**GAZIPUR DIGITAL UNIVERSITY**

**Department of Software Engineering**

**System Analyis And Design Lab Report**

**Course code :***SE 118*

**PROJECT : *Requirement Specification for the Employee Management System***

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***DATE:19 August 2025***

***Soft*ware Requirements Specification (SRS)**

**Project:** Employee Management System (EMS)

**1. Introduction**

* **Purpose**

This document outlines the Software Requirements Specification (SRS) for the Employee Management System (EMS). It defines both functional and non-functional requirements and serves as a reference for developers, testers, project managers, and HR personnel throughout the development lifecycle.

**Intended Audience**

• **Developers**: To design and implement the system

• **Project Managers**: To monitor development progress

• **Admin Staff:** To manage employee data and payroll

• **Employees:** To benefit from accurate record keeping

• **Testers:** To validate system functionalities

**Document Organization**

• **Section 1:** Introduction

• **Section 2:** Overall Description

• **Section 3:** System Features

• **Section 4:** External Interface Requirements

• **Section 5:** Non-functional Requirements

**Project Scope**

*EMS* is a desktop-based application built using Java Swing, AWT, and MySQL Workbench.

**Objectives:**

• Digitally store and manage employee information

• Efficiently handle attendance, salary, and records

• Enable administrators to add, view, search, update, delete, and print employee data

**Business Goals:**

• Reduce paperwork and manual errors

• Improve HR and management productivity

• Provide a secure and scalable solution for employee record management

**Significance:**

• Ideal for academic minor/major projects

• Demonstrates Java and database integration skills for resumes

**2. Overall Description**

**Product Perspective**

EMS is a standalone system replacing manual or spreadsheet-based employee management. It connects to a MySQL database and follows a flow: Login → Main Menu → Features.

**Product Features**

• Secure login for administrators

• Add new employees with full details

• View all employees in a table

• Search employees by ID

• Update employee details

• Delete employee records

• Export employee list to PDF

**User Classes and Characteristics**

|  |  |  |  |
| --- | --- | --- | --- |
| **User Type** | **Frequency** | **Access Rights** | **Importance** |
| Admin | Daily | Add/View/Update  /Delete/Print | Primary |
| System Administrator | Occasionally | Database backup and performance | Critical |

* **Operating Environment**

• **Hardware:** PC/Laptop with ≥4 GB RAM, Intel i3 or higher

• **OS:** Windows/Linux/macOS

• **Software:** Java JDK 8+, MySQL Workbench, JDBC Connector

* **Design Constraints**

• Only authenticated admins can access the system

• Employee IDs must be unique

• System requires MySQL connectivity

• GUI limited to Java Swing and AWT

**3. System Features**

**Feature 1:** *Login System*

• **Priority:** *High*

• **Description:** *Secure authentication for admins*

* **Requirements:**
* FR1: Validate credentials against database
* FR2: Show error messages for invalid login

**Feature 2:** *Add Employee*

• **Priority:** *High*

• **Description:** *Add new employee details*

* **Requirements:**
* FR1: Auto-generate unique Employee ID
* FR2: Save name, age, position, salary to database

**Feature 3:** *View/Search Employee*

• **Priority:** *High*

• **Description:** *View all employees or search by ID*

* **Requirements:**
* FR1: Display data in tabular format
* FR2: Enable search by Employee ID

**Feature 4: *Update Employee***

• **Priority:** *High*

• **Description:** *Modify employee details*

* **Requirements:**
* FR1: Update selected fields in database
* FR2: Overwrite existing record

**Feature 5:** *Delete Employee*

• **Priority:** *Medium*

• **Description:** *Remove employee record*

* **Requirements:**
* FR1: Delete record by ID
* FR2: Show confirmation prompt

**Feature 6:** *Print Employee List*

• **Priority:** *Medium*

• **Description:** *Export employee data to PDF*

* **Requirements:**
* FR1: Generate PDF of employee table
* FR2: Save file locally for printing

**4. External Interface Requirements**

**User Interface**

• Flow: Login → Main Menu → Features

• GUI built with Java Swing and AWT

• Responsive layout with forms, buttons, and tables

**Hardware Interfaces**

• Keyboard and mouse input

• Monitor for display

**Software Interfaces**

• MySQL database via JDBC

• External libraries for PDF generation

**Communication Interfaces**

• Local communication between Java app and MySQL database

**5. Non-functional Requirements**

|  |  |
| --- | --- |
| **Category** | **Description** |
| Performance | Efficient handling of 1000+ employee records |
| Security | Secure password storage; admin-only access |
| Reliability | Database backup mechanisms to prevent data loss |
| Usability | Simple GUI with clear labels and navigation |
| Portability | Compatible with any OS supporting Java |
| Maintainability | Code structured for easy debugging and upgrades |