Project Report On

"ONLINE EMPLOYEE REGISTRATION SYSTEM"

Submitted for the partial fulfillment of the requirement for the degree of

Bachelor of Technology

in

COMPUTER SCIENCE & ENGINEERING

By

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Date:17.02.2023

Certificate

This is to certify that the project report entitled "Online Employee Registration System" submitted by

i) Mr. Suvam Kumar Nanda, Reg No. 1901287215

is an authentic work carried out by him at GITA under my guidance. The matter embodied in this project work has not been submitted earlier for the award of any degree or diploma to the best of my knowledge and belief.

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Thanking All…..

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ABSTRACT

Empoyee Management System is a distributed application, developed to maintain the details of employees working in any organization. It maintains the information about the personal details of their employees. The application is actually a suite of applications developed using Java.

This software package has been developed using the powerful coding tools of JAVA at Front End and Oracle Server at Back End. The software is very user friendly. The package contains different modules like Employee details.

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INTRODUCTION

Online Employee Registration system is an application that enables users to create and store Employee Records. Java is a platform independent language. Its created applications can be used on a standalone machine as well as on distributed network. More over applications developed in java can be extended to Internet based applications. Thus java was chosen as background to design this application. It is basically maintained by the Admin of an Organization.

This will be a GUI-based program with Oracle as a database.

- Add employee
- View employees
- Edit employee
- Delete employee
- Save data

The design activities are of main importance in this phase, because in this activity, decisions ultimately affecting the success of the software implementation and its ease of maintenance are made. These decisions have the final bearing upon reliability and maintainability of the system. Design is the only way to accurately translate the customer's requirements into finished software or a system.

1.1 Objective

In this world of growing technologies everything has been computerized. With large number of work opportunities the Human workforce has increased. Thus there is a need of a system which can handle the data of such a large number of Employees in an organization. This project simplifies the task of maintain records because of its user friendly nature.

1.2 Specification of the system

Software Engineers have been trying various tools, methods and procedures to control the process of software development in order to build high quality software with high productivity. This method provides “how it is” for building the software while the tools provide automated or semi-automated support for the methods. They are used in all stages of software development process, namely, planning, analysis, design, development and maintenance. The software development procedure integrates the methods and tools together and enables rational and timely development of the software system.

They provide the guidelines as how to apply these methods and tools, how to produce the deliverable at each stage, what controls to apply, and what milestones to use to assess the performance of the program. There exist a number of software development paradigms each using a different set of methods and tools. The selection of a particular paradigm depends on the nature of application of the programming language used for the controls and the deliverables required. The development of such successful systems depends not only on the use of appropriate methods and techniques but also the developers’ commitment to the objective of the system.

A successful system must: -

- Satisfy the user requirements
- Be easy to understand by user and operator
- Be easy to operate
- Have a good user interface
- Be easy to modify
- Be expandable
- Have adequate security control against the misuse of data
- Handle the errors and exceptions satisfactorily
- Be delivered on schedule within the budget

1.3 <u>Advantage of the system</u>

This Online Employee registration System Helps for Registering the details of the Employee in an Organization. In this project the details of the Employee can be saved as well as the details of the employee can be viewed at any time ,If require we can edit and delete those data also.

- This system wii reduce the complexcity of employee management.

- By using this system we can easily maintain all the records about" ON EMPLOYEES" or "OFF EMPLOYEES".

- It will reduce searching time.
- It can be easily handeled by the person who have elementary know ledge of computer because it provides an user friendly environment.

- It's hardware and software configuration is not very costly that means The hardware and and software requirement for this soft ware/project are not very costly.

DEVELOPMENT OF THE SYSTEM

2.1.1 Hardware Requirements:

RAM	-	4GB
HDD	-	256GB
PROCESSOR	-	Intel Pentium IV, 1GHZ or above
VIDEO	-	1024x768, 24-bit colors

2.1.2 Software Requirement:

OPERATING SYSTEM	-	Windows10 (64 bit)
DEVELOPING LANGUAGE	-	Java (JDK 17)
DEVELOPING TOOL	-	Eclipse (2022 09)
DATABASE	-	Oracle Database 19c
SERVER	-	Tomcat V9.0

2.2System Requirement and Specification

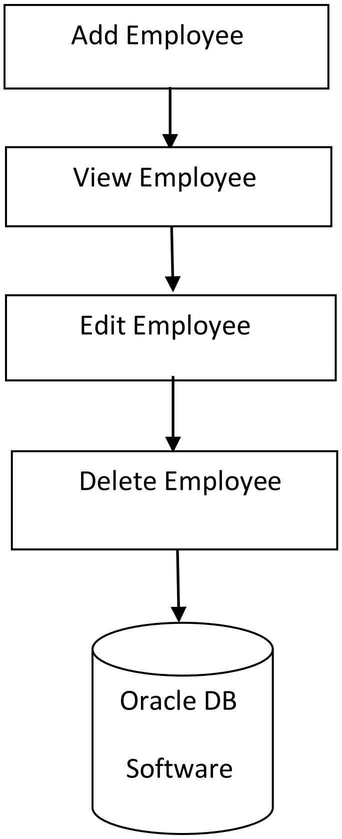
The aim of the system is to develope “ONLINE EMPLOYEE REGISTRATION SYSTEM” software which should automate the process to create and store employee details .The system is supposed to be used as a subsystem in a large office system, which could be a manual system or a computerized one Therefore the purpose system must be able to work under both the circumstances.

The aim of requirement analysis is to understand the exact requirement of the customer and to document and to document them properly. Requirement analysis involves obtaining a clear and thorough understanding of the product to be developing with a view to remove all ambiguities and inconsistencies from the initial customer perception the problem.

