMMs.Sometimes, people get confused about the difference between memory and storage, in part because both can be measured in megabytes (MB), gigabytes (GB) and terabytes (TB).

By contrast, storage is slower, but it can retain data when the device is powered down. So, for example, if a document has been saved to a hard drive prior to a power outage or system crash, the user will still be able to retrieve it when the system is back up and running.

3.2.3 Processor

A processor is an integrated electronic circuit that performs the calculations that run a computer. A processor performs arithmetical, logical, input/output (I/O) and other basic instructions that are passed from an operating system (OS). Most other processes are dependent on the operations of a processor.

Dual core is a CPU that has two distinct processors that work simultaneously in the same integrated circuit. This type of processor can function as efficiently as a single processor but can perform operations up to twice as quickly.

3.2.4 Mouse

A mouse is a small handheld input device that controls a computer screen's cursor or pointer in conjunction with the way it is moved on a flat surface. The mouse term name originates from its likeness to a small, corded and elliptical shaped device that looks like a mouse tail.

Some mouse devices have integrated features, such as extra buttons that may be programmed and assigned with different commands.

Because the mouse reduces the use of a keyboard, its invention and continuous innovation is considered one of the most important breakthroughs in computer ergonomics.

3.2.5 Keyboard

A computer keyboard is an input device used to enter characters and functions into the computer system by pressing buttons, or keys. It is the primary device used to enter text. A keyboard typically contains keys for individual letters, numbers and special characters, as well as keys for specific functions. A keyboard is connected to a computer system using a cable or a wireless connection.

A computer keyboard is an input device used to enter characters and functions into the computer system by pressing buttons, or keys. It is the primary device used to enter text. A keyboard typically contains keys for individual letters, numbers and special characters, as well as keys for specific functions.

3.2.6 Moniter

A computer monitor is an electronic device that shows pictures for computers. Monitors often look similar to televisions. The main difference between a monitor and a television is that a monitor does not have a television tuner to change channels. Monitors often have higher display resolution than televisions.

The advent of display technology has paved the way for the continuous evolution of

the monitor, whether it's for computers, television, mobile devices or any device that has a display. The current contenders for top-tier technology being used for display devices includes Super LCD 3 (SLCD3) and Super AMOLED. It should be noted that LED displays are actually just a kind of LCD display that use LED lights as backlight illumination.

CHAPTER 4
TESTING

4.1 System Testing

Quality assurance is an important step in software engineering. This overlaps with all the phases of development right from the requirement analysis. This quality requirement of the software system must be clearly extracted during the requirement analysis and all the subsequent phases should be made biased to that, the final testing will become trivial and less expensive. There are number of quality parameters like correctness, accuracy, reliability, robustness, efficiency, effectiveness, reusability, maintainability etc.. The state of requirement of each of these parameters will vary depending upon the name and domain of the application. The testing should be done at the end of all development steps. Even though the final testing and verification are inevitable for better life and functionality of the software. The different software testing approaches and methods like white box testing and black box testing. The major phases in testing are design of test plan, setting up test case and test candidate and test procedure, testing and correction. This is a cycle process and the software will circulate through all the steps till it attends the required quality. The testing is carried in the following steps.

4.2 Unit testing

Unit testing focuses verification effort on the smallest unit of software design the module. Using the details design description as a guide, important control paths are tested to uncover errors within boundary of the boundary of the module. The relative complexity of tests and the errors detected as a result is limited by the constrained scope established for unit testing.

 Unit testing is normally considered an adjacent to coding steps. After source level code has been developed, reviewed, and verified for correct syntax, unit test case design begins. A review of design information provides guidance for establishing test cases that are likely to uncover error in each case of the categories discussed above. Each test case should be coupled with a set of expected results.

4.3 Integration testing

Integration testing is systematic technique for constructing the program structure while at the same time conducting test to uncover error associated with interfacing .The objective is to take unit tested modules and build a program structure that has been dictated by design.

There is often a tendency to attempt no incremental integration; that is to construct the program using a "big bang "approach. The entire modules are combined in advance. The entire program is tested as whole and chaoses usually result! A set of error is encountered. Correction is difficult because the isolation of cause is complicated by the vast expanse of entire program. Once errors are corrected, new ones appear and process continues in a seemingly endless loop.

CHAPTER 5

RESULT AND DISCUSSION, PERFORMANCE ANALYSIS

5.1 Result & Discussion

Employee Management System helps to preserve your work in the permanent records of research in the field.

Adding your work to this record involves you in the active research community for a topic, helping to expand your professional network, increasing potential for collaboration and interaction with peer.

5.2 RECOMMENDATION

The Employee Management System meets a lot of expectations but would perform better if the following recommendations and suggestions are considered:

i.   System testing and maintenance should be performedregularly to avoid sudden system failures.

ii. Updates and other modifications should be introduced with prior notice to users.

iii. A course administrator should be employed that can manage the interactions between the donors, beneficiaries & administrators on one side and technicians on the other. This will aid ensure that proper support is provided for the system.

