A Project Report

On

Employee Separation System

Submitted

In partial fulfilment

For the award of the Degree of

Bachelor of Technology

In Department of Computer Science & Engineering

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Candidates' Declaration

We hereby declare that the work, which is being presented in the Minor Project Report, entitled **"Employee Separation System"** in partial fulfilment for the award of Degree of Bachelor of Technology in Department of Information Technology submitted to the Swami Keshvanand Institute of Technology, Management & Gramothan, Jaipur, Rajasthan Technical University is a record of my own investigations carried under the Guidance of **Mr. Kanak Giri**, Lecturer, Department of Computer Science and Engineering, Swami Keshvanand Institute of Technology, Management & Gramothan, Jaipur. We have not submitted the matter presented in this report elsewhere for the award of any other degree.

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ABSTRACT

The E-Separation System will facilitate the automation of the employee Separation process The application will automate the existing task of the employee to initiate the separation process and get clearance from all the departments online. Human Resource Development , can process the separation online and provide the relieving letter once the clearance is obtained. This is also applicable to a college scenario where a student has to get a no-due certificate from various departments such as library, hostel, etc, before completion of the program.

Registered users (employees) will be able to log in a request for service for any of the supported facilities. These requests will be sent to the concerned people, who are also valid users of the system, to get them resolved. There are features like addition of a new facility to the system, report generators etc. in this system.

Tools & language used: JSP, HTML, Java Script, MYSQL DB, IBM RSA, Apache Tomcat,Eclipse

Chapter 1

INTRODUCTION

This project is aimed at developing an Employee Separation System for the separation related facilities in an organization or company. This system can be used to automate the workflow of service requests for the various facilities in the organization. This is an integrated system that covers facilities like separation request by the employee, approval by the HR, status update and checking etc. Registered users (students, faculty, lab-assistants and others) will be able to log in a request for service for any of the supported facilities. These requests will be sent to the concerned people, who are also valid users of the system, to get them resolved. There are features like email notifications/reminders, addition of a new facility to the system, report generators etc in this system.

1.1 Purpose

The purpose of this report is to describe the design and functionality of Employee Separation System.

1.2 Scope

- Monitor multiple employee separation concurrently
- Produce effective clearance reports
- User requires an email Id and a password for login.
- User can update the profile, delete the profile, etc.

1.3 Definitions, Acronyms and Abbreviations

- **HTML (Hyper Text Markup Language):** It is used to create static web pages.
- **JSP(Java Server Pages):** It is used to create dynamic web content.
- **HTTP (Hyper Text Transfer Protocol):** It is a transaction oriented client/ server protocol between a web browser and a web server.
- **MySQL (My Structured Query Language):** It is a database management system that provides a flexible and efficient database platform to raise a strong "on demand" business applications.
- **XML (Extensible Markup Language):** It is a markup language that was designed to transport and store data.

- **Web 2.0:** It is commonly associated with web applications which facilitate interactive information sharing, interoperability, user-centered design and collaboration on the World Wide Web.
- **SSH (Secure Shell):** Secure Shell is a cryptographic network protocol for secure data communication, remote command-line login, remote command execution, and other secure network services between two networked computers.
- **Java Script (Java Script):** Used to add interaction in web pages.
- **RSA (Rational Software Architect):** Rational software Architect, (RSA) made by IBM's Rational Software division, is a modeling and development environment that uses the Unified Modeling Language (UML) for designing architecture for C++ and Java 2 Enterprise Edition (J2EE) applications and web services.
- **Eclipse IDE:** It is the working platform for the project.
- **SQL Yog:** It is the mysql interface for handling the database.
- **Apache Tomcat:** It is the server to run the server side scripts.

1.4 Existing System

The system that is already developed suffer from the management of request from the users. It is also not able to keep record of the data and their fulfilment. Most of the times, information is lost in transferring the case from one department to the other.

Sometimes, due to conflict of interest proper information is not provided to users which make it infeasible for them to get the information in a timely manner.

1.5 Proposed System

The development of the new system contains the following activities, which try to remove the drawbacks of the existing system.

- Easy Management of Requests.
- No documentation and paper work is required
- Verification of the provided information.

Chapter 2

SYSTEM ANALYSIS

2.1 Introduction

After analysing the requirements of the task to be performed, the next step is to analyze the problem and understand its context. The first activity in the phase is studying the existing system and other is to understand the requirements and domain of the new system. Both the activities are equally important, but the first activity serves as a basis of giving the functional specifications and then successful design of the proposed system. Understanding the properties and requirements of a new system is more difficult and requires creative thinking and understanding of existing running system is also difficult, improper understanding of present system can lead diversion from solution.

2.2 Analysis Model

The model that is basically being followed is the Water Fall Model, which states that the phases are organized in a linear order. First of all the feasibility study is done. Once that part is over the requirement analysis and project planning begins. If system exists one and modification and addition of new module is needed, analysis of present system can be used as basic model.

The design starts after the requirement analysis is complete and the coding begins after the design is complete. Once the programming is completed, the testing is done. In this model the sequence of activities performed in a software development project are: -

- Requirement Analysis
- Project Planning
- System design
- Detail design
- Coding
- Unit testing
- System integration & testing

Here the linear ordering of these activities is critical. End of the phase and the output of one phase is the input of other phase. The output of each phase is to be consistent with the overall requirement of

the system. Some of the qualities of spiral model are also incorporated like after the people concerned with the project review completion of each of the phase the work done.

Waterfall Model was being chosen because all requirements were known beforehand and the objective of our software development is the computerization/automation of an already existing manual working system.

