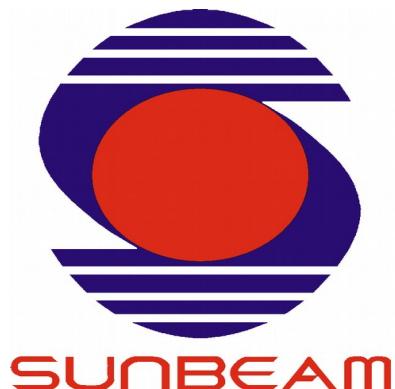


**PROJECT REPORT ON
HUMAN RESOURCE MANAGEMENT SYSTEM**

SUBMITTED IN
PARTIAL FULFILLMENT OF

DIPLOMA IN ADVANCED COMPUTING (PG-DAC)



BY
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UNDER THE GUIDENCE OF

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AT

**SUNBEAM INSTITUTE OF INFORMATION TECHNOLOGY,
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KARAD.**



CERTIFICATE

This is to certify that the project

Human Resource Management

Has been submitted by

Sanket Padgal - 190840820059

In partial fulfillment of the requirement for the Course of **PG Diploma in Advanced Computing (PG-DAC AUG 2019)** as prescribed by The **CDAC ACTS, PUNE.**

Place: Karad

Date: 27-1-2020

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ABSTRACT

Human Resource Management System project aimed to provide web based HR management tool for all types of organizations. This project includes employee personal details and professional details. Also employee project tracking system. This tool is mainly helping HR of the company in managing all the employee details and salaries. HR can manage leaves records.

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1.INTRODUCTION:

Human Resource Management System project aimed to provide web based HR management tool for all types of organizations. This project includes employee personal details and professional details. Also employee project tracking system. This tool is mainly helping HR of the company in managing all the employee details and salaries. HR can manage leaves records. Company admin which is going to be super user for this tool which is going to have all the permissions for all the employee information including HR details and all records. Employee can see their leave records and can manage their basic information.

This HR management can get in touch with the quality control team in Software Company to take care of employee details provide best quality when developing the company.

2. PRODUCT OVERVIEW AND SUMMARY

2.1) Purpose :

- To develop a web-based HR management System for the HR Group for a company.
- To improve efficiency of the HR Group of the company by online management of all the employees and their professional details.

To provide online base for the employee of the company on which they can manage their profile, projects also can see their leave record.

Dynamically the Database withstands the increased in the number of employees of the company.

It provides better functionalities for both the organization and the employees

There are three Object of this Project:

1.HR

2.Employee

2.2) Scopes of the Project :

Human Resource Management System project aimed to provide web based HR management tool for all types of organizations. This project includes employee personal details and professional details. Also employee project tracking system. This tool is mainly helping HR of the company in managing all the employee details and salaries. HR can manage leaves records. Company admin which is going to be super user for this tool which is going to have all the permissions for all the employee information including HR details and all records. Employee can see their leave records and can manage their basic information.

Proposed System:

The proposed system is managed by the visual basic 6.0, which are user friendly windows for every user and for maintaining the database Microsoft access is used.

2.1 Organization Overview:

The HR MANAGER (Human Resource Management System) handle all employee related details to help the hr and managing all related things like adding and updating freshers info and manage their salary and leaves.

2.2 Objective of the Project

- The main objective of the project is to design and develop a user friendly system.
- Easy to use and efficient computerized system.
- To develop an accurate and feasible system, it will eliminate data redundancy.
- Computerization can be helpful as means of saving time & money.
- To provide better graphical user interface.
- Less chances of information leakage.
- Provides security to data by using login & password
- Storing information of members, employees.

- Check validity of information provided by user.
- Storing information of members according to their id.

2.3 Existing System

The existing HR management tool is not capable of doing both leave management and salary management also not cable of managing projects and departments but this tool will overcome all this drawbacks of existing system.

The following are the reasons why the current system should be computerized:

- To increase efficiency with reduced cost.
- To reduce the burden of paper work.

2.4 Design and Implementation Constraints:

Constraints are “items that will limit the developer’s options” (IEEE 830). Constraints are also sometimes called non-functional requirements because they are requirements that the system must meet, yet they do not provide or describe functionality that accomplishes the purpose of the system interaction.

1. Hardware Limitations:

The minimum hardware requirement for the system is 128 MB of Ram and a 32-MB hard-disc drive.

2. Accessibility:

Initially, the software should be available as a desktop application for a small set of users to test.

3. Others:

The application should be built using JAVA and ANGULAR inscribed in HTML, and it should, initially, be accessible through the Visual Studio 2015 Community Edition and later published on a server.

3. REQUIREMENTS

3.1 Functional Requirements:

Basically, functional requirements describe the features, functioning, and usage of a product/system/software from the perspective of the product and its user. Although referred to as "requirements," they really are a form of design, high-level. Functional requirements also often are called "functional specifications," and "specification" is a synonym for design.

3.1.1 Use case for HR:

This Human Resource Manager use case diagram gives us the brief information about the functionalities performed by an user. Briefly following functionalities done by the Admin as per the bellow diagram.

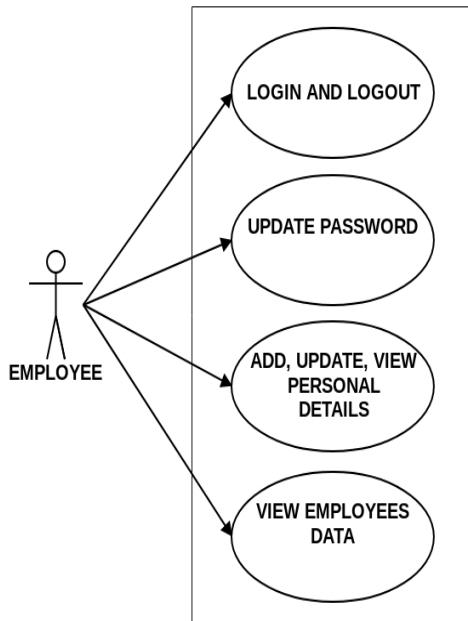
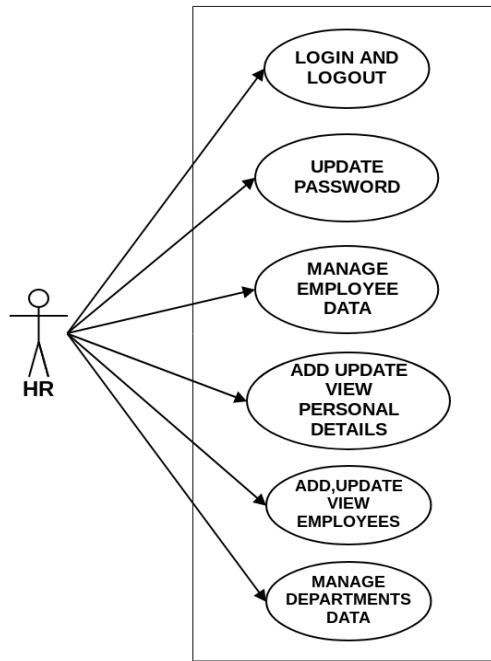
- Login.
- Manage Employee Info such as Leaves , personal details, Projects, Department Details.
- Log Off.

3.1.2 Use case for Employee:

This Human Resource Manager use case diagram gives us the brief information about the functionalities performed by an user. Briefly following functionalities done by the Admin as per the bellow diagram.

- Login.
- Apply for Leave
- Log Off.

USE CASE DIAGRAMS :



3.2 Non - Functional Requirements

Non-functional requirements are not non-functional at all. Rather, they describe various quality factors, or attributes, which affect the functionality's effectiveness. They do not exist in the abstract but only with respect to relevant functionality such as, usability, reliability, and maintainability. For instance, if the software doesn't satisfy relevant usability requirements for applicable functional usage, users can't use it appropriately and thus will not achieve the required functioning. Inadequate usability may cause errors which nullify the value of the functioning, such as miscalculating something.