The question arising during the requirement analysis phases is: -

- What is the problem?
- Why is it important to solve the problem?
- What are the possible solutions to the problem?
- What exactly are the data inputs and data outputs by system?
- What are the likely the complex cities that might arise while solving the problem?

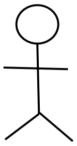
2.3 Block diagram of the system



UML Diagram Of the System

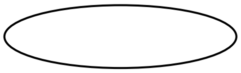
Actor:

A coherent set of roles that users of use cases play when interacting with the use `cases.



Use case:

A description of sequence of actions, including variants, that a system performs that yields an observable result of value of an actor.



UML stands for Unified Modeling Language. UML is a language for specifying, visualizing and documenting the system. This is the step while developing any product after analysis. The goal from this is to produce a model of the entities involved in the project which later need to be built. The representation of the entities that are to be used in the product being developed need to be designed. There are various kinds of methods in software design:

They are as follows:

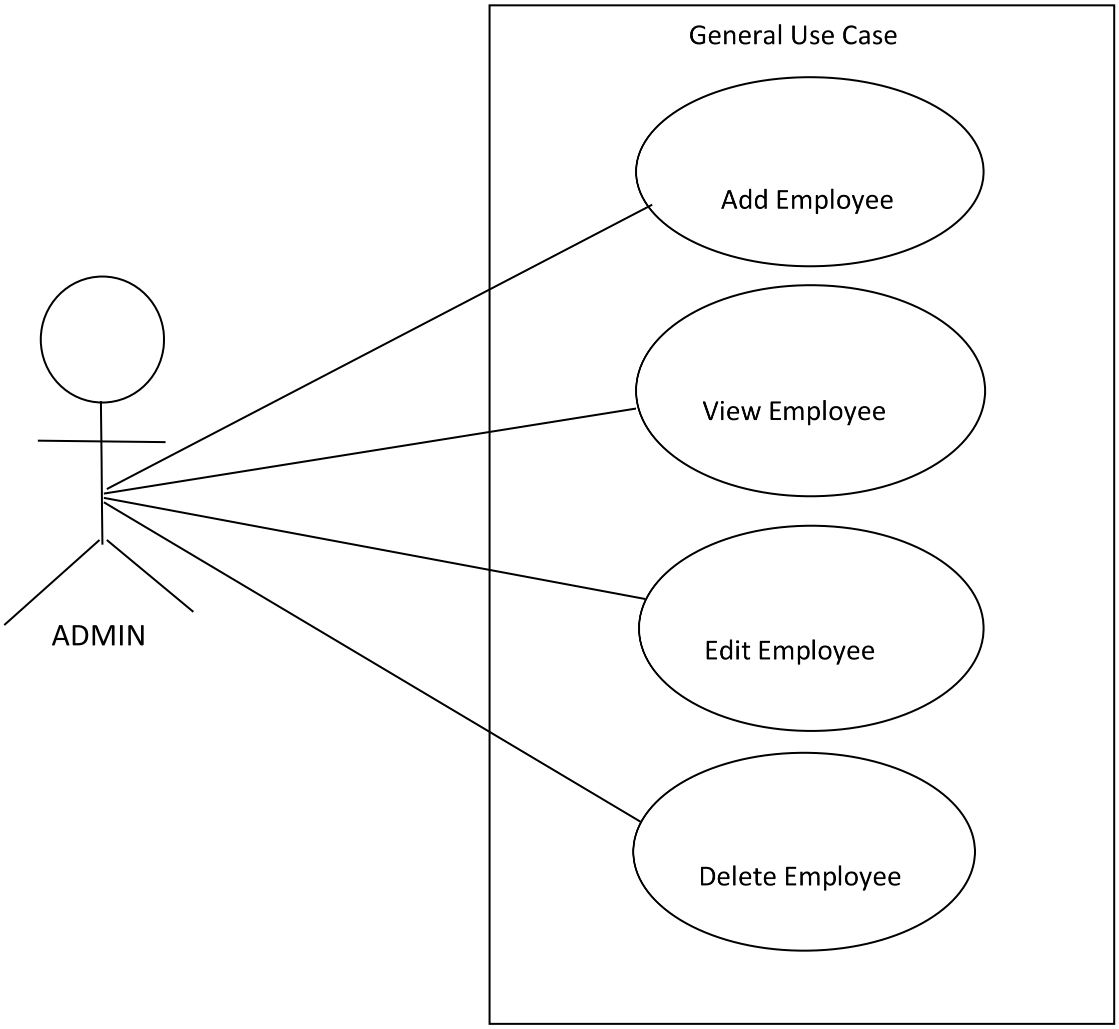
- Use case Diagram
- Sequence Diagram
- Collaboration Diagram
- Activity Diagram

2.4.1 Use Case Diagram of the System

Use case diagrams model behavior within a system and helps the developers understand of what the user require. The stick man represents what’s called an actor. Use case diagram can be useful for getting an overall view of the system and clarifying who can do and more importantly what they can’t do. Use case diagram consists of use cases and actors and shows the interaction between the use case and actors.

- The purpose is to show the interactions between the use case and actor.
- To represent the system requirements from user’s perspective.
- An actor could be the end-user of the system or an external system.