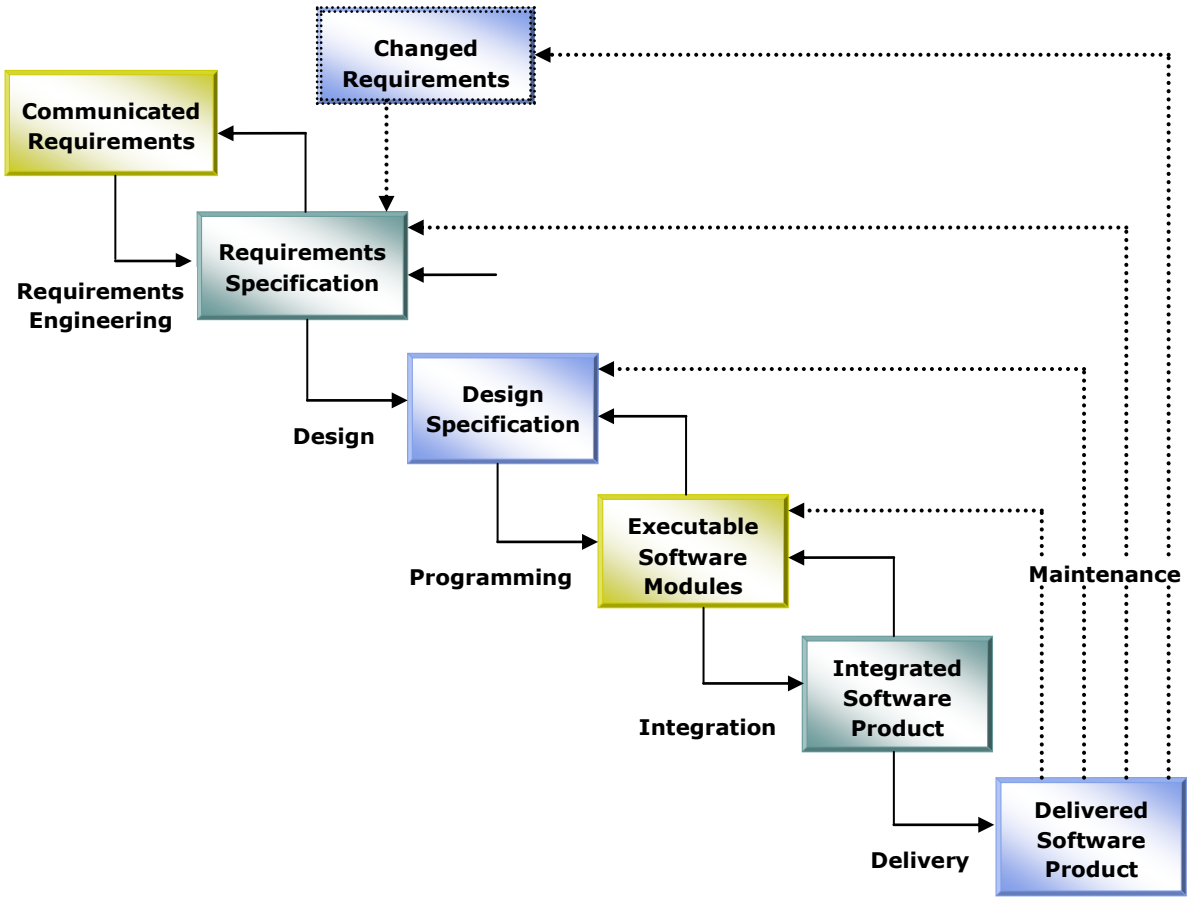

Fig 2.1: Water Fall Model

2.3 System Perspective

ESS Management will provide a secure user-id/password based secured login mechanism to access its services. The development team is expected to create these keeping in mind the general practices followed by the desktop applications. Login will be a prerequisite to use ESS.

Once user logs in, she/he can view Home page of ESS with various sections:

1. Apply for Separation
2. Status of query
3. Responsible Departments
4. Possible Solution
5. Guide and updates
6. General Settings

2.4 Hardware Interface

- **Server Side**
  JSP hosting on the Apache Server and 250 GB hard disk.
- **Client Side**
  General desktop computer or device.

2.5 Software Interface

- **Web Server**
  Apache Tomcat v7.x, Server OS - Windows.
- **Database Server**
  MySQL 5.5

2.6 Constraints

- Application is only in English.
- LAN connectivity is required.

Chapter 3

REQUIREMENT SPECIFICATIONS

The main purpose for preparing this document is to give a general insight into the analysis and requirements of the existing system or situation and for determining the operating characteristics of the system.

This Document plays a vital role in the development life cycle (SDLC) and it describes the complete requirement of the system. It is meant for use by the developers and will be the basic during testing phase. Any changes made to the requirements in the future will have to go through formal change approval process.

3.1 Functional Requirements

Output Design

Outputs from computer systems are required primarily to communicate the results of processing to users. They are also used to provide a permanent copy of the results for later consultation. The various types of outputs in general are:

- External Outputs, whose destination is outside the organization,
- Internal Outputs whose destination is within organization.
- User's main interface with the computer.
- Operational outputs whose use is purely within the computer department.
- Interface outputs, which involve the user in communicating directly with

Output Definition

The outputs should be defined in terms of the following points:

Type of the output

- Content of the output
- Format of the output
- Location of the output
- Frequency of the output
- Volume of the output
- Sequence of the output

It is not always desirable to print or display data as it is held on a computer. It should be decided as which form of the output is the most suitable.

For Example

- Will decimal points need to be inserted
- Should leading zeros be suppressed.

Output Media

In the next stage it is to be decided that which medium is the most appropriate for the output. The main considerations when deciding about the output media are:

- The suitability for the device to the particular application.
- The need for a hard copy.
- The response time required.
- The location of the users
- The software and hardware available.

Keeping in view the above description the project is to have outputs mainly coming under the category of internal outputs. The main outputs desired according to the requirement specification are: The outputs were needed to be generated as a hot copy and as well as queries to be viewed on the screen. Keeping in view these outputs, the format for the output is taken from the outputs, which are currently being obtained after manual processing. The standard printer is to be used as output media for hard copies.

Input Design

- Input design is a part of overall system design. The main objective during the input design is as given below: To produce a cost-effective method of input.
- To achieve the highest possible level of accuracy.
- To ensure that the input is acceptable and understood by the user.

Input Types

It is necessary to determine the various types of inputs. Inputs can be categorized as follows:

- External inputs, which are prime inputs for the system.
- Internal inputs, which are user communications with the system.

- Operational, which are computer department's communications to the system?
- Interactive, which are inputs entered during a dialogue.

Input Media

At this stage choice has to be made about the input media. To conclude about the input media consideration has to be given to;

- Type of input
- Flexibility of format
- Speed
- Accuracy
- Verification methods
- Rejection rates
- Ease of correction
- Storage and handling requirements
- Security
- Easy to use
- Portability

Keeping in view the above description of the input types and input media, it can be said that most of the inputs are of the form of internal and interactive. As input data is to be the directly keyed in by the user, the keyboard can be considered to be the most suitable input device.

Error Avoidance

At this stage care is to be taken to ensure that input data remains accurate form the stage at which it is recorded up to the stage in which the data is accepted by the system. This can be achieved only by means of careful control each time the data is handled. Even though every effort is make to avoid the occurrence of errors, still a small proportion of errors is always likely to occur, these types of errors can be discovered by using validations to check the input data.

Data validation

Procedures are designed to detect errors in data at a lower level of detail. Data validations have been included in the system in almost every area where there is a possibility for the user to commit errors.

The system will not accept invalid data. Whenever an invalid data is keyed in, the system immediately prompts the user and the user has to again key in the data and the system will accept the data only if the data is correct. Validations have been included where necessary.

The system is designed to be a user friendly one. In other words the system has been designed to communicate effectively with the user. The system has been designed with popup menus.

3.2 Performance Requirements

Performance is measured in terms of the output provided by the application.

Requirement specification plays an important part in the analysis of a system. Only when the requirement specifications are properly given, it is possible to design a system, which will fit into required environment. It rests largely in the part of the users of the existing system to give the requirement specifications because they are the people who finally use the system. This is because the requirements have to be known during the initial stages so that the system can be designed according to those requirements. It is very difficult to change the system once it has been designed and on the other hand designing a system, which does not cater to the requirements of the user, is of no use. The requirement specification for any system can be broadly stated as given below

- The system should be able to interface with the existing system
- The system should be accurate
- The system should be better than the existing system

The existing system is completely dependent on the user to perform all the duties

Chapter 4

TOOLS AND TECHNOLOGY USED

4.1 JSP

It is the programming language used to develop the system to enable it to be web-based application. JSP is considered the link used to connect users to databases through a user-friendly interface. Additionally, Apache Tomcat server application was used as a local server to host JSP files to generate them.