5.3 SCREENSHOTS

localhost:4200/about

FREE BIRD

🏠 Home ⓘ About Us 📕 Management 🗓 Dashboard [→ Log out
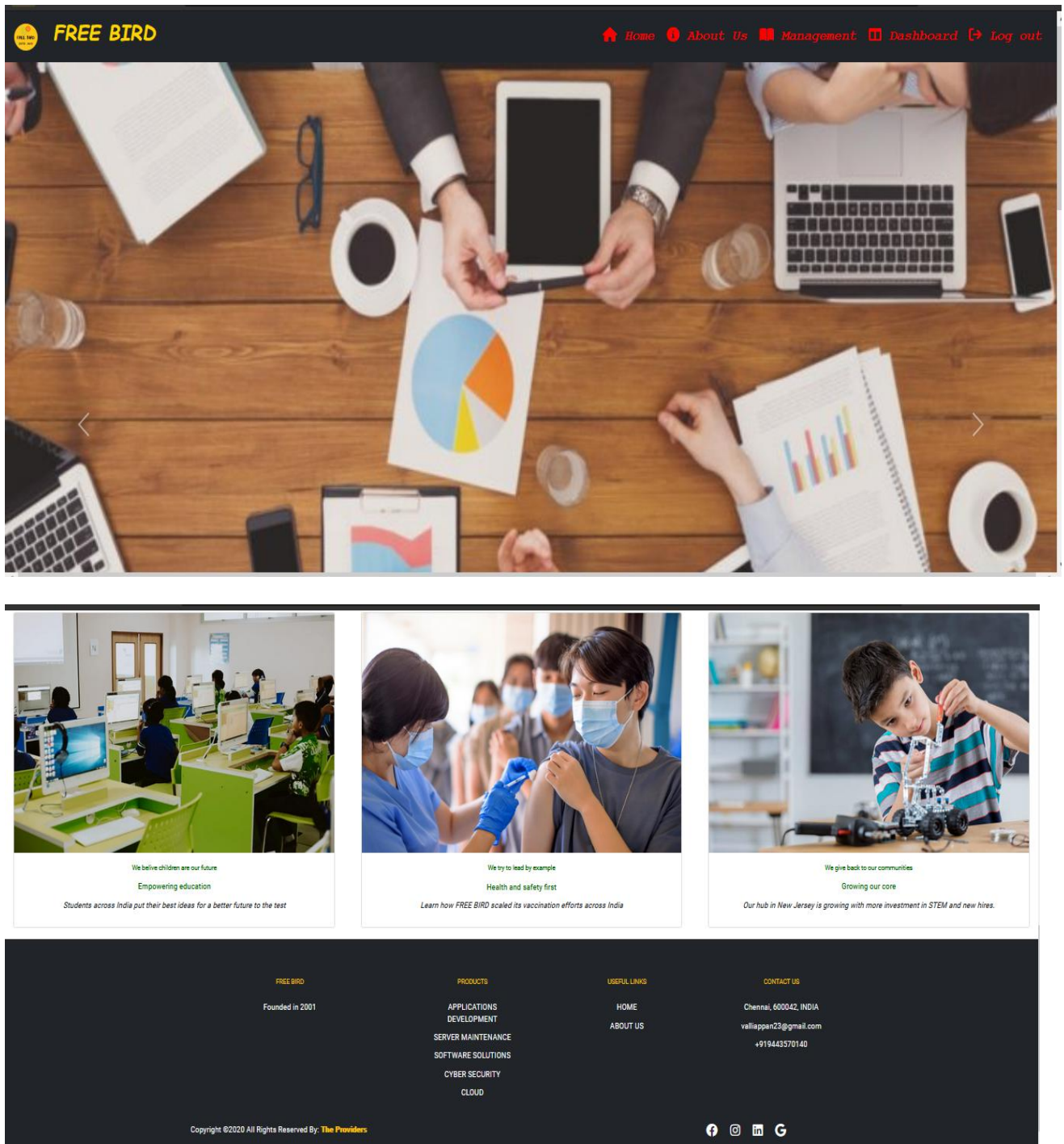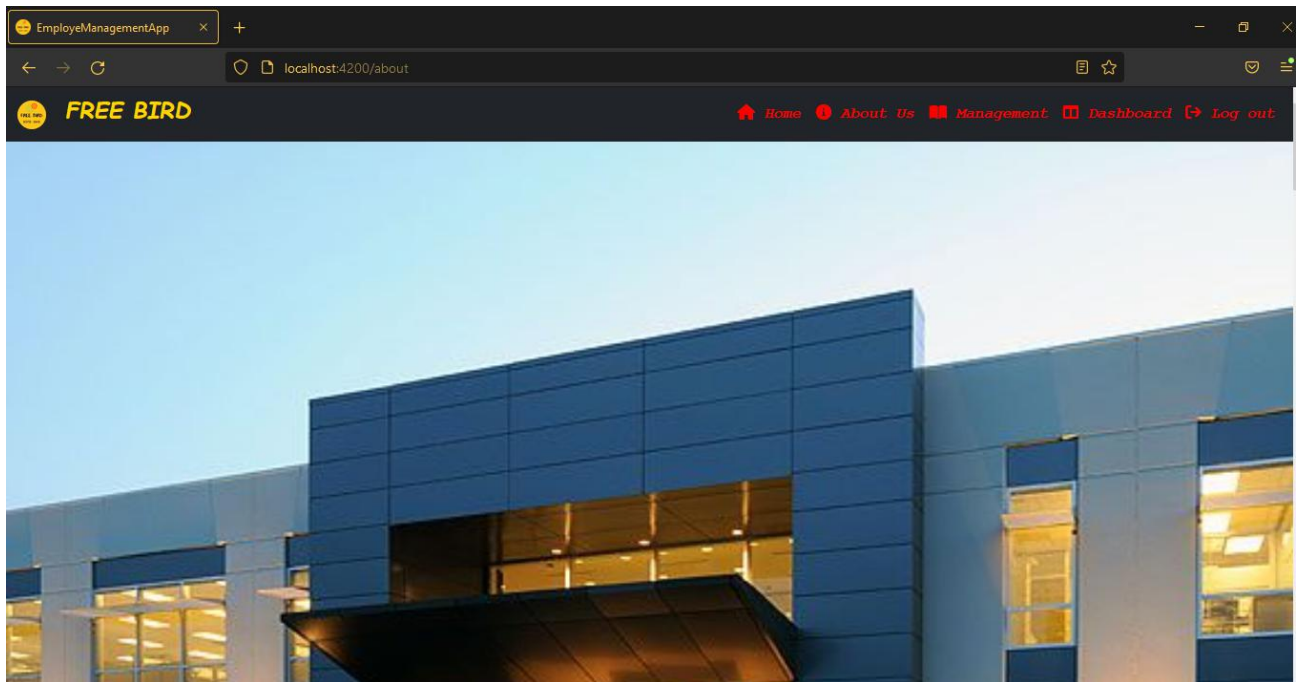
Company Profile & Key Figures