A Use case is a description of set of sequence of actions. Graphically it is rendered as an ellipse with solid line including only its name. Use case diagram is a behavioral diagram that shows a set of use cases and actors and their relationship. It is an association between the use cases and actors. An actor represents a real-world object. Primary Actor – Sender, Secondary ActorReceiver

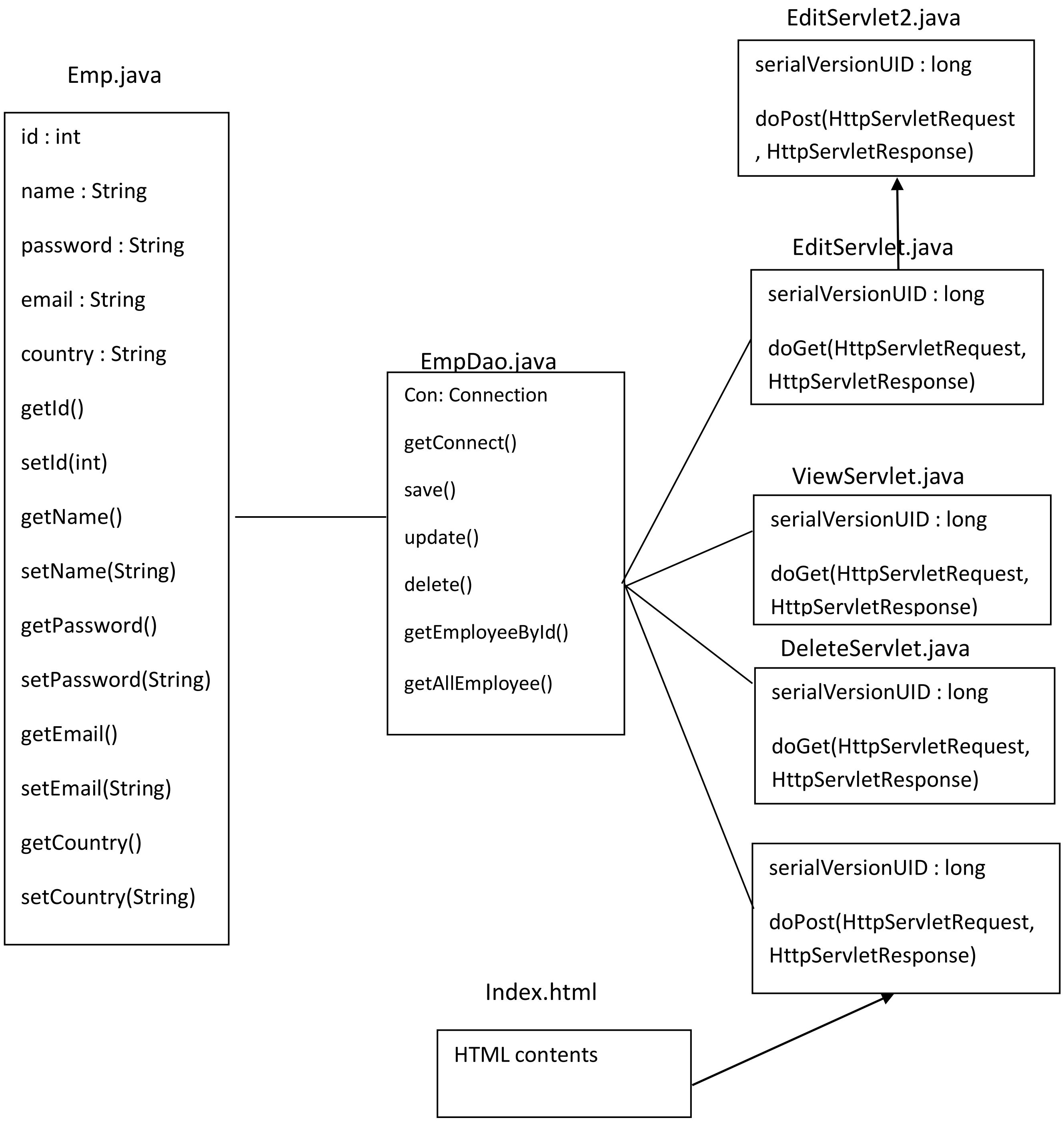


Class Diagram

Class is nothing but a structure that contains both variables and methods. The Class Diagram shows a set of classes, interfaces, and collaborations and their relating ships. There is most common diagram in modeling the object oriented systems and are used to give the static view of a system. It shows the dependency between the classes that can be used in our system. The interactions between the modules or classes of our projects are shown below. Each block contains Class Name, Variables and Methods.