Usability difficulties could cause the user not to use (all) the functions necessary to achieve the value, perhaps because they're not able to employ the necessary functions. It may take so long and be so unpleasant to use the software that the user can't use it as much as is needed or even abandons its use entirely.

3.2.1 Usability Requirements:

Usability is the ease of use and learn ability of a human-made object. The object of use can be a software-application, website, book, tool, MACHINE, process, or anything a human interacts with. A usability study may be conducted as a primary job function by a usability analyst or as a secondary job function by designers, technical writers, marketing personnel, and others. It is widely used in consumer electronics, communication, and knowledge transfer objects and mechanical objects such as a door handle or a hammer.

Usability includes methods of measuring usability, such as needs analyst and the study of the principles behind an object's perceived efficiency or elegance. In human-computer interaction and computer science, usability studies the elegance and clarity with which the interaction with a computer

program or a web site is designed. Usability differs from user satisfaction and user experience because usability also considers usefulness.

Usability Requirements for this project design should support the following from the perspective of its primary users:

Efficiency of use: goals are easy to accomplish quickly and with few or no user errors

Intuitiveness: the interface is easy to learn and navigate; buttons, headings, and help/error messages are simple to understand

Low perceived workload: the interface appears easy to use, rather than intimidating, demanding and frustrating.

3.2.2 Performance Requirement:

Performance requirement within system engineering, encompasses the set of roles, skills, activities, practices, tools, and deliverable applied at every phase of the systems development life cycle which ensures that a solution will be designed, implemented, and operationally supported to meet the non-functional requirements for performance.

In our project basic performance requirements get maintained by using object oriented concepts such as major pillars of object oriented programming thought process are ‘Abstraction’, ‘Modularity’, ‘Encapsulation’, ‘Hierarchy’ and minor pillars are ‘Concurrency’, ‘Persistence’, ‘Typing’. These pillars keep the inter-functionalities for the project as ‘loosely coupled and highly cohesive’.

3.2.3 Reliability Requirement:

Reliability Requirement is requirement that emphasizes dependency in the life cycle management of a product. Dependability, or reliability, describes the ability of a system or component to function under stated conditions for

a specified period of time. Reliability requirement may also describe the ability to function at a specified moment or interval of time (Availability).

Reliability is theoretically defined as the probability of success (Reliability=1-Probability of Failure), as the frequency of failures; or in terms of availability, as a probability derived from reliability, test-ability and maintainability. Test-ability, Maintainability and maintenance are often defined as a part of "reliability engineering" in Reliability Programs.

Reliability plays a key role in the cost-effectiveness of systems. In this project, to achieve the reliability requirement of the software the various programming layers have to reliable on each other inclusively. For example in our project, we have database, POGO layer, DAO layer, Controller layer, Service layer. Among these, each layer has to relay on other layer. For example, POGO layer has dependency on database, for the implementation of DAO layer it has to take some help of POGO layer and so on. This activity shows the reliability requirements of our project.

Limitations of existing system

Time consumption:

As the records are to be manually maintained it consumes a lot of time.

Paper work:

Lot of paper work is involved as the records are maintained in the files & registers

Storage requirements:

As files and registers are used the storage space requirement is increased.

Less reliable:

Use of papers for storing valuable data information is not at all reliable.

Accuracy:

As the system is in manual there are lot many chances of human errors. These can cause errors in calculating mechanism or maintaining customer details.

Difficulty in keeping new records:

It is difficult for keeping all the new entries of members, their account and transaction details.

4.PROJECT DESIGN

4.1 Data Model

A data model organizes data elements and standardizes how the data elements relate to one another. Since data elements document real life people, places and things and the events between them, the data model represents reality. A data model is a set of symbols and text used for communicating a precise representation of an information system. A data model provides the details of information to be stored, and is of primary use when the final product is the generation of computer software code for an application or the preparation of a functional specification to aid a computer software make-or-buy decision. The figure is an example of the interaction between process and data models.

Data models are often used as an aid to communication between the business people defining the requirements for a computer system and the technical people defining the design in response to those requirements. They are used to show the data needed and created by business processes. The data model simply describes the structure of data entities and their relationships. For example, in a banking system, entities will typically

include Account, Customer and Loan. Account has several attributes, such as account number, type (savings or checking), status, and current balance.

A relationship may dictate that one customer can have one or more accounts, and one account is associated to one or two customers. Data modeling spans the evolution of the high-level model that displays the data entities in a given business domain into a model that shows details of how the data is stored.

4.1 Database Design

Database design is the process of producing a detailed data model of a database. This data model contains all the needed logical and physical design choices and physical storage parameters needed to generate a data definition language, which can then be used to create a database. A fully attributed data model contains detailed attributes for each entity.

The term database design can be used to describe many different parts of the design of an overall database system. Principally, and most correctly, it can be thought of as the logical design of the base data structures used to store the data. In the relational model these are the tables and views. In an object database the entities and relationships map directly to object classes and named relationships. However, the term database design could also be used to apply to the overall process of designing, not just the base data structures, but also the forms and queries used as part of the overall database application within the database management system (DBMS).

The process of doing database design generally consists of a number of steps which will be carried out by the database designer. Usually, the designer must:

- Determine the data to be stored in the database.

- Determine the relationships between the different data elements.
- Superimpose a logical structure upon the data on the basis of these relationships.

Within the relational model the final step above can generally be broken down into two further steps that of determining the grouping of information within the system, generally determining what are the basic objects about which information is being stored, and then determining the relationships between these groups of information, or objects. This step is not necessary with an object database.

Projects Table :

Field	Type	Null	Key	Default	Extra
<code>id</code>	<code>int(11)</code>	NO	PRI	<code>NULL</code>	<code>auto_increment</code>
<code>project_name</code>	<code>varchar(255)</code>	YES		<code>NULL</code>	
<code>status</code>	<code>varchar(255)</code>	YES		<code>NULL</code>	

Departments Table :

Field	Type	Null	Key	Default	Extra
<code>id</code>	<code>int(11)</code>	NO	PRI	<code>NULL</code>	<code>auto_increment</code>
<code>department_name</code>	<code>varchar(255)</code>	YES		<code>NULL</code>	

User Table :

Field	Type	Null	Key	Default	Extra
<code>id</code>	<code>int(11)</code>	NO	PRI	<code>NULL</code>	<code>auto_increment</code>
<code>city</code>	<code>varchar(255)</code>	YES		<code>NULL</code>	
<code>contact</code>	<code>varchar(255)</code>	NO	UNI	<code>NULL</code>	
<code>date_of_birth</code>	<code>date</code>	NO		<code>NULL</code>	
<code>date_of_joining</code>	<code>date</code>	NO		<code>NULL</code>	
<code>email_id</code>	<code>varchar(255)</code>	NO	UNI	<code>NULL</code>	
<code>experience</code>	<code>float</code>	YES		<code>NULL</code>	
<code>first_name</code>	<code>varchar(255)</code>	YES		<code>NULL</code>	
<code>gender</code>	<code>varchar(255)</code>	YES		<code>NULL</code>	
<code>hr_id</code>	<code>int(11)</code>	NO		<code>NULL</code>	
<code>last_name</code>	<code>varchar(255)</code>	YES		<code>NULL</code>	
<code>marital_status</code>	<code>varchar(255)</code>	YES		<code>NULL</code>	
<code>password</code>	<code>varchar(255)</code>	NO		<code>NULL</code>	
<code>permanant_address</code>	<code>varchar(255)</code>	YES		<code>NULL</code>	
<code>role</code>	<code>varchar(255)</code>	YES		<code>NULL</code>	
<code>salary</code>	<code>float</code>	NO		<code>NULL</code>	
<code>department_id</code>	<code>int(11)</code>	YES	MUL	<code>NULL</code>	
<code>project_id</code>	<code>int(11)</code>	YES	MUL	<code>NULL</code>	

Leaves Table :

Field	Type	Null	Key	Default	Extra
id	int(11)	NO	PRI	NULL	auto_increment
acceptRejectFlag	bit(1)	YES		NULL	
active	bit(1)	YES		NULL	
duration	int(11)	YES		NULL	
fromDate	date	NO		NULL	
leaveType	varchar(255)	YES		NULL	
reason	varchar(255)	NO		NULL	
toDate	date	NO		NULL	
u_id	int(11)	YES	MUL	NULL	
status	varchar(255)	YES		NULL	

4.2 Process Model

A software process model is a standardized format for following stages of software developing.