Freebird is a global leader in partnering with companies to transform and manage their business by harnessing the power of technology. The Group is guided everyday by its purpose of unleashing human energy through technology for an inclusive and sustainable future. It is a responsible and diverse organization of over 325,000 team members in more than 50 countries. With its strong 55-year heritage and deep industry expertise, Freebird is trusted by its clients to address the entire breadth of their business needs, from strategy and design to operations, fueled by the fast evolving and innovative world of cloud, data, AI, connectivity, software, digital engineering and platforms. The Group reported 2021 global revenues of €18 billion.

Corporate Governance

Details of our Board of Directors and Board Committees.

Management Team

Our Executive Committee and principal Group Directors.

Free Bird's Businesses

Overview of our Consulting, Technology, Outsourcing and Other Managed Services.

Sectorial Expertise

Summary of the Group's sectoral expertise

Free Bird Engineering

Free Bird Engineering combines, under one brand, a unique set of strengths from across the Free Bird Group: the world leading engineering and R&D services of Altran − acquired by Freebird in 2020 − and Free Bird's digital manufacturing expertise. With broad industry knowledge and cutting-edge technologies in digital and software, Free Bird Engineering supports the convergence of the physical and digital worlds. Combined with the capabilities of the rest of the Group, it helps clients to accelerate their journey towards Intelligent Industry. Free Bird Engineering has more than 52,000 engineer and scientist team members in over 30 countries across sectors including aeronautics, automotive, railways, communications, energy, life sciences, semiconductors, software & internet, space & defence, and consumer products.

Digital Engineering and Software Services

Free Bird's Digital Engineering and Software Services brings together deep expertise to lead the convergence of Physical and Digital worlds through technology, engineering and manufacturing expertise to boost our client's competitiveness.

Industrialized GlobalShore

Just as manufacturers build streamlined global networks to optimize production, Free Bird Engineering is designing the world's first industrialized solution for seamless, end-to-end delivery of engineering and R&D services, delivering operational cost savings, while maintaining the highest quality levels.

Industrial Operations

The arrival of digital technologies in the manufacturing organizations has led to reviewing the whole production system.