Class

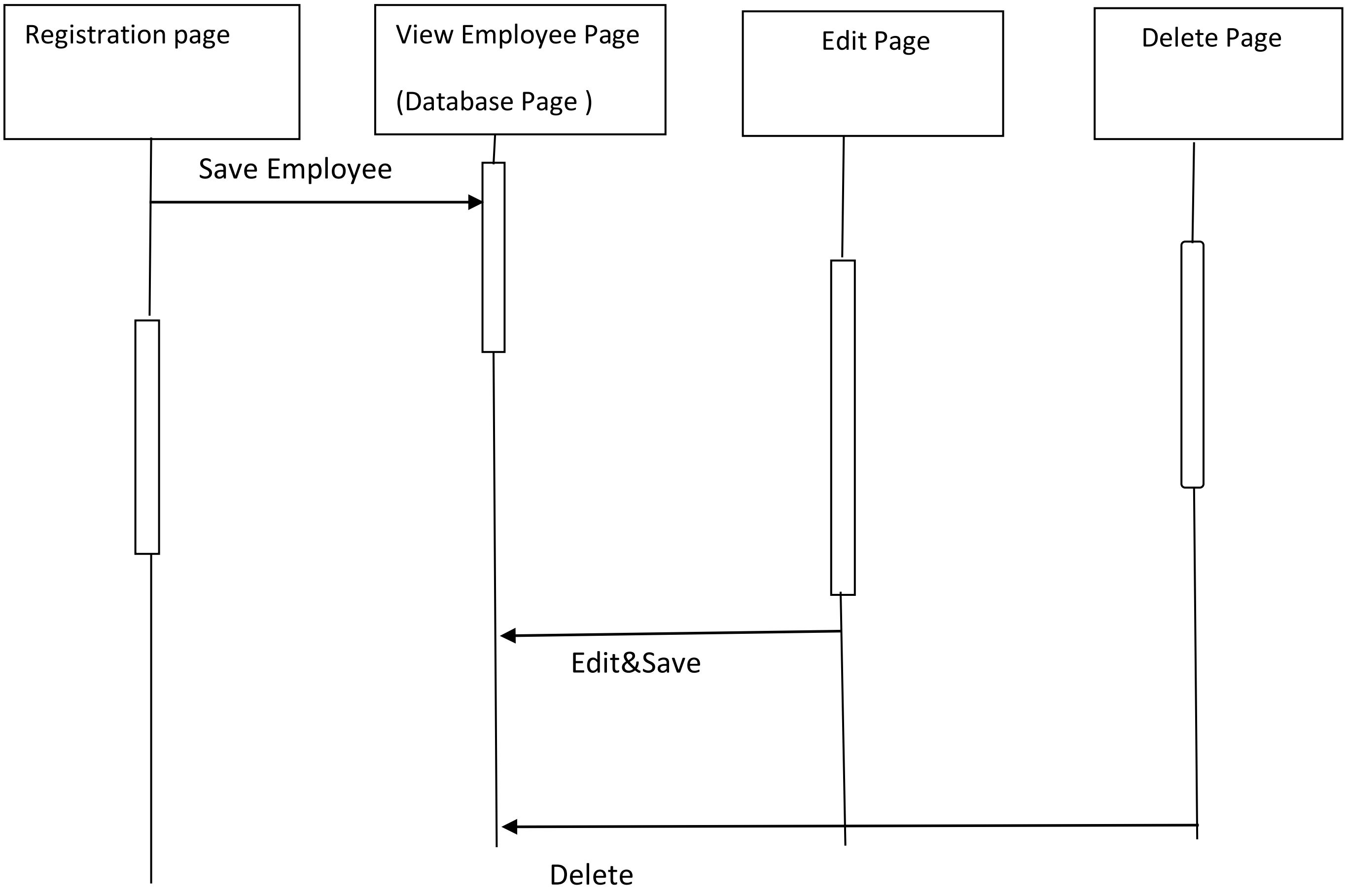
A description of set of objects that share the same attributes, operations, relationships, and semantics



Sequence Diagram:

Sequence diagram and collaboration diagram are called INTERACTION DIAGRAMS. An interaction diagram shows an interaction, consisting of set of objects and their relationship including the messages that may be dispatched among them.

A sequence diagram is an introduction that empathizes the time ordering of 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



Coding

All the codes of this Project is submitted in the DVD format

Testing

Unit testing focuses verification effort on the smallest unit of software design – the module. Using the detail design description as a guide, important control paths are tested to uncover errors within 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. The unit test is always white box oriented, and the step can be conducted in parallel for multiple modules.

Unit testing is normally considered an adjunct to the coding step. 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 errors. Each test case should be coupled with a asset of expected results.

Because a module is not a stand-alone program, driver and/or stub software must be developed for each unit test. In most applications a driver is nothing more than a main program that accepts test case data passes such data to the module(to be tested), and prints the relevant results. Stubs serve to replace modules that are subordinate (called by) the module to be tested. Stub or “dummy subprogram” users the subordinate module’s interface, may do minimal data manipulation, prints verification of entry and returns.

Drivers and stubs represent overhead. That is, both are software that must be written but tat is not delivered with the final software product. If drivers and stubs are kept simple, actual overhead is relatively low. Unfortunately, many modules cannot be adequately unit tested with “simple” overhead software. In such cases, complete testing can be postponed until the integration test step.

Unit testing is simplified when a module with high cohesion is designed. When only one function is addressed by a module, the number of test cases is reduced and errors can be more easily predicted and uncovered.

- Check for any exception including NULL pointer exception
- Check if NULLS are not allowed for username and password
- Check if username/password is in the correct format
- Check if numbers are not allowed for username
- Check if special characters are not allowed in Username
- Check if the correct combination of Username and password are entered, then the application takes you to the next screen, i.e. employee information screen
- Check if the username entered is of correct length
- Check if the username text field allows only the maximum number of characters specified for that field
- Check if the password field if specified in the requirements is visible as * while entering
- Check if passwords are case sensitive
- Check if username is not case sensitive
- Check if login page does not remember the username or password, even after exiting
- Check if the Submit and Cancel button work as per requirement
- If using the application first time, check if the username has permission to enter the application
- Delete a username/password combination from the database and check if the combination is not able to login again
- For all the above cases, check if the appropriate validation error messages are shown
- Check if the Labels and Buttons are in the right place on the screen and that they display the text correctly
- Check if the screen appearances are as per requirements
- Check if exceptions are handled
- Check if logging is performed for required actions

Integration Testing

An Integration testing, individual modules are integrated and tested together for correctness.

Let each of the three screens in the above example is developed by three different team members. Now that they are finished with Unit testing, it is time to bring all the code together and check if they work well together. Integration testing is performed to ensure that data or control is transferred correctly from one screen to another.

- Check if the user logged in and session are the same in all the other new integrated screens
- Check if the other modules are not updating/deleting/inserting any record in the database unrequired
- Let there be an employee status field, which says ‘New’ on addition,’Updated’ on modification, and ‘Deleted’ on deletion. Though two or three screens can use the same status field, it is important to ensure the field is not being wrongly updated.
- Check if the header, footer, screen size and appearance meet requirements after integration
- Check that when clicking on Submit buttons, the control is transferred to the next screen
- Check that when clicking on the delete button, the action performed is deleted

System Testing

In System testing, the entire application is tested for functionality and completeness with respect to the requirements. It would likely be easier to ask when Unit testing of every component is performed and the code components are also combined and tested together during integration testing, what could be different in System testing? It is not inaccurate to say that the idea in System Testing is to break the application

Scenario #1: We develop a new employee application with a framework; for example, Struts. There are also several other applications running on different servers in your organization. However, all of them call the same existing web service to fetch the address and phone number for any particular person.
During integration testing, we would have tested if your application is able to make a call to the web service and if we are able to get the response. But what if there is a problem in the web service itself? Or the web service does not respond to some rare inputs?