- Planning.
- Organizing.
- Running a development project.

Hundreds of different models exist and are used, but many are minor variations on a small number of basic models. We surveyed the important basic models, and tried how to choose between them. We have to consider following constraints while building a software or any real world project.

A (software/system) process model is a description of the sequence of activities carried out in a software project, and the relative order of these activities.

A process model provides a fixed generic framework that can be tailored to a specific project. Project specific parameters will include:

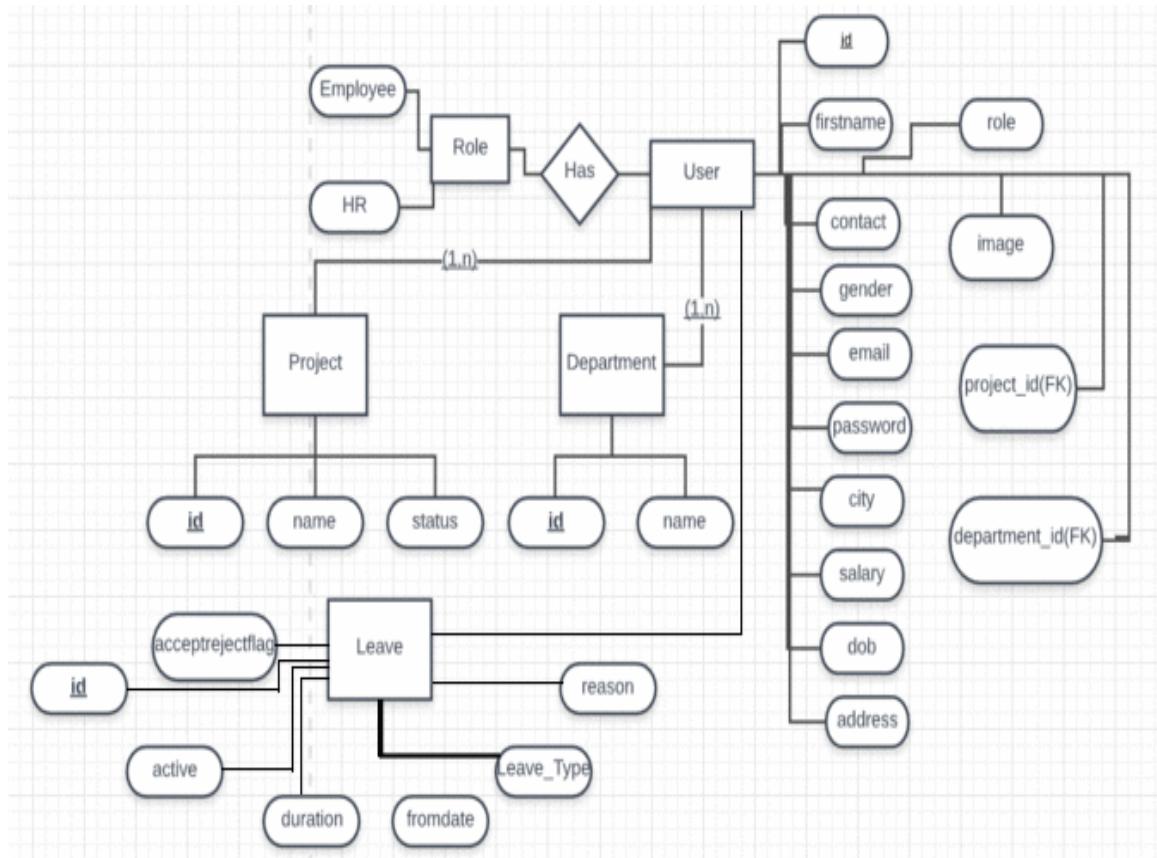
- Size,(person-years)
- Budget,
- Duration.

Project Plan = Process Model + Project Parameters.

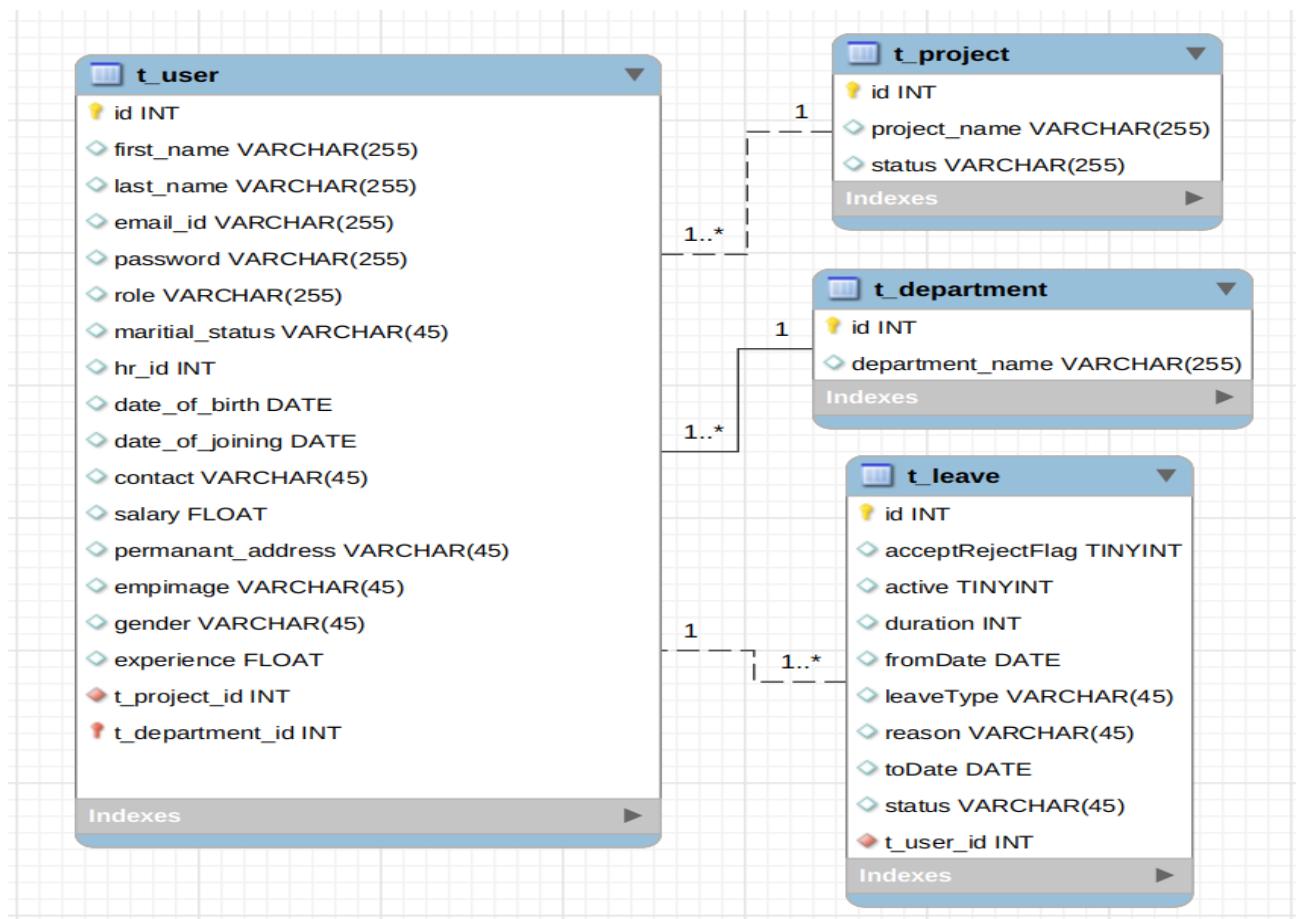
There are different types of basic process models are existed, in our project we used Agile model as a process model.