- JSP is an acronym for "Java Server Pages"
- JSP is a widely-used.
- JSP scripts are executed on the server

4.1.1 Significant Language Features

- **Capable :** It can be used to design any type of website and can handle websites with a lot of traffic. Railway, Banking and many other very widely visited websites use it as their framework. And because it is server-side scripting, it can do anything that other CGI programs can do.
- **Easy :** It has a readable and easily understandable syntax. Its code is embedded in the HTML source code and it is an extension of servelet. Therefore, it is very familiar and programmers are very comfortable coding with it.
- **Platform Independent:** It can be run on all major operating systems like Linux, UNIX, Mac OS and Windows.
- **Supports All Major Web Servers:** It supports all major web servers like Apache, Microsoft IIS, Netscape, personal webserver, iPlanet server, etc.
- **Supports All Major Databases:** IT supports all major databases including MySQL, dBase, IBM DB2, InterBase, FrontBase, ODBC, PostgreSQL, SQLite, etc.
- **Faster Developments:** It uses its own memory space and thus decreases the loading time and workload from the server. The processing speed is fast and web applications like Ecommerce, CRM, CMS and Forums are also developed faster by it.
- **Secure:** It has multiple layers of security to prevent threats and malicious attacks.

- **Large Communities:** It has a large community of developers who regular and timely updates tutorials, documentation, online help and FAQs.
- **Proven and Trusted:** It is trusted by thousands of websites and developers and the list is increasing day by day.

4.1.2 Areas of Application

There are three main areas where PHP is used are:

- Web Applications: - JSP is used for Enterprise and web applications.
- Trading Applications: - Third party Social application, which is also part of bigger Community services industry, also uses JSP.

4.2 MySql

The SQL part of "MySQL" stands for "Structured Query Language". SQL is the most common standardized language used to access databases. Depending on your programming environment, you might enter SQL directly (for example, to generate reports), embed SQL statements into code written in another language, or use a language-specific API that hides the SQL syntax.

- Uses multi-layered server design with independent modules.
- Designed to be fully multi-threaded using kernel threads, to easily use multiple CPUs if they are available.
- Provides transactional and no transactional storage engines.
- Uses very fast B-tree disk tables (MyISAM) with index compression.
- Designed to make it relatively easy to add other storage engines. This is useful if you want to provide an SQL interface for an in-house database.
- Uses a very fast thread-based memory allocation system.
- Executes very fast joins using an optimized nested-loop join.
- Implements in-memory hash tables, which are used as temporary tables.

4.4 Hyper Text Mark-up Language

HTML or Hypertext Mark-up Languages the standard markup language used to create web pages. HTML is written in the form of HTML elements consisting of tags enclosed in angle brackets.HTML tags most commonly come in pairs like <h1> and </h1>, although some tags represent empty

elements and so are unpaired. The first tag in a pair is the start tag, and the second tag is the end tag. The simplest tag is nothing more than a name appropriately enclosed in brackets. More complicated tags contain one or more attributes, which specify behaviour of the tag.

Basic Tags in HTML

- <head></head>– this tag contains information about the document such as title of the document, author of the document etc. Information inside this tag does not display outside.
- <body></body> – this tag contains real content of the document that you see on your screen.
- <header>, <footer> – you won't need to manually name IDs for headers and footers, as now you have a pre-defined tag for them
- – it is used to create paragraph.
- – allows creation of several sections or subsections of a page.
- <table></table> – the table tag is a container for every other tag used to create a table in HTML.
- <title> – the title of the page.

4.5 Windows OS

- **Remote Desktop Connection** : This features helps a user with a graphical user interface to another computer. It is a proprietary protocol developed by Microsoft specially for Windows Operating System. Basically by entering the IP address of the other computer you can directly see that computer's desktop right on to your desktop.

  Normally known as desktop sharing. Using this you can share files and data and even solve problem without having physical access to the other computer.

4.6 JavaScript

JavaScript is a high level, dynamic, un-typed, and interpreted programming language. It has been standardized in the ECMA Script language specification. Alongside HTML and CSS, it is one of the three essential technologies of World Wide Web content production; the majority of websites employ it and it is supported by all modern web browsers without plug-ins. JavaScript is prototype-based with first class functions, making it a multi-paradigm language,

supporting oriented, imperative, and functional programming styles. It has an API for working with text, arrays, dates and regular expressions, but does not include any I/O, such as networking, storage or graphics facilities, relying for these upon the host environment in which it is embedded.

Despite some naming, syntactic, and standard library similarities, JavaScript and Java are otherwise unrelated and have very different semantics. The syntax of JavaScript is actually derived from C, while the semantics and design are influenced by the selfand Scheme programming languages.

The most common use of JavaScript is to add client-side behaviour to HTML pages, a.k.a. Dynamic HTML (DHTML). Scripts are embedded in or included from HTML pages and interact with the Document Object Model (DOM) of the page. Some simple examples of this usage are:

Loading new page content or submitting data to the server via AJAX without reloading the page (for example, a social network might allow the user to post status updates without leaving the page)

- Animation of page elements, fading them in and out, resizing them, moving them, etc.
- Interactive content, for example games, and playing audio and video
- Validating input values of a Web form to make sure that they are acceptable before being submitted to the server.
- Transmitting information about the user's reading habits and browsing activities to various websites. Web pages frequently do this for web analytics, tracking, personalization or other purposes.