Scenario #2: Our employee application is complete. we add an employee, and it generates an Employee Number #1001. We modify, delete, update, add, modify, delete, add, add, add, modify, delete and then finally add another. What if the new employee number is again #1001?

Scenario #3: Let us assume two users are using the application at the same time. Both of them start working on the same employee, one deletes. What if the other user is able to proceed with the modification of same employees as it is stored in the session?

Below are some important aspects of System testing:

- Ensure the flow of data and control is correct from end-to-end
- Ensure security of the transaction data
- Ensure the application follows all business functionalities
- Check if the application works well as an end product – check broken links, session management, cookies, logging, error handling, exception handling, validation, and transaction flow.

Performance Testing

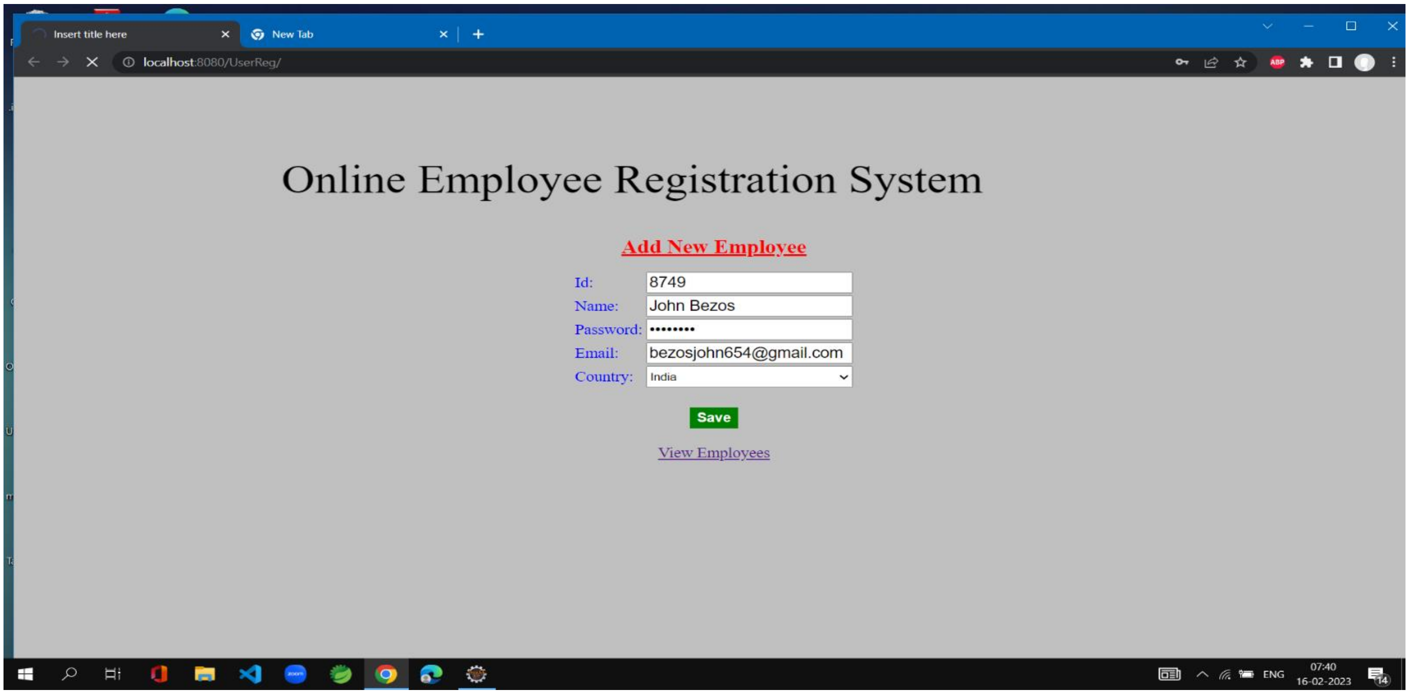
This type of testing is performed when there would be a large number of users using the application or large amount data in the database, or both.

Below are some of the cases:

- If multiple users login at the same time, then check that the applications do not hang/crash
- If a large amount of data is available in the database – check that the search screen grids do not take very long to execute queries before session timeout
- In a multi-threaded environment, check that the application is able to handle all threads well
- In applications where large numbers of objects are created, check whether sufficient memory is allocated, garbage collection is handled, and that there are no out of memory exceptions