Agile modeling is a methodology for modeling and documenting software systems based on best practices. It is a collection of values and principles that can be applied on an (agile) software development project. This methodology is more flexible than traditional modeling methods, making it a better fit in a fast changing environment. It is part of the agile software development tool kit.

4.2.2 USE CASE



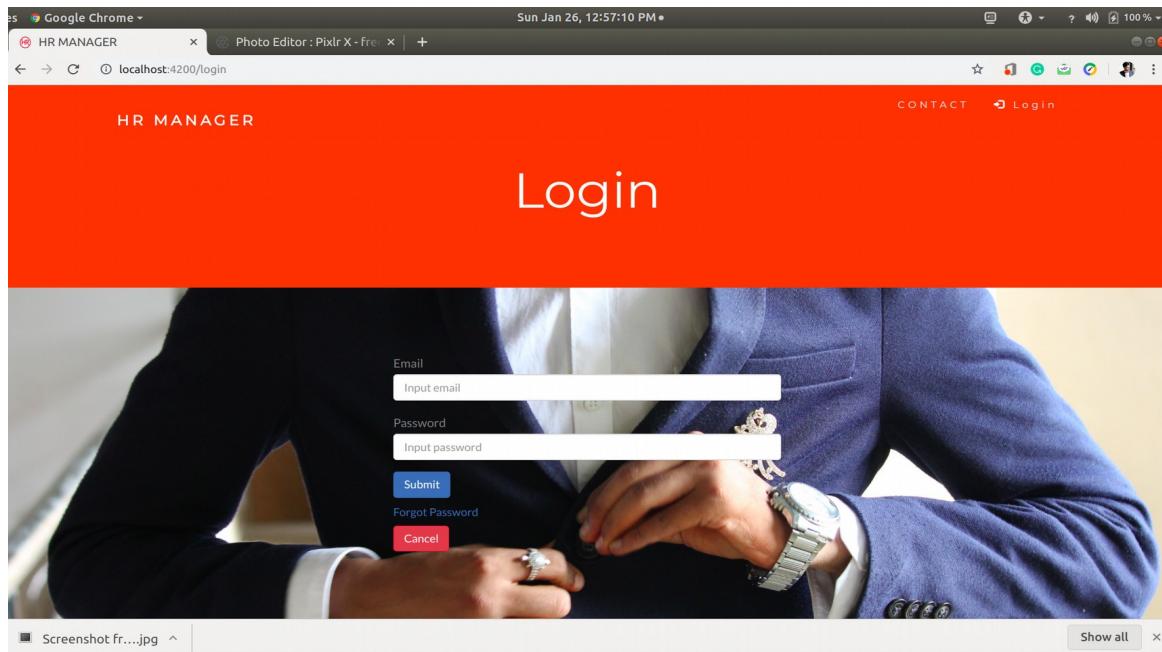
Class Diagrams :



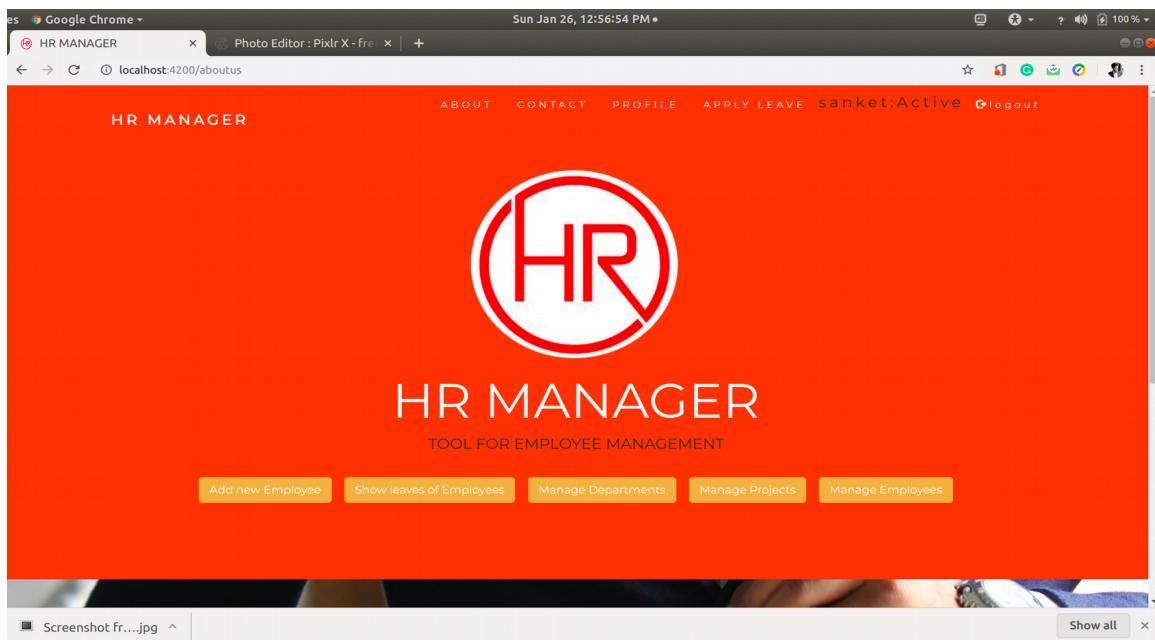
5. PROJECT RELATED STATISTICS:

Project related statistics shows what the realistic scenario of our project is. It includes actual look and feel, functionality of the project. Following are the some screenshots of our project that is Project management System.

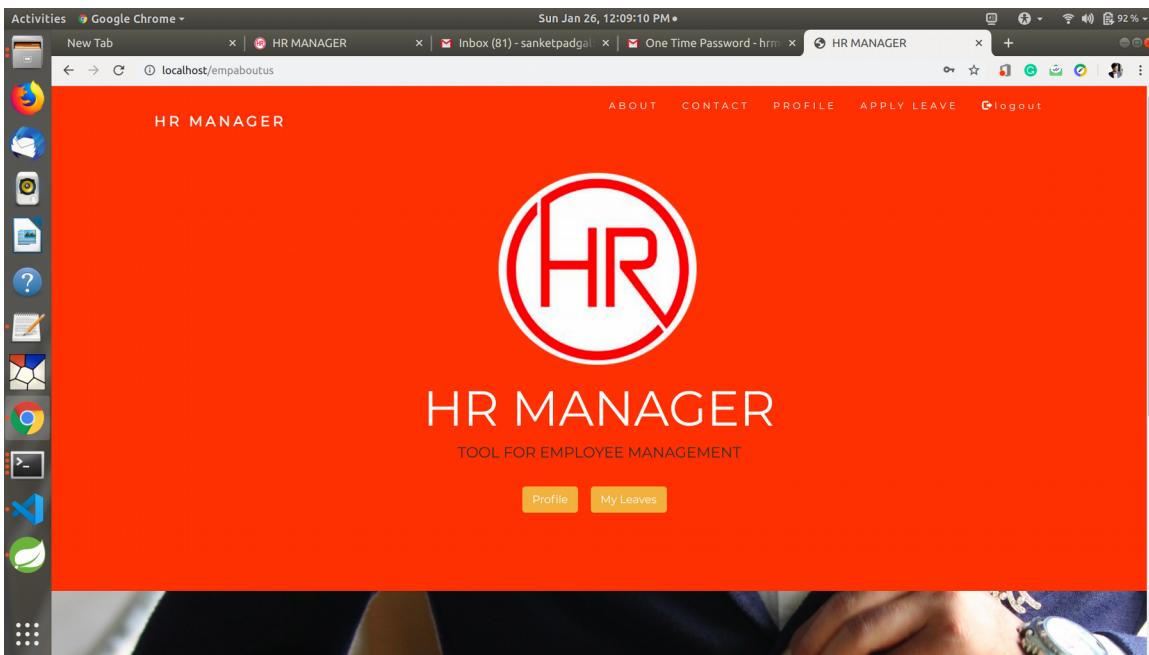
Project Screen Shots : Login Page :



Home Page :



Employee Home Page :



List Of Employee Page :

The screenshot shows the "List Of Employees" page of the HR Manager application. The page has a bright orange header with the text "List Of Employees". Below the header, there is a sub-header "Select Employee" with three buttons: "Add new Employee", "Show leaves of Employees", and "Cancel". The main content is a table displaying employee data. The columns include: Id, Role, Name, Email, Password, Address, Salary, Contact, Gender, DOB, DateOfJoining, Experience, Marital status, Project Name, Department Name, and Action. The table contains 10 rows of data. At the bottom of the table, there is a "Show all" button. The top of the browser window shows the URL "localhost:4200/list" and the date "Sun Jan 26, 12:57:39 PM". The browser toolbar includes icons for back, forward, search, and refresh.