Chapter 5

UML DESIGNS

5.1 Use Case Diagram

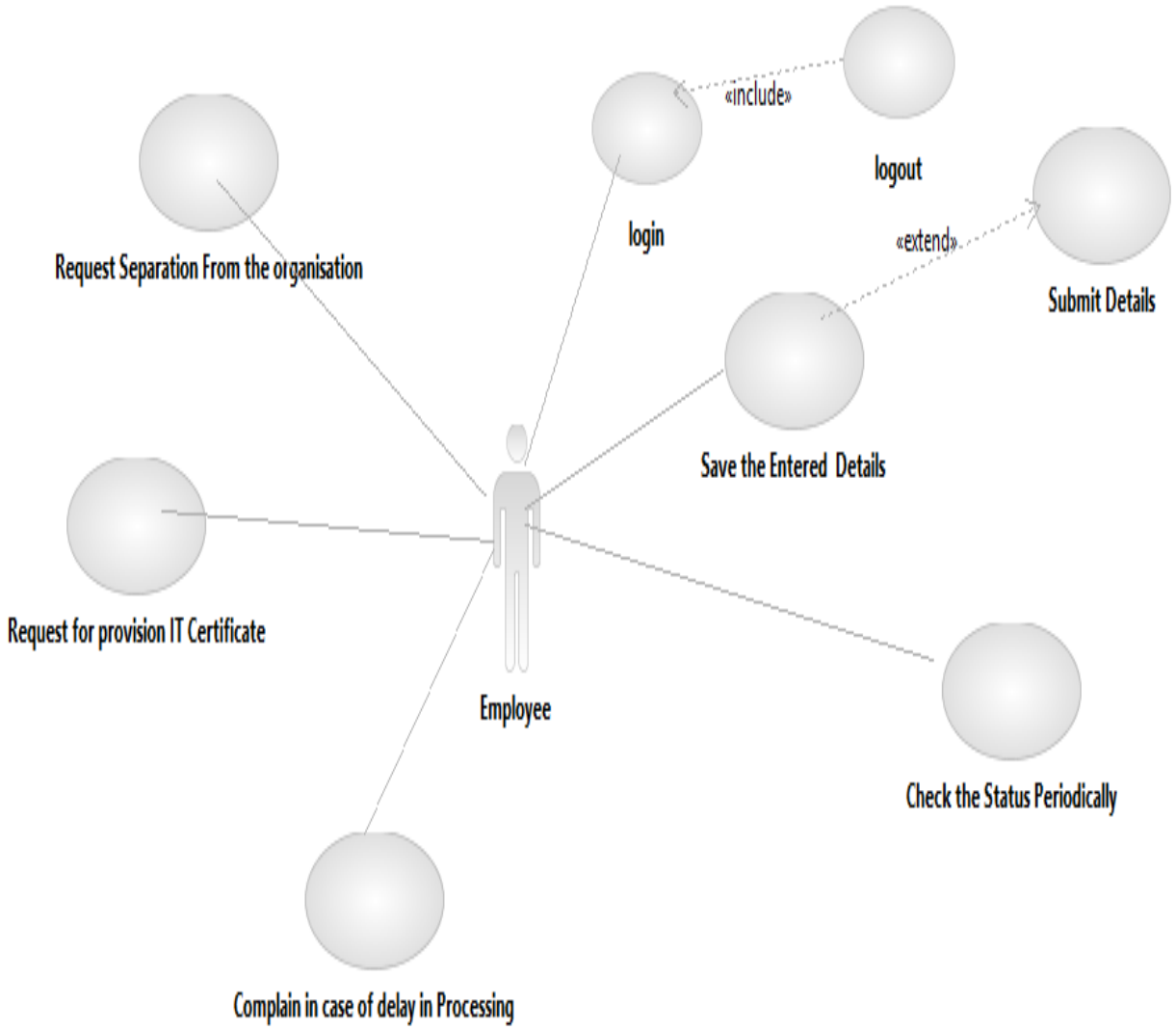

Fig 5.1.1 : Use Case Diagram of Employee

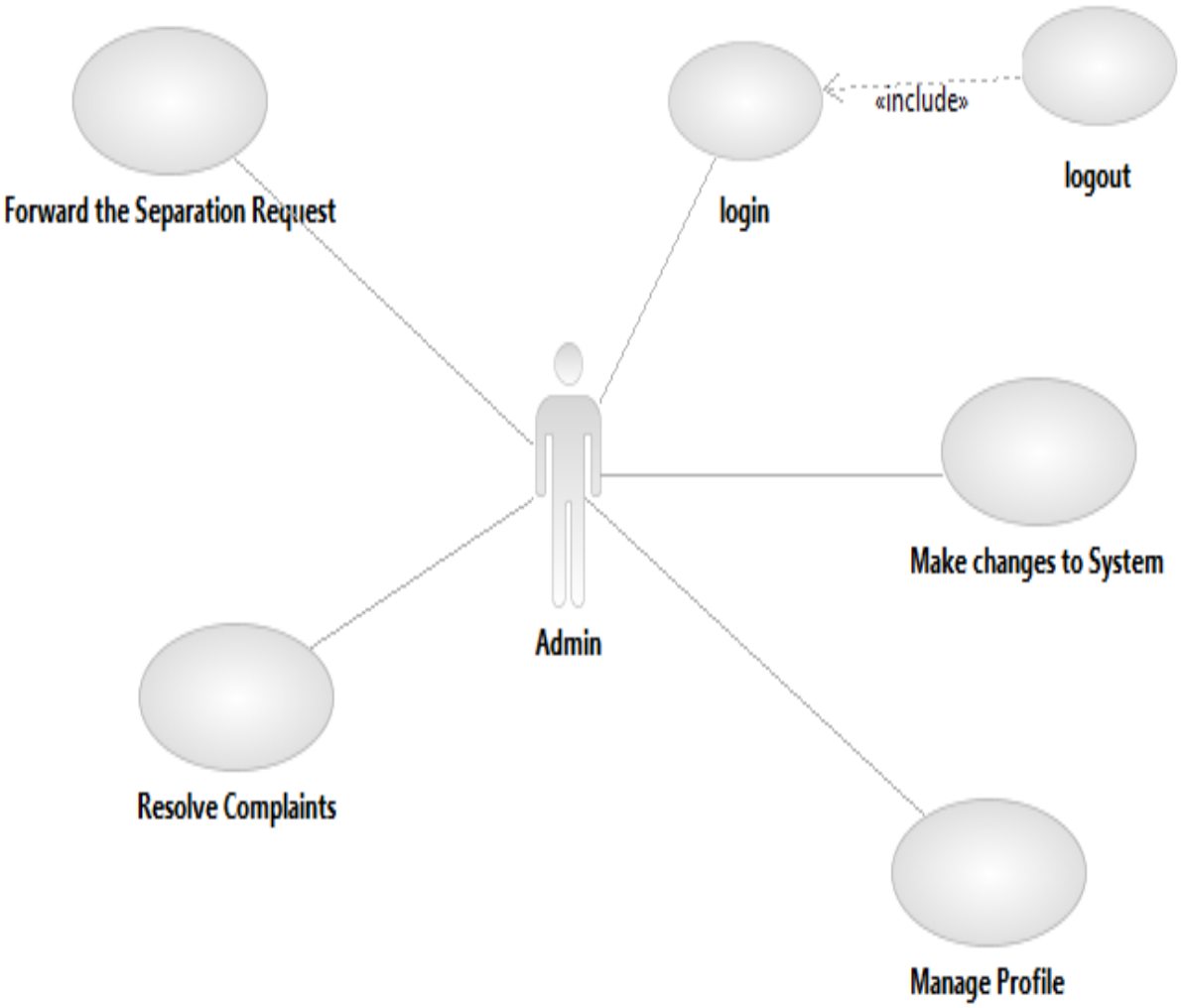

Fig 5.1.2: Use Case Diagram of Admin

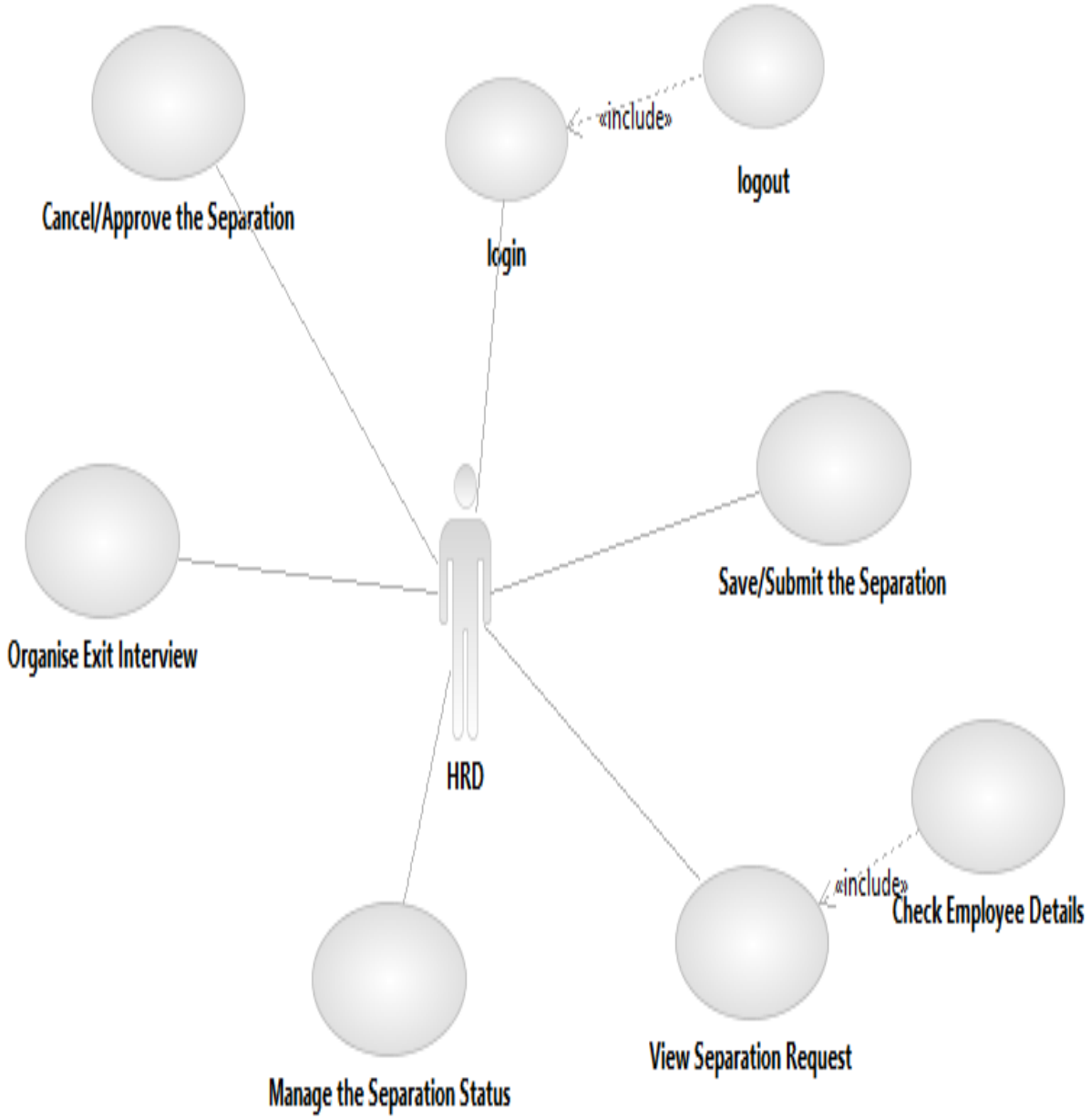

Fig 5.1.3: Use Case Diagram of HR

5.2 E-R Diagram

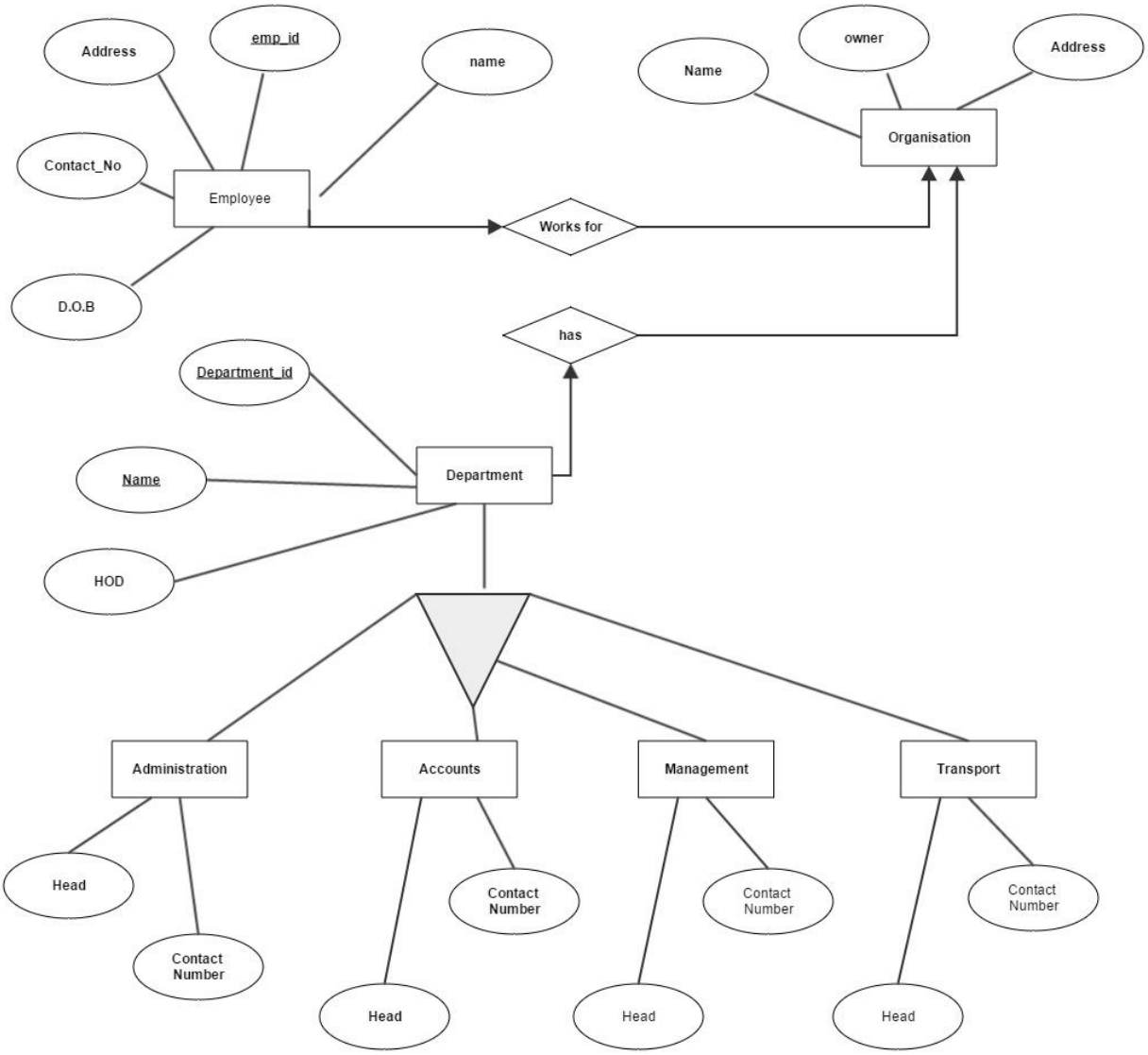

Fig 5.2: ER Diagram of ESS

5.3 Activity Diagram

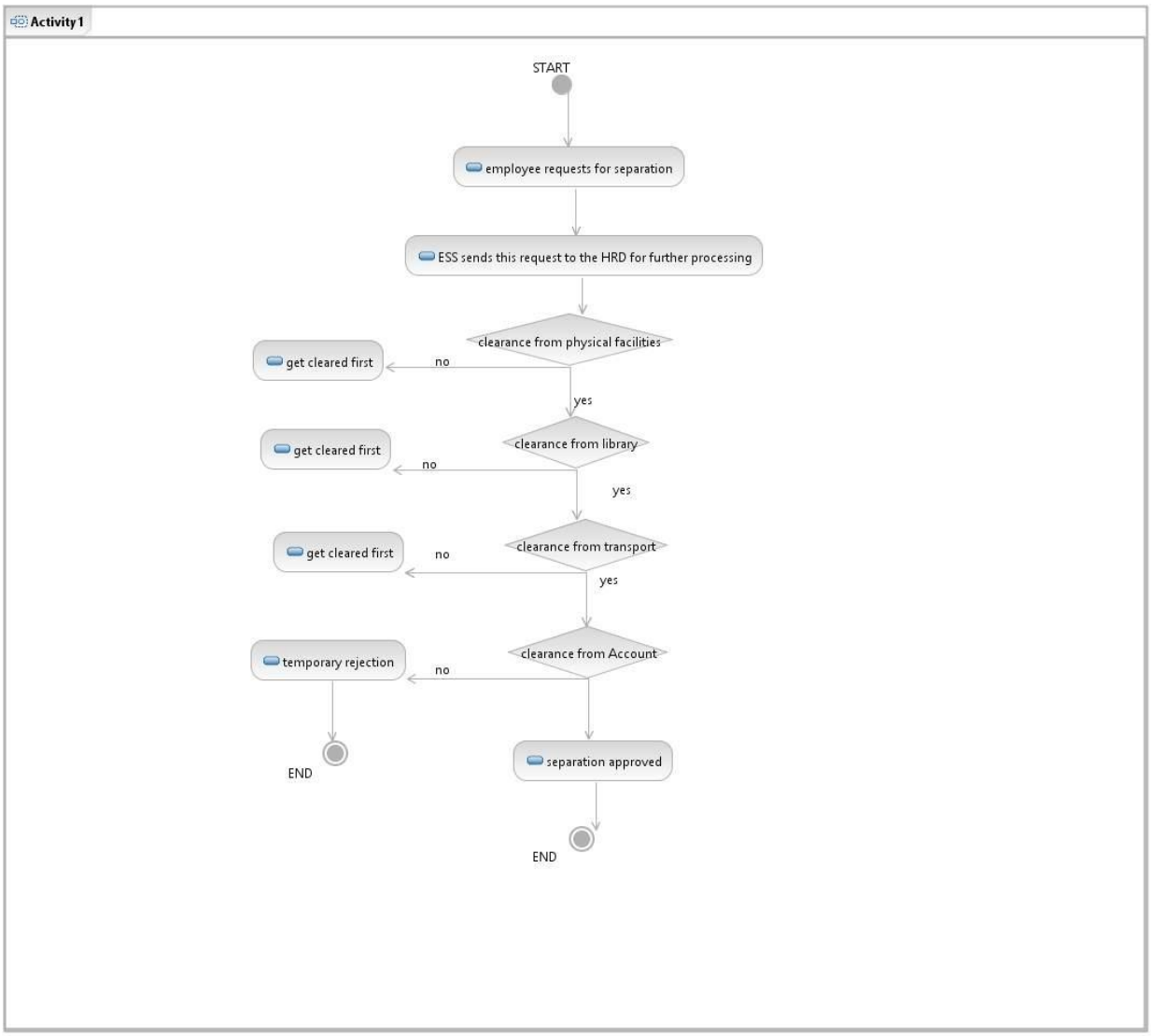

Fig 5.3: Activity Diagram

Chapter 6

DATABASE DESIGN

This involves the transformation of the use cases, entity relations and class diagrams into detailed persistent objects are realized as foreign keys to the associated objects. A foreign key is a column in one table that contains the primary key value of the