Snapshots

Add Employee Page



Online Employee Registration System

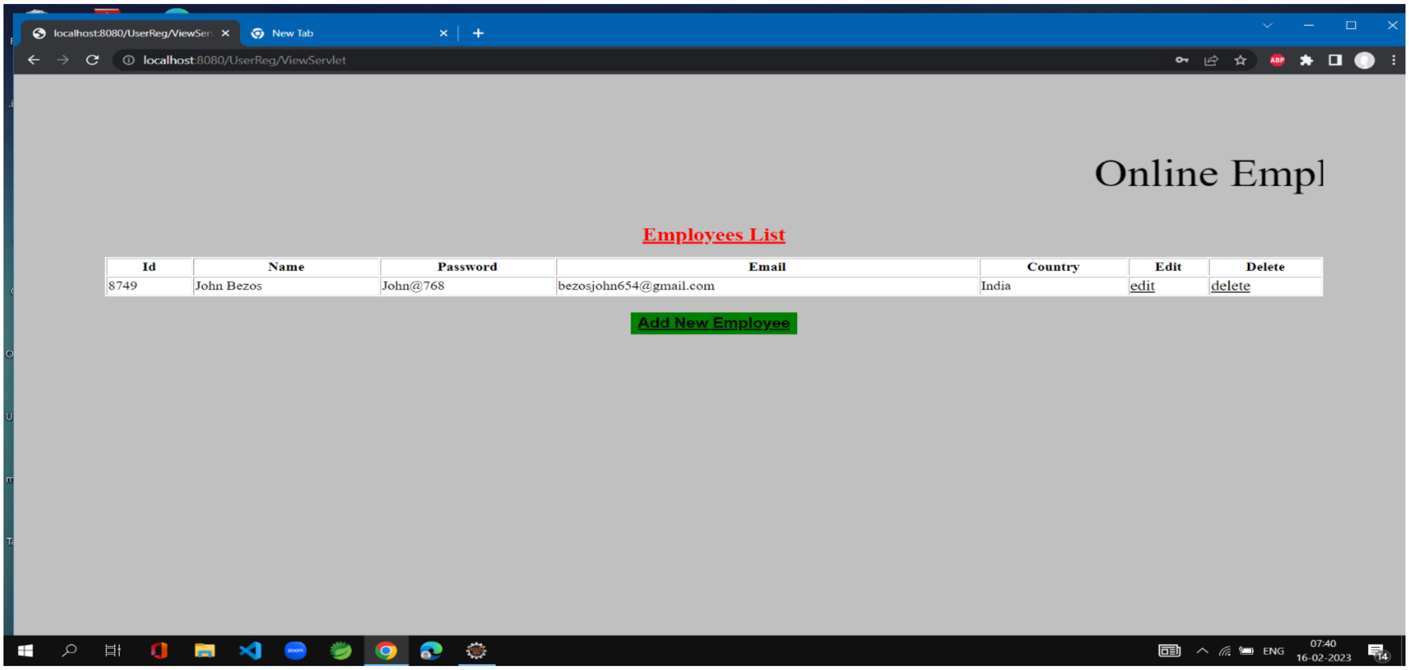
Add New Employee

Id:	8749
Name:	John Bezos
Password:	••••••••
Email:	bezosjohn654@gmail.com
Country:	India

Save

View Employees

View Employee Page



localhost:8080/UserReg/ViewSer
New Tab
localhost:8080/UserReg/ViewServlet
ENG
07:40
16-02-2023

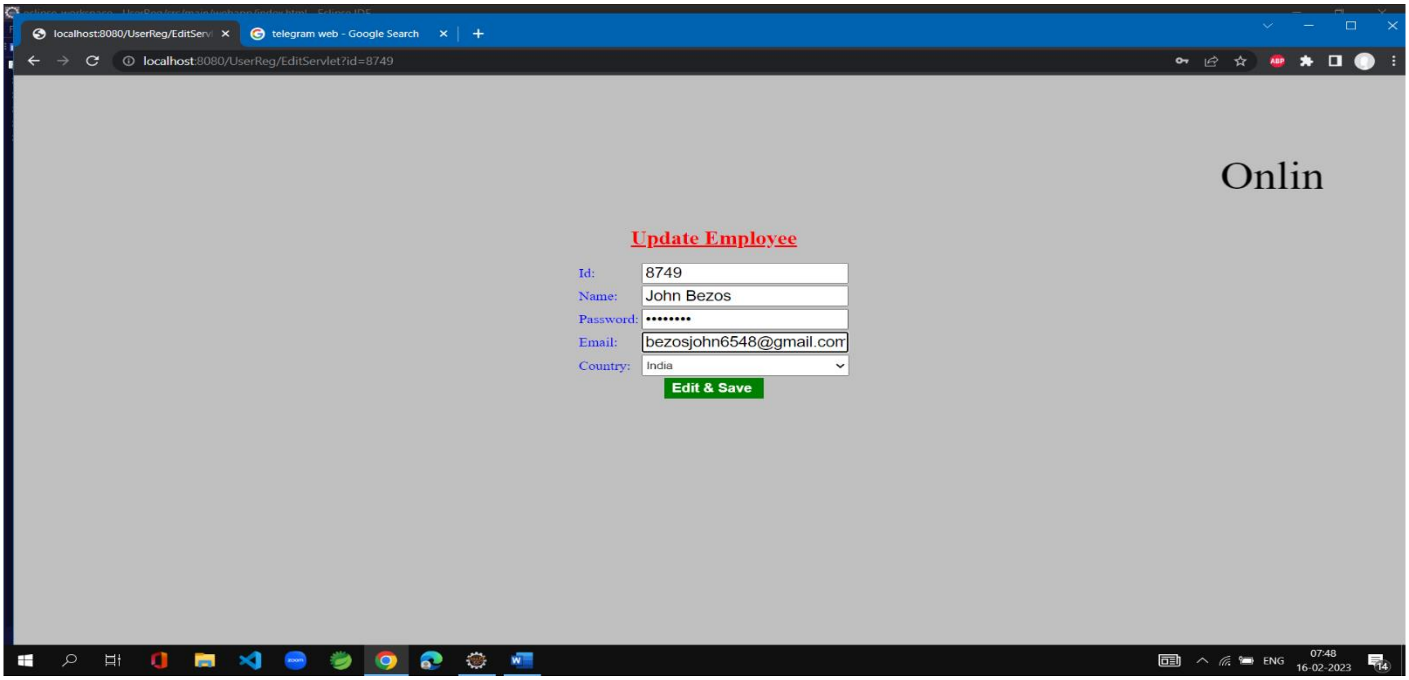
Online Empl

Employees List

Id	Name	Password	Email	Country	Edit	Delete
8749	John Bezos	John@768	bezosjohn654@gmail.com	India	edit	delete