Id	Role	Name	Email	Password	Address	Salary	Contact	Gender	DOB	DateOfJoining	Experience	Marital status	Project Name	Department Name	Action
1	HR	sanket padgal	sanket@gmail.com	123	satara	2000	7775961595	MALE	2019-02-01	2019-10-09	1	MARRIED	ss	it	<button>Update</button>
5	EMPLOYEE	sanket padgal	hrmgmtns@gmail.com	123	satara	50000	9999999	MALE	2020-01-21	2020-01-30	1	UNMARRIED	ss	it	<button>Update</button>
2	HR	sanket padgal2	sanket30@gmail.com	123	satara	2000	7775961596	MALE	2019-01-30	2019-10-07	1	MARRIED	ppp	accounts	<button>Update</button>
8	EMPLOYEE	pritipadgal	sawantprit19@gmail.com	123	satara	50000	7030718140	FEMALE	1996-11-18	2020-01-30	1	UNMARRIED	ppp	accounts	<button>Update</button>
10	EMPLOYEE	pritipadgal	sawantprit@gmail.com	123	satara	50000	7030	FEMALE	1996-11-18	2020-01-30	1	UNMARRIED	ppp	accounts	<button>Update</button>

Leave History Page :

The screenshot shows a web browser window titled "HR MANAGER" with the URL "localhost:4200/leavehistory". The page has a red header bar with links for "ABOUT", "CONTACT", "PROFILE", "APPLY LEAVE", "sanket:Active", and "Logout". The main content area is titled "Leave History" and features a large background image of a person's hands. Below the image is a table titled "Employee Leave History" with the following data:

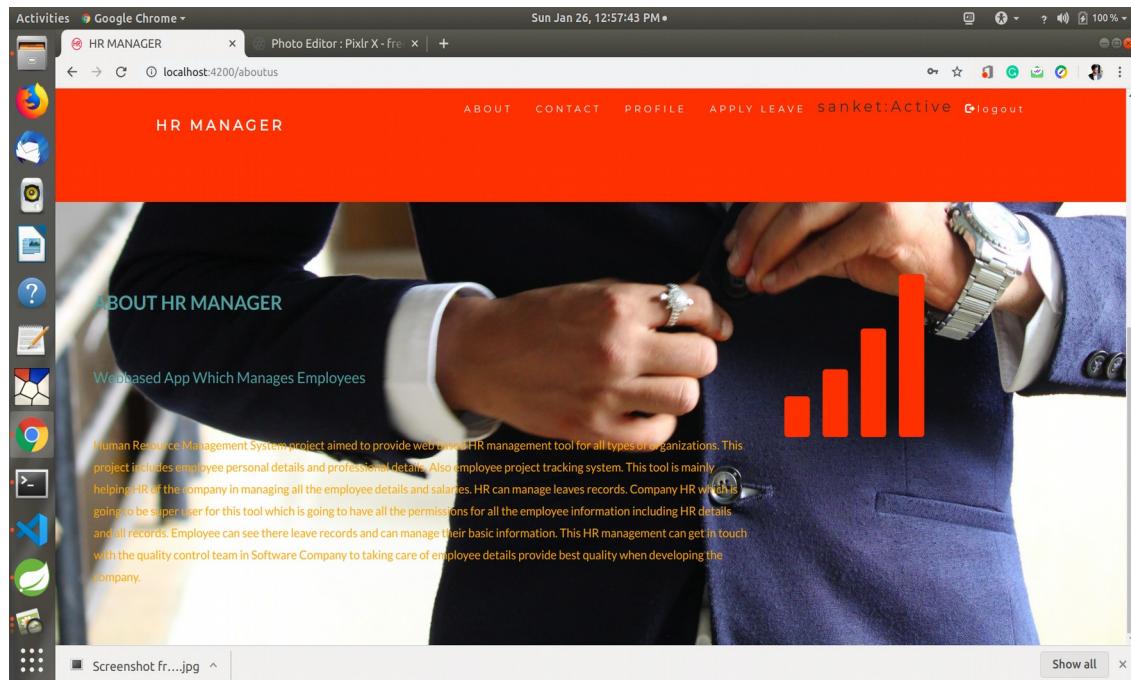
Id	First Name	Last Name	From Date	To Date	LeaveType	Reason	No Of Days	Active/Deactive	Status	User Id
5	nirmesh	jain	2020-01-07	2020-01-11	PL	family	5	false		3
6	nirmesh	jain	2020-01-14	2020-01-16	PL	trip	3	true		3
7	nirmesh	mulik	2019-12-30	2020-01-03	PL	tripp	5	false	Approved	4
8	nirmesh	mulik	2020-01-09	2020-01-11	CASUAL	family issue	3	false		4
9	priti	padgal	2020-01-23	2020-01-28	CASUAL	Emergency	6	false	Disapproved	8
10	nirmesh	mulik	2020-01-23	2020-01-28	MEDICAL	emergency	6	false	Approved	4
11	sanket	padgal	2020-01-31	2020-02-04	CASUAL	family reasons	5	true		5
12	sanket	padgal	2020-01-30	2020-02-03	CASUAL	family reasons	5	false	Disapproved	5

Manage Leave Page :

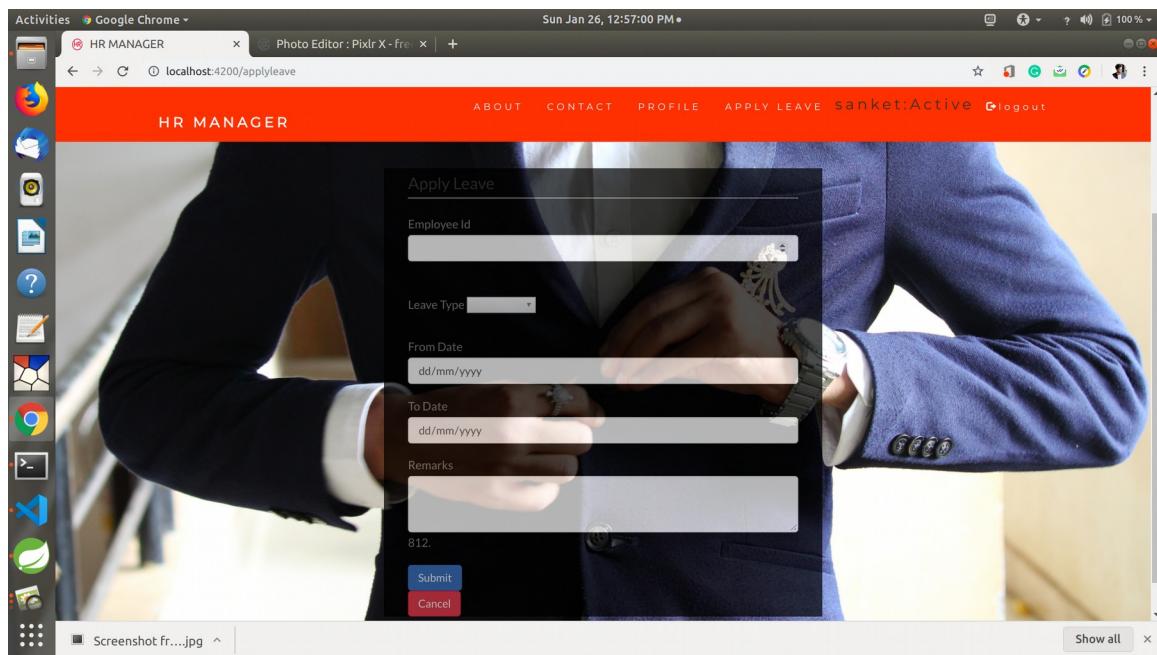
The screenshot shows a web browser window titled "HR MANAGER" with the URL "localhost:4200/manageleave". The page has a red header bar with links for "ABOUT", "CONTACT", "PROFILE", "APPLY LEAVE", "sanket:Active", and "Logout". The main content area is titled "Manage Leaves" and features a large background image of a person's hands. Below the image is a table titled "Active Leaves" with the following data:

Id	First Name	Last Name	From Date	To Date	LeaveType	Reason	No Of Days	User Id	ACTION
6	nirmesh	jain	2020-01-14	2020-01-16	PL	trip	3	3	<button>Accept</button> <button>Reject</button>
11	sanket	padgal	2020-01-31	2020-02-04	CASUAL	family reasons	5	5	<button>Accept</button> <button>Reject</button>

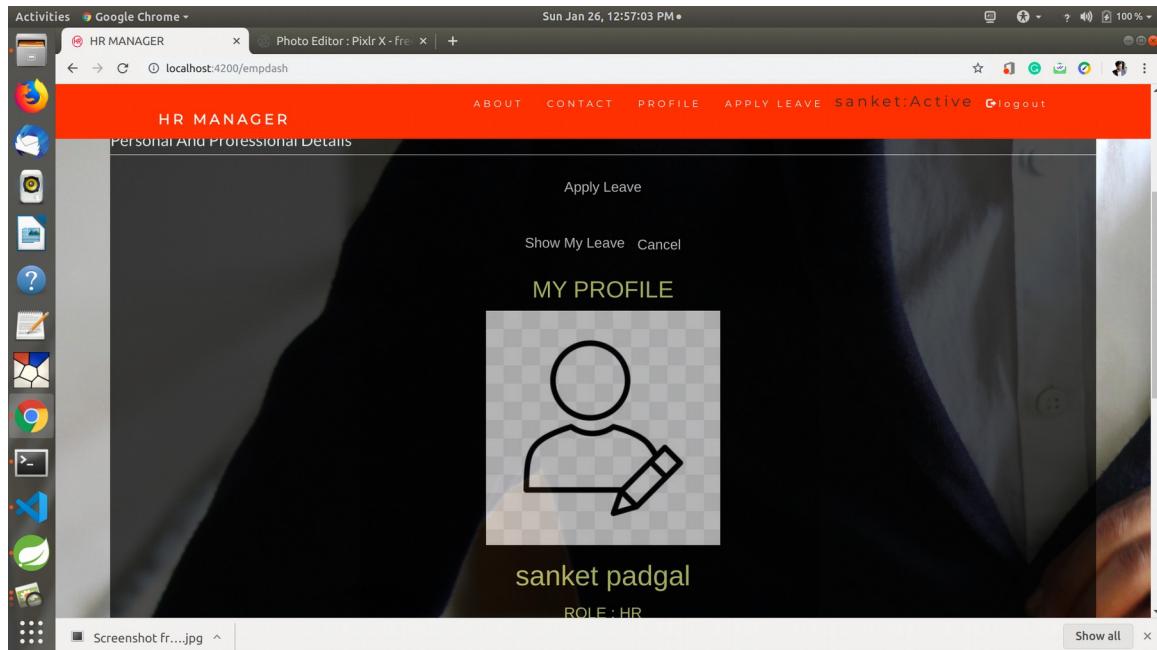
About Us Page :



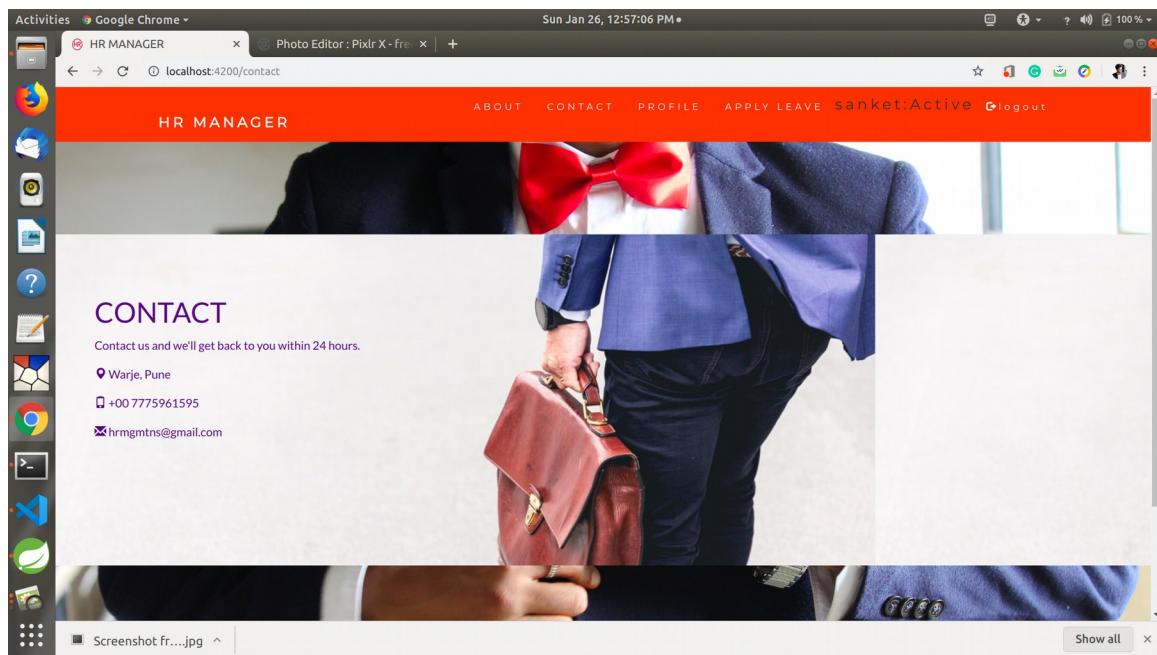
Apply Leave Page :



Profile Page :



Contact Page :



Project List Page :

The screenshot shows a web browser window with a red header bar containing the text "HR MANAGER". Below the header, a large orange section displays the title "List Of Projects". A modal window titled "Select Project" is overlaid on the page. The modal contains a table with three rows of project data:

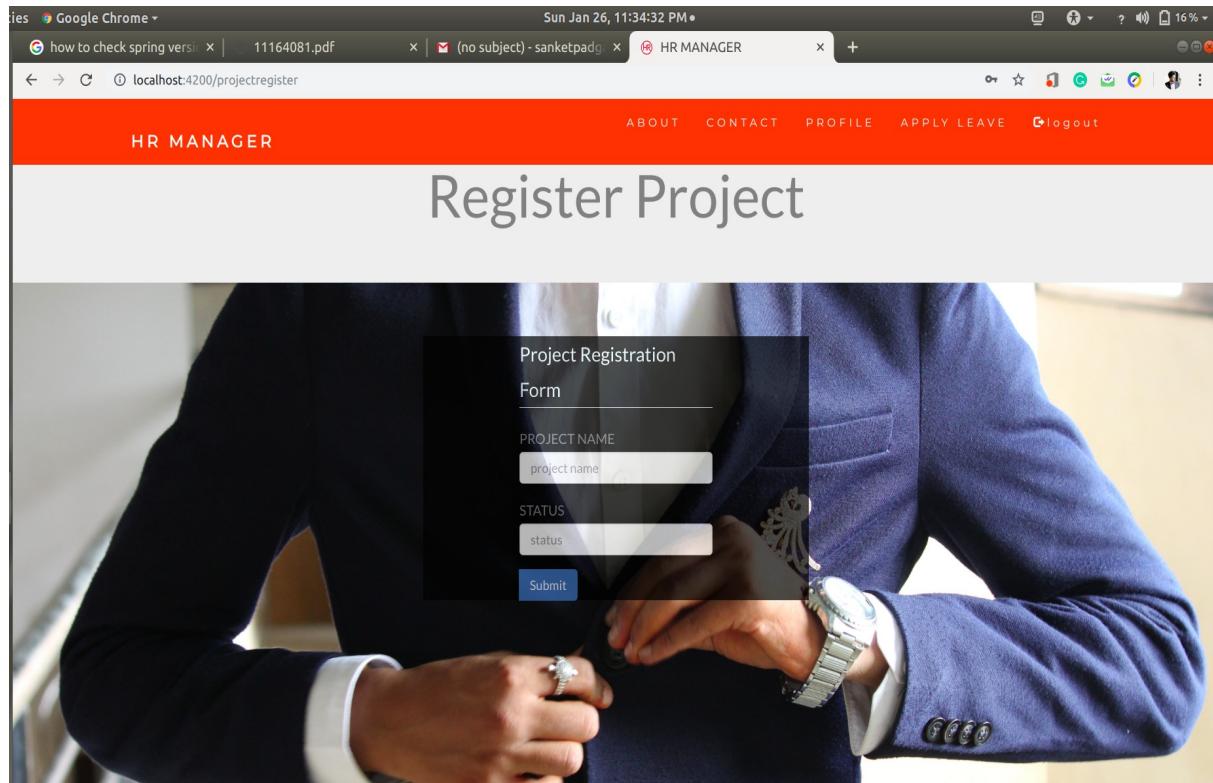
ID	Project Name	Project Status	Action
1	ss	ACTIVE	<button>Update</button>
2	ppp	ACTIVE	<button>Update</button>
3	p	INACTIVE	<button>Update</button>

At the top of the modal, there are "Add new Project" and "Cancel" buttons. The background of the page shows a person in a suit jacket and a watch.

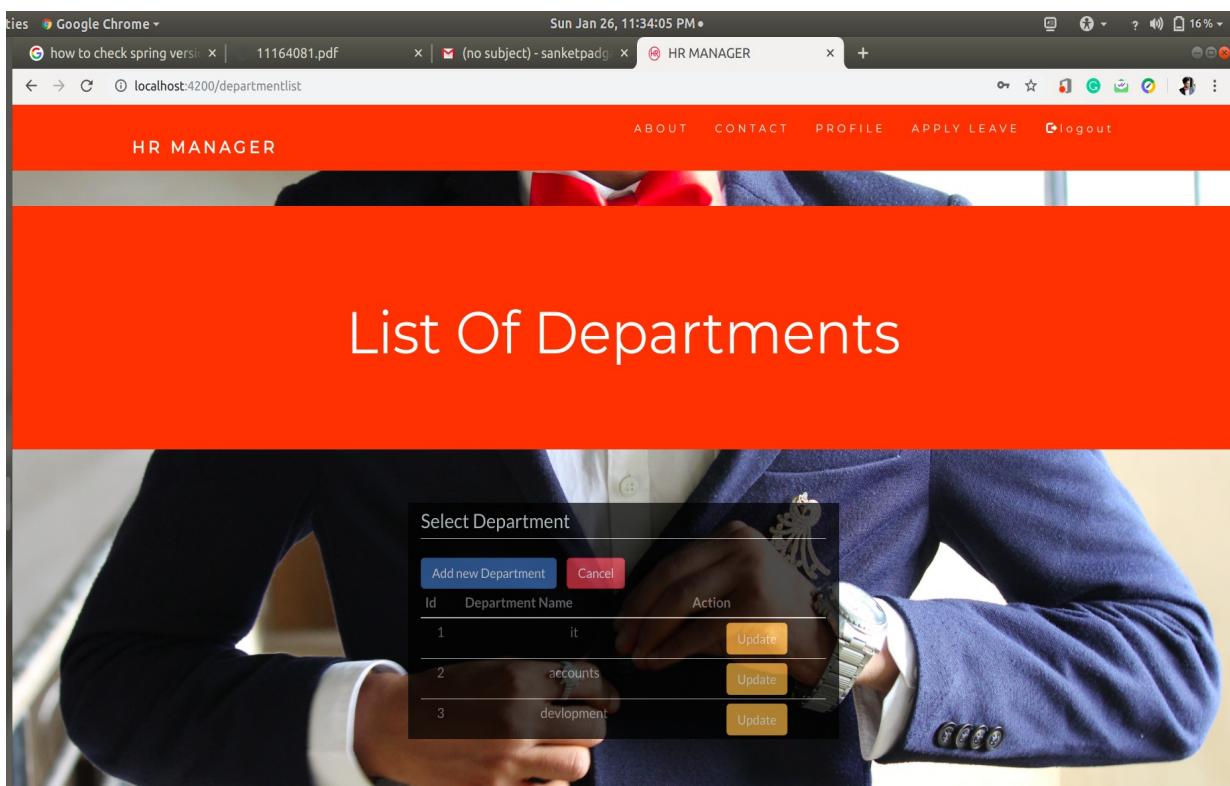
Project Update Page :

The screenshot shows a web browser window with a red header bar containing the text "HR MANAGER". Below the header, a large orange section displays the title "Update Project". A modal window titled "ID" is overlaid on the page. The modal contains input fields for "Project Name" (with value "ss") and "Project Status" (set to "ACTIVE"). At the bottom of the modal are "UPDATE" and "Cancel" buttons. The background of the page shows a person in a suit jacket and a watch.

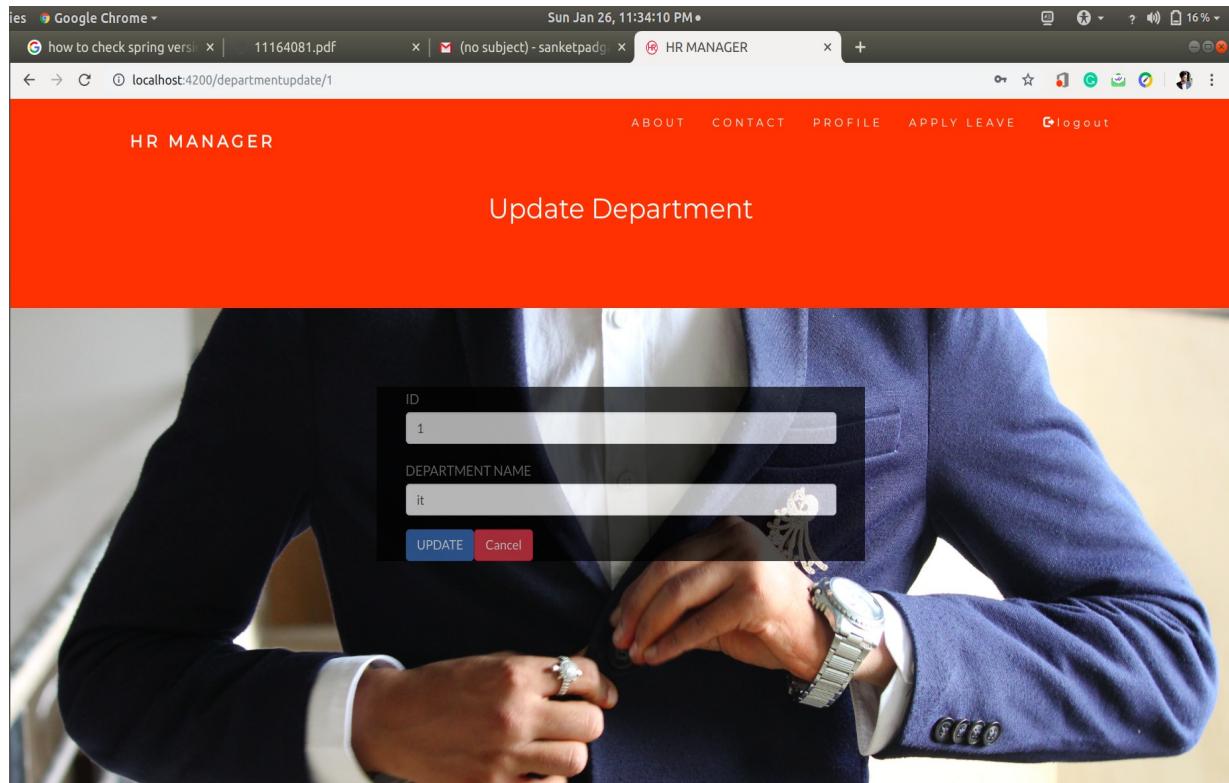
Project Register Page :