associated object. Similarly, a standard technique in relational modelling is to use an associative entity to represent many-to-many associations. Following is physical database design:

Table 6.1 Login

ATTRIBUTE	**DATA TYPE**	**SIZE**	**KEY**
USER_ID	VARCHAR	50	PRIMARY
USER_NAME	VARCHAR	100	
USER_TYPE	VARCHAR	20	
PASSWORD	VARCHAR	100	
NAME	VARCHAR	50	

Table 6.2 Emp_Details

ATTRIBUTE	DATA TYPE	SIZE	KEY
EMP_ID	INT	20	PRIMARY
EMP_NAME	VARCHAR	50	
DEPARTMENT_NAME	VARCHAR	50	
EMAIL_ID	VARCHAR	100	
ADDRESS	VARCHAR	200	
CONTACT_NO	VARCHAR	20	
SALARY	INT	50	
PROJECT_NAME	VARCHAR	100	
JOINING_DATE	DATE		

Table 6.3 Accounts

ATTRIBUTE	DATA TYPE	SIZE	KEY
EMP_ID	INT	10	PRIMARY
EMP_NAME	VARCHAR	100	
DUES	INT	10	

Table 6.4 Research

ATTRIBUTE	DATA TYPE	SIZE	KEY
EMP_ID	INT	10	PRIMARY
EMP_NAME	VARCHAR	100	
DUES	INT	10	

Table 6.5 Transport

ATTRIBUTE	DATA TYPE	SIZE	KEY
EMP_ID	INT	10	PRIMARY
EMP_NAME	VARCHAR	100	
DUES	INT	10	

Table 6.6 Sep_Status

ATTRIBUTE	DATA TYPE	SIZE	KEY
EMP_ID	VARCHAR	10	PRIMARY
SEP_ID	VARCHAR	10	
STATUS	VARCHAR	10	

Table 6.7 Separation_Table

ATTRIBUTE	DATA TYPE	SIZE	KEY
EMP_ID	INT	20	
EMP_NAME	VARCHAR	20	
EMAIL_ID	VARCHAR	100	
ADDRESS	VARCHAR	100	
SEPARATION_REASON	VARCHAR	500	
CURRENT_PROJECTNO	INT	20	
CONTACT_NO	VARCHAR	20	
SEPARATION_ID	INT	20	PRIMARY

Chapter 7

UI DESIGN COMPONENTS

Login

This is the first screen which appears when the application is launched. It is a graphical control element consisting of window containing a login form and the application name.