Add New Employee

Edit Page

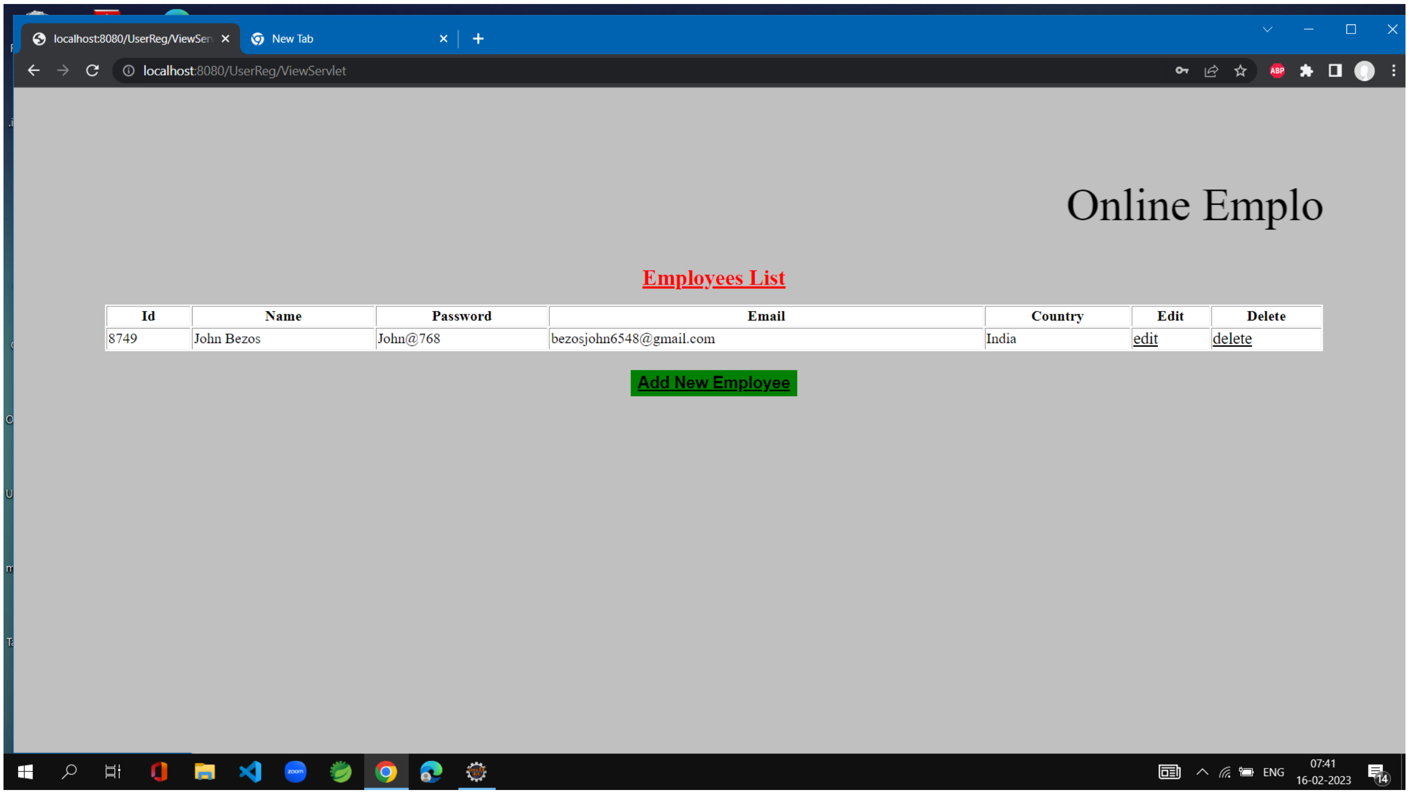

localhost:8080/UserReg/EditServ
telegram web - Google Search
localhost:8080/UserReg/EditServlet?id=8749
Onlin
ENG
07:48
16-02-2023

Update Employee

Id:	8749
Name:	John Bezos
Password:	••••••••
Email:	bezosjohn6548@gmail.com
Country:	India