FREE BIRD

🏠 Home ℹ️ About Us 🟥 Management 🗔 Dashboard ↪ Log out

ADMIN 1
ADMIN
CHENNAI

Full Name	admin 1
Id	1
Date Of Joining	2001-01-01
Date Of Birth	2001-01-01
Mobile	9443570140
Salary	₹ 1 P/M

✉ admin@freebird.com

Leave Status

0 / 0

Available Leave

FREE BIRD   PRODUCTS   USEFUL LINKS   CONTACT US

🏠 Home ⓘ About Us 📕 Management 🗓 Dashboard ➡ Log out

EDIT USER

Yuki Hayashi

yuki@Maxwell.com

About

I'm Yuki. Full Stack Designer I enjoy creating user-centric, delightful and human experiences.

Personal Details

First Name	Last Name
Valliappan	L

Mail	Phone
valliappan23@gmail.com	6369304154

Branch	Designation
Chennai	Manager

Id	Salary
45	100000

Date Of Joining	Date Of Birth
2022-01-04	2001-11-23

Password	Leave Available	Total Leave
••••••••••	24	25

Cancel Update

🏠 Home ⓘ About Us 📕 Management 🗓 Dashboard ➡ Log out

←

VIGNESHWAR T
EMPLOYEE
CHENNAI

Full Name	Vigneshwar T
Id	25
Date Of Joining	2022-01-04
Date Of Birth	2001-06-07
Mobile	9952442614
Salary	₹ 50000 P/M

✉ vigneshthiagesan@gmail.com

Leave Status

22 / 25

Available Leave

24

PROGRAM :

GIT HUB :

Management component.html

```html
<h2>Employee Details</h2>
<br>
<!-- button -->
<!-- this paragraph tag is for deleting meassage info -->
<!-- <p>{{msg}}</p> -->
<div class="button_container">

    <a  routerLink="/add"><button class="btn" id="btn"><span>Add
Employee</span></button></a>
  </div>
```

```html
<!-- search bar -->
<div class="searchBox">
    <input class="searchInput"type="text" name="" placeholder="Search"
(keyup)="doSearch(search.value)" #search>
    <button class="searchButton" href="#">
        <i class="fa-solid fa-magnifying-glass">

        </i>
    </button>
</div>
<!-- Table -->

    <table class="container">
        <thead>
            <tr>
                <th><h1>ID</h1></th>
                <th><h1>Name</h1></th>
                <!-- <th><h1>Last Name</h1></th> -->
                <th><h1>Branch</h1></th>
                <th><h1>Designation</h1></th>
                <th><h1>Salary</h1></th>
                <th><h1>Email</h1></th>
                <th><h1>Phone Number</h1></th>
                <th><h1>Operation</h1></th>
            </tr>
        </thead>
        <tbody>
            <tr *ngFor="let i of users">
                <td>{{i.uid}} </td>
                <td id="name">{{i.ufirstname}} {{i.ulastname}}</td>
                <!-- <td>{{i.ulastname}}</td> -->
                <td>{{i.ubranch}}</td>
                <td>{{i.udesignation}}</td>
                <td>{{i.usalary}}</td>
                <td>{{i.umail}}</td>
                <td>{{i.uphone}}</td>
                <td>
                    <a routerLink="/edit/{{i._id}}"><button class="btn"><i
class="fa-solid fa-pen blue"></i></button></a> 
                    <button class="btn"(click)="deleteUser(i._id)"><i class="fa-
solid fa-trash text-danger"></i></button> 
                    <a routerLink="/view/{{i._id}}"><button class="btn"><i
class="fa-solid fa-circle-info text-warning"></i></button></a>
                </td>
            </tr>
        </tbody>
    </table>
```

```
    <p *ngIf="users.length==0" class="text-center text-danger" id="record">No
Records Found</p>
    <br>
```

FULL CODE LINK

GIT HUB : <u>https://github.com/valliappan23/hcl_EmployeeManagementSystem</u>

5.4 SUMMARY AND CONCLUSIONS

- To summarize, a website is built using AngularJS framework, with routing modules.
- A secure backend with quality authentication and API's are built using ExpressJS
- The wesite is designed for three diferent types of user(normal user, Employee, Manger/Admin)
- The accessiblity and responsiveness of the website, guarantee a large user base on various device levels
- To conclude, the project meets the aim for which it was built.Providing to be positive in all aspects of visual testing and use cases..
- The system is highly user friendly and is well efficient to ease interactions with the users of the system. Reports generate with live data are proved to be informative and also helpful in making important decisions. The system is tested and implemented with high degree of accuracy.

The system is done with an insight into the necessary modification that may require in the future. Hence the system can be maintained successfully, without much rework.

6. REFERENCES

- ❖ https://getbootstrap.com/
- ❖ https://fontawesome.com/
- ❖ https://www.npmjs.com
- ❖ https://blog.hubspot.com/website/best-html5-admin-dashboard-templates
- ❖ https://www.mongodb.com/
- ❖ https://nodejs.org/en/
- ❖ https://angularjs.org/