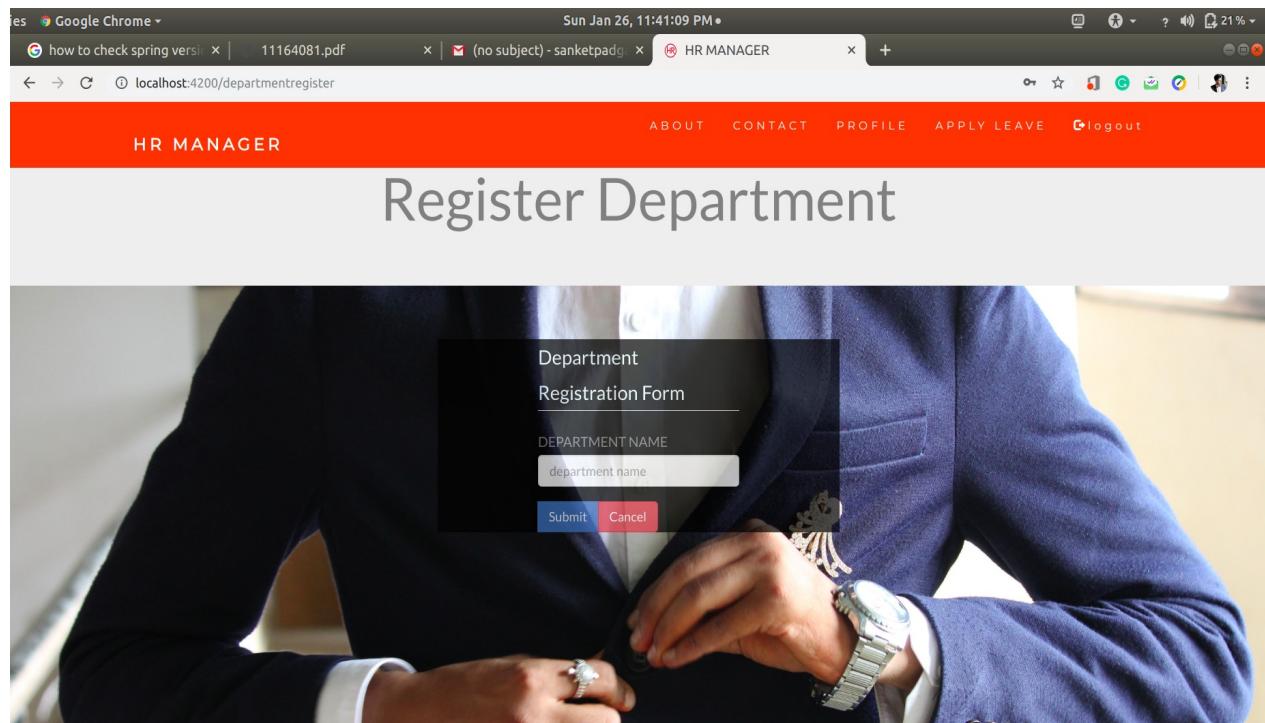
Department List Page :



Department Update Page :



Department Register Page :



6. TEST REPORT

System testing is designed to uncover the weaknesses that were not found in earlier test. In the testing phase, the program is executed with the explicit intention of finding errors. This includes forced system failures and validation of the system, as its user in the operational environment will implement it. For this purpose test cases are developed.

When a new system replaces the old one, such as in the present case, the organization can extract data from the old system to test them on the new. Such data usually exist in sufficient volume to provide sample listings and they can create a realistic environment that ensures eventual system success. Regardless of the source of test data, the programmers and analyst will eventually conduct four different types of tests

System Testing

The system testing deals with the process of testing the system as a whole. This is done after the integration process. Moving through each module from top to bottom tests the entire . The verification and validation process are then The errors that occur the testing phase are eliminated and a well functioning system is developed. Test case design focuses on a set of techniques, which meets all testing objectives, which are mentioned below.

1. Testing is a process of executing a program with the intent of finding an error.
2. A successful test is one that uncovers an as yet undiscovered error. Testing demonstrates that software functions work according to specifications. In addition data collected from testing provides a good indication of software reliability and some indication of software quality as a whole. Testing results in the deduction in the numbers of errors. Critical modules are tested as early as possible .The following tests have been carried out after developing the system.

Various Testing Methods:

Unit testing focuses verification efforts on the smallest unit of the software design, the module. This is also known as Module Testing. The modules are tested separately. This testing is carried out during programming stage itself.

Validation Testing:

Validation testing can be defined in many ways but a simple definition is that validation succeeds when the software functions in a manner that can be reasonably expected by the users .After validation test has been conducted one of the two possible conditions exists

1. The function or the performance characteristics to confirm specification and are accepted.
2. A deviation from specification is uncovered and a deficiency list is created.

Output Testing:

After performing the validation testing the next step is output testing of the proposed system since no system is useful if it does not produce the required output in the specific format. The outputs generated or displayed by the system under consideration are tested by asking the users about the formats required by them.

Test Case	Expected Result	Actual Message	Error Message	Type Of Error
Login Page	Redirected to Next page	OK	Not a valid message on invalid login type	Minor Error
Registration Page	All the fields should be filled for submission	Page submission without filling all the options	Proper validations are not provided for all options	Major Logical Error
Registration Page/After submission	Message for successful registration	Not Logging Out	Invalid Validator provided on logout options	Major logical Error
Gym Admin Access Page	Only validated Project Manager can see pages	Page submission without filling all the options	Proper validations are not provided for all options	Major logical Error
Trainer Access Page	Only validated Trainer can see pages	Page submission without filling all the options	Proper validations are not provided for all options	Major logical Error
User Access Page	Only validated Trainer can see pages	Page submission without filling all the options	Proper validations are not provided for all options	Major logical Error
Logout	Log out Message	Not Logging Out	Invalid Validator provided on logout option	Major logical Error
Home Page	Show various registered services	Extra Blank fields are displayed	Blank Fields	Minor Error

6.1.System Maintenance & Evaluation

The maintenance activity consist of following tasks:

1. Backup
2. Diagnostic
3. Integrity changes
4. Recovery
5. Design changes
6. Performance tuning

These features ensure the availability of the databases round the clock as the database maintenance is possible online when the system is in use. RDBMS allows an online maintenance, rapid recovery and software based fault tolerance. The rapid recovery features allows the system administrator to provide ‘time’ to go back for the recovery of the data if the system fails due to power or network crash. Based on this time, system automatically goes back and collects all the change and writes to disk.

7. CONCLUSION

The “**HUMAN RESOURCE MANAGEMENT SYSTEM**” is successfully designed and developed to fulfilling the necessary requirements, as identified in the requirements analysis phase, such as the system is very much user friendly, form level validation and field level validation are performing very efficiently. The new computerized system was found to be much faster and reliable and user friendly then the existing system, the system has been designed and developed step by step and tested successfully. It eliminates the human error that are likely to creep in the kind of working in which a bulk quantity of data and calculations as to be processed.

The system results in quick retrieval of information that is very vital for the progress any organization. Cost is minimized in case of stationary. Burden of manual work is reduced as whenever transaction takes place, there is a no need to record it in many places manually.