Edit & Save

Reflection of Changes After Edit

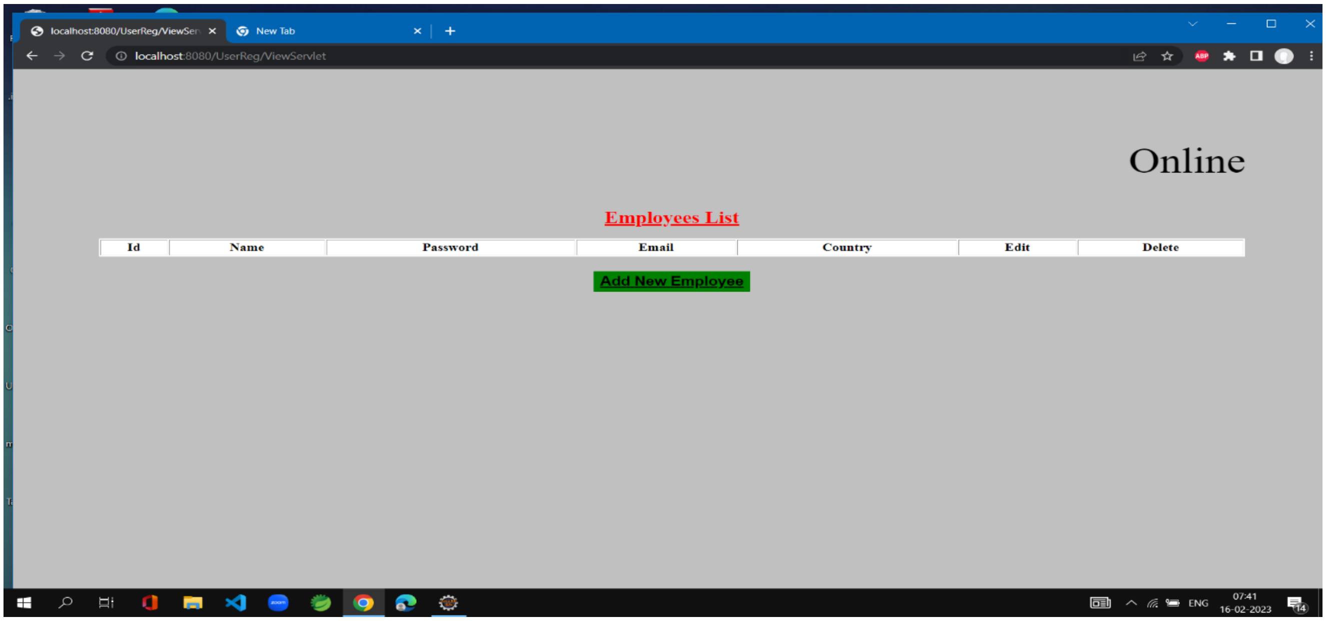

localhost:8080/UserReg/ViewServ
New Tab
localhost:8080/UserReg/ViewServlet
Online Emplo
ENG
07:41
16-02-2023

Employees List

Id	Name	Password	Email	Country	Edit	Delete
8749	John Bezos	John@768	bezosjohn6548@gmail.com	India	edit	delete

Add New Employee

Result of Delete


localhost:8080/UserReg/ViewSer
New Tab
localhost:8080/UserReg/ViewServlet

Online

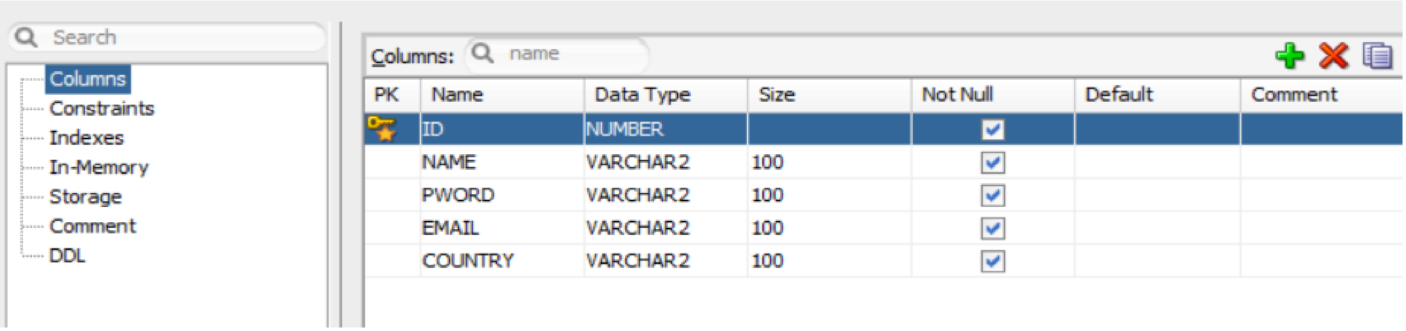
Employees List

Id	Name	Password	Email	Country	Edit	Delete

Add New Employee

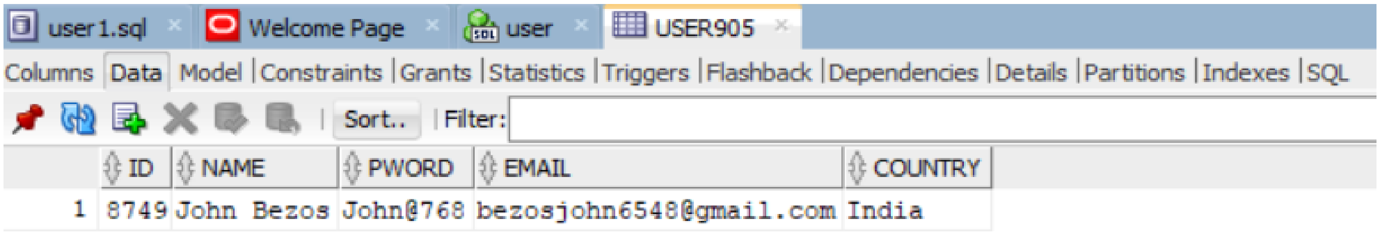
user905 Table Table:

user905 table attributes



PK	Name	Data Type	Size	Not Null	Default	Comment
🔑	ID	NUMBER		☑		
	NAME	VARCHAR2	100	☑		
	PWORD	VARCHAR2	100	☑		
	EMAIL	VARCHAR2	100	☑		
	COUNTRY	VARCHAR2	100	☑		

User905 table's Data



	ID	NAME	PWORD	EMAIL	COUNTRY
1	8749	John Bezos	John@768	bezosjohn6548@gmail.com	India

Conclusion:

In this report, an information system's development has been presented. It was emphasized on the basic steps, consequently taken during the project's development course as a particular attention was turned to the basic operative functions performed upon the data into the database.

The report's content comprises the whole task solution, starting from the programming environments have been selected, going through the database, the application's analyze and construction, and finishing with the code-implementation and test-samples, shown separately in Appendix chapters

Since this project has been designed exclusively as a project, certain complexities that do faced by any real life manual problem like total no. of employee, address redundancy etc. are considered in this project. But enhancement to the project can easily be made without changing the current design and programming structure.

Apparently, the role of such systems is basic and essential within each company that wants to keep a really good control and record concerning its personnel data, functionality and performance on all levels in its structure. Every organization, in nowadays, has the necessity of managing its staff on a really good level as the staff has definitely the greatest merit of building up a company as such as it is. The wellmanaged staff means giving the appropriate financial award-ness and all kind of benefits as such as they have been deserved. That's why the development of such systems is not just a programming business – a lot of people are ordinarily involved in such projects and one of the basic requirements is the reliability of the system, especially what concerns the storage of data and all of the operations that will be performed upon it.

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