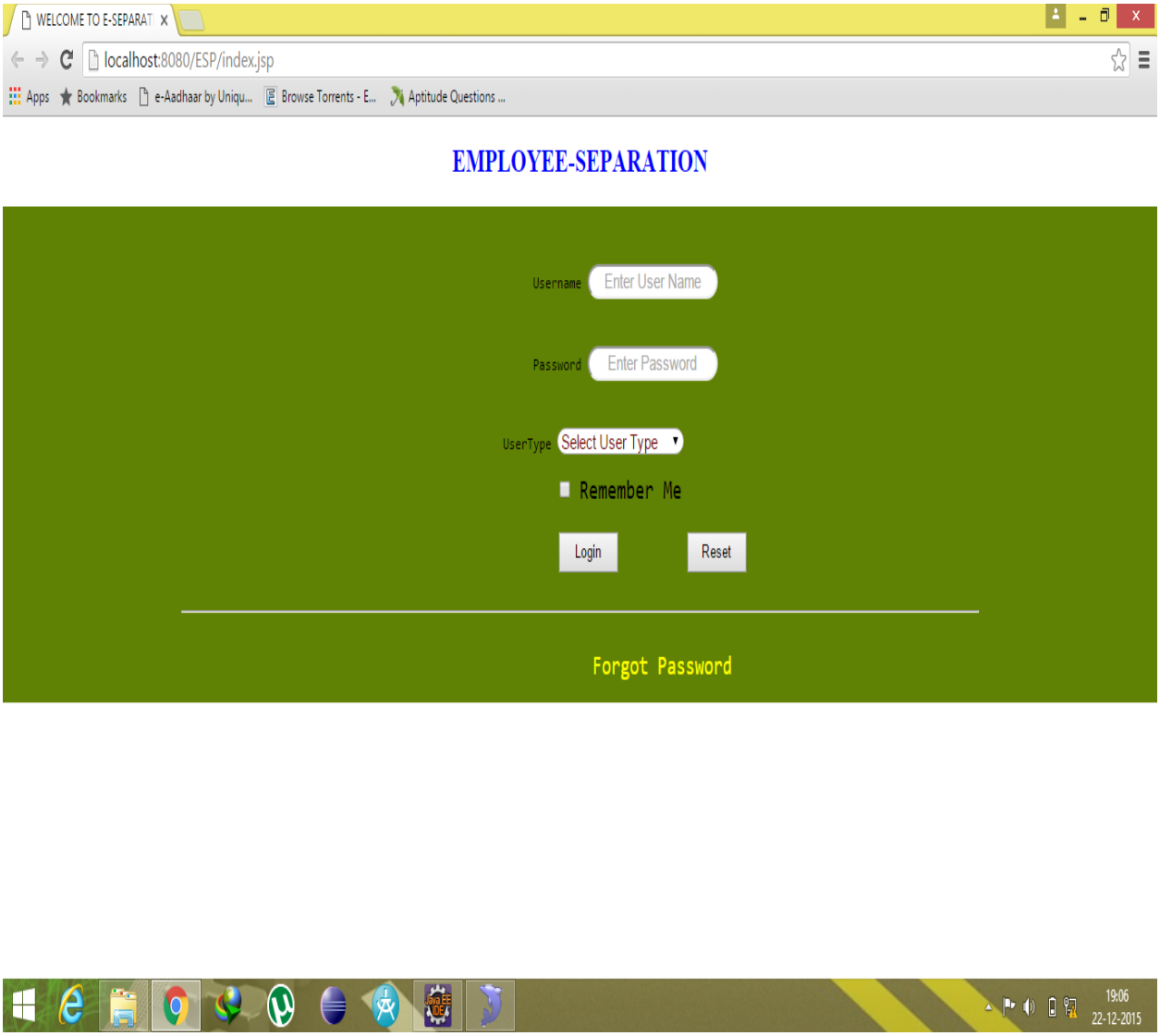

Fig 7.1: Login Page

Employee

This is the home screen for the employee. This will show the list of functionalities to be performed by the employee in this system.

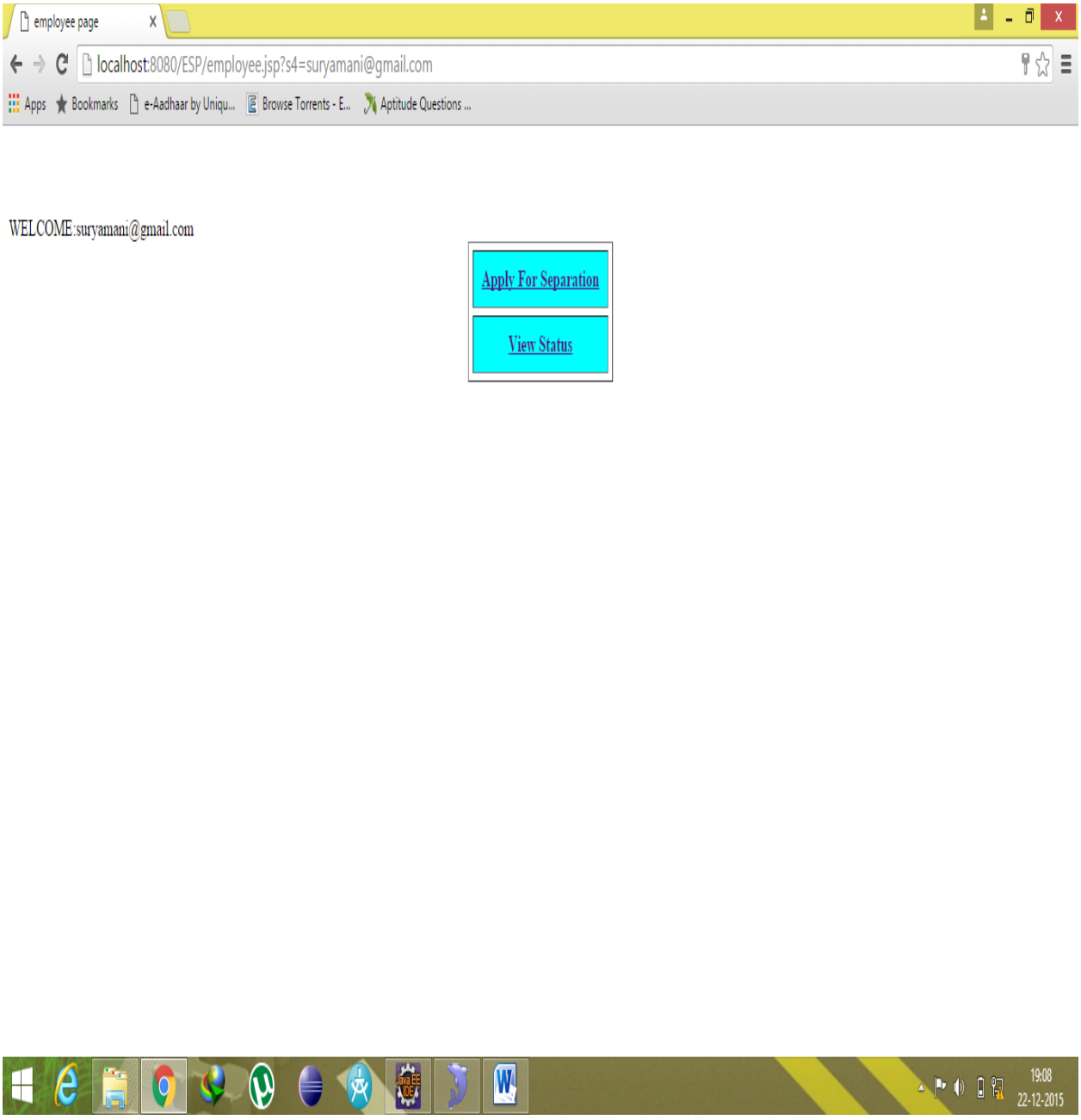

Fig 7.3 Employee Home Page

Separation Form

This form is the basis of the separation process .Here the User enter the details of his request ,contact details and other required data

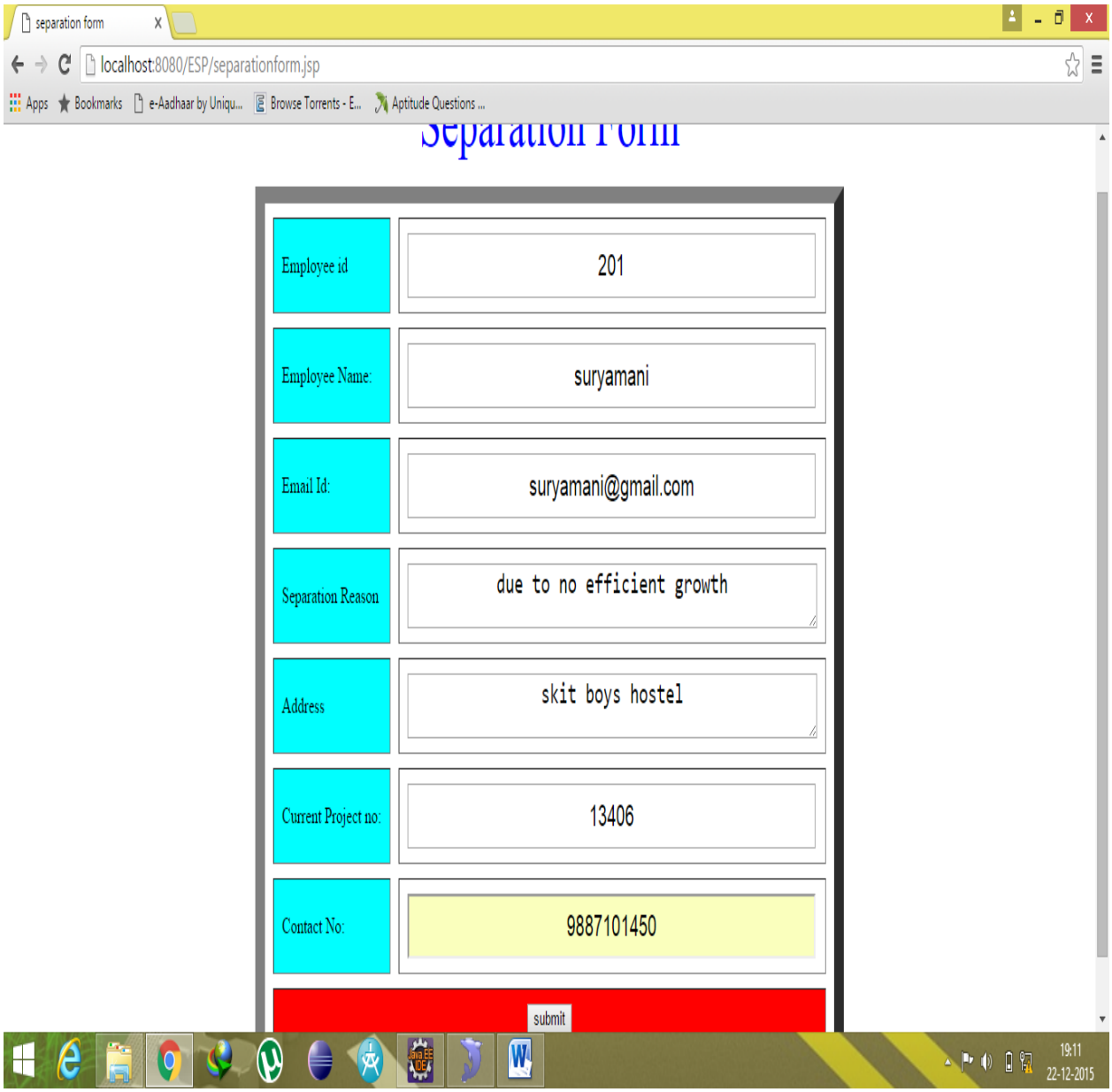

Fig 7.4 Separation Form

Successful Request

It shows a success message when the form is submitted successfully.

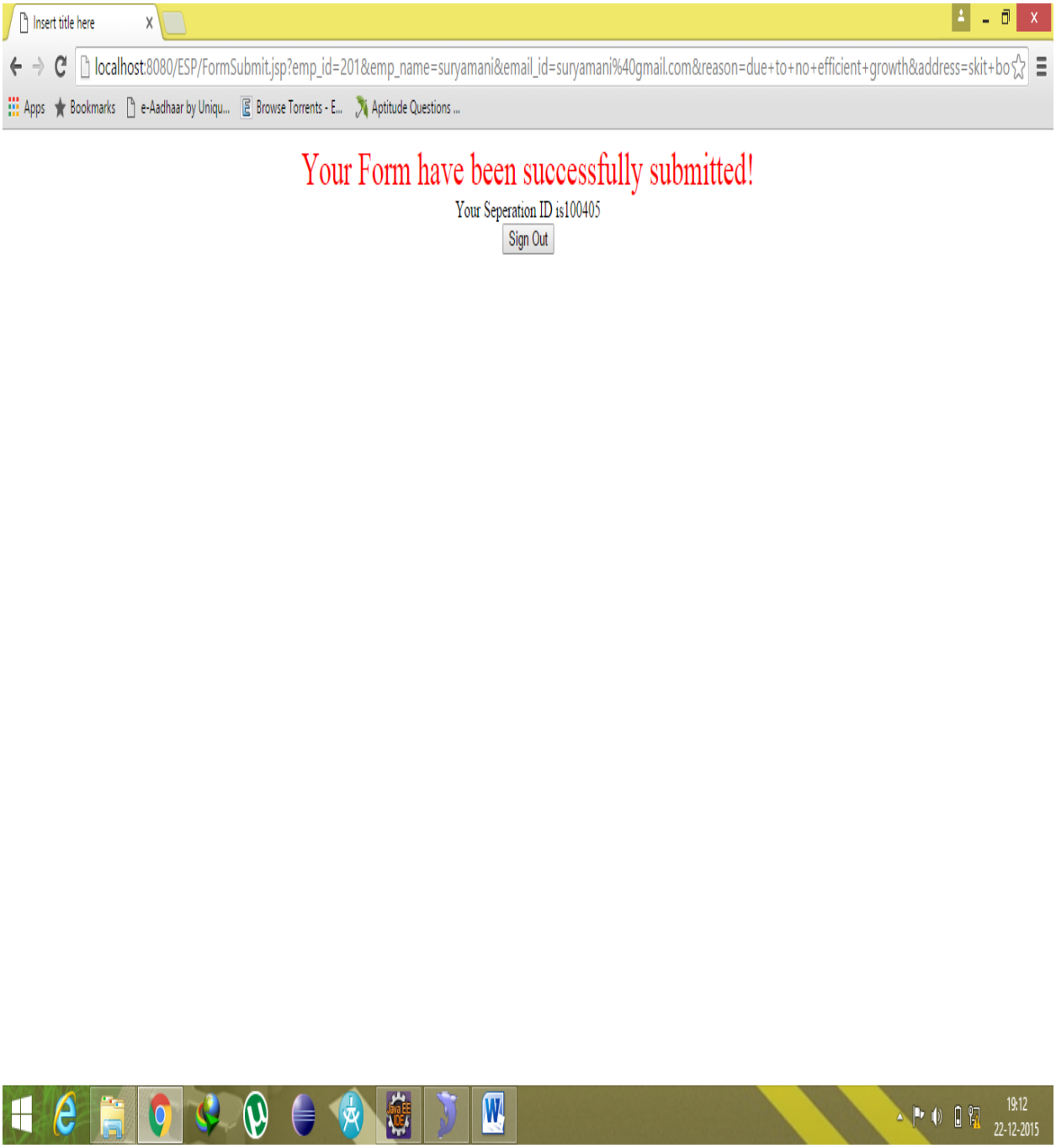

Fig 7.5 Success Message

HR Home Page

This section consists of all the functionalities to be performed by the HR.

Fig 7.6 HR Home Page

Separation Records

It contains the list of separation requests sent by the employees. The HR can perform next actions based on these requests.

Fig 7.7 Separation Records

Employee Details

The HR can also view the details of all the employees in the system.

Fig 7.8 Employee Details

Chapter 8

CONCLUSION AND FUTURE SCOPE

As the use of computers and internet is growing on a vast scale . So, there is a great need to automate the separation system of an organisation. In order to automate the system the online Employee Separation System has been developed to meet the needs and demands.

Since the employees in an organisation may seek separation so the future of this system is promising and in the coming days it is going to be used on a large scale.

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