EMPLOYEE MANAGEMENT SYSTEM

NANJING UNIVERSITY OF AERONAUTICS AND ASTRONAUTICS

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1. **INTRODUCTION**
   1. **Project background**

Employees are the backbone of any company therefore their management plays a major role in deciding the success of an organization. Employees Management Software makes it easy for the employer to keep track of all records. This software allows the administrator to edit employees, add new employees, keep record of transfer/promote/terminate employees. Each employee in the database is associated with a position can be added and edited when need arises. Employees can be transferred between positions easily without having to retype back their information in the database.

The reason behind creating the employee management system is to maintain the records of all parties in an organisation or a company, and develop an employee management system to fill existing gaps in the electronic management of employee’s specially to assist the Human Resources department of a company. The system includes the employee names assigned to a particular ID, ages and nationalities. There are two main types of users, the administrator and the employees. Both access the system by inputting their employee ID and password. The administrator has the advantage of being able to access the entire database system to view even the profiles of other employees. Ordinary employees can only view their own profiles.

**2. PROBLEM STATEMENT**

**2.1 What problem does this software solve?**

Well, before the use of technology or the invention of management system, records would have to be entered manually. This proved to be a tiresome task as the more a company or corporation grew, the more the entries that need to be made, this also meant that a lot of paper would have to be used and that also required a lot of storage space. Also, it was easier to make mistakes in data records and updating the database was a gruesome task. Another challenge is that multi-national companies will have all the employee information stored at the headquarters of the company making it difficult to access the employee information from remote places when needed at short notice.

Another disadvantage of keeping paper-based data records is the issue of security an encryption. Any person can access the files as long as they know the office in which they are kept.

**2.2 Why are we developing this system?**

The reason for developing this system is to easily and accurately maintain a large database in a large corporation. The aim is to ensure that the data is encrypted and can only be accessed by the authorized personnel. With this system, we hope to make the database to be usable such that it can be updated according to the needs of the corporation in which it is being used.

**2.3 What skills will you gain from this project?**

Mostly, as software engineering students, this project mainly assists us to practise our coding skills. Secondly, we get to experience presenting our idea and system in a very professional setting, including processing the necessary documentation. Thirdly, we gain knowledge on how to work according to a specific problem and condition within the required time. Lastly, it is quite useful that we worked in groups; we learnt division of labour and improved our communication skills.

**3. PROBLEM SOLUTION**

The proposed system is a program in C programming language called **Employee Management** **System**. The system consists of 3 main operators. Below, we will explain how the above-mentioned system handles the problem.

* 1. **The Administrator**

All the information pertaining to the employees and the company will be stored in the database of the business company. The administrator will have an advantage of other users as the administrator to do the following:

1. Have the ability to access all the data and will be able to view, edit and search the records of other (employees) user.
2. The administrator can accept/reject leave application through the system. 
3. Project Management: Assign tasks and projects to employees, assign a project team and keep track of the progress.
4. Report generation: The HR dept. will be able to generate timely reports in order to monitor employees and this can be used for performance appraisals. The reports will have all the information of an employee from attendance status, trainings attended, projects done as well as technical skills.
5. Attendance status: The HR dept. will be able to view status of employee’s attendance and hence analyse their performance.
   1. **The User (Employee)**

As earlier mentioned, all the data is stored in the company’s data base. Employees are required to login to their system using their employee ID’s and passwords. Employees will have access to their personal profiles and their details.

* 1. **The Finance**

The financer’s role is to calculate the salary and create a payroll by analysing employee’s attendance status.

**The advantages of our proposed system**

This system is expected to be user friendly and will offer easy access to data as well as services such as leave management, timely report generation, monitoring employee trainings, task management, project management and employee tracking.

1. Eliminating paper records.
2. An increase in security as the system is secured and encrypted with username and password.
3. The data is easier to access and update if necessary.
4. Without an employee management system, it is a very tedious job for the human resource department to keep track of each and every employee and even harder for a project manager to assign tasks to the project team. This will certainly ease the task.
5. **PROJECT SCOPE**

Here we will discuss what modules are used within the employee management system.

* **AUTHENTICATION MODULE:**

1. **REGISTER ACCOUNT MODULE**

The registration module allows the administrator to register an account with the username and password for user.

1. **LOGIN MODULE**

For this system, we have created three methods of logging in:

* Administrative login

The administrator has the advantage of being able to access all database. The administrator logs in using a valid name and password.

* The user

The user can only login to the system to view their profile. The user logs in using a valid name and password.

* The finance dept.

The finance dept. can create a payroll and calculate the salary of employees analyzing the attendance status. The finance officer logs in using a valid name and password.

1. **Logout:** The user can log out from the EMS system.
2. **Login failure:** If the user does not exist in the database or the user has not yet been authorized by the EMS admin.

* **Authorization**:

User role check- After logging in, the user role will be checked from the database and the user interface will be displayed according to their role.

* **Process Data:**

1. **ADD EMPLOYEE DETAILS MODULE**

The add module allows the administrator to add a new profile of a new user (employee) by adding details like id, name, contact no., department, no. of years worked, salary, position, etc.

1. **MODIFY MODULE**

The modify module allows the administrator to edit information on the profile of a user that has already been added to the database.

1. **DELETE MODULE**

The delete module allows the admin to delete a user’s profile when necessary.

1. **SEARCH MODULE**

The search module is a tool that allows the both the user and the administrator to search for information in the data base. In our employee system, one can find an employee’s details by inputting the employees ID number.

**It is important to note that only data that has been registered into the system database can be found by using the search module.**

1. **CALCULATE SALARY MODULE**

The calculate salary module is used by the Finance office to calculate the salary of employees and create a payroll.

1. **VIEW PROJECTS MODULE**

The view projects module allows the user (employee) to view any projects that has been left by the administrator so that the user completes it.

1. **ATTENDANCE DETAIL MODULE**

This module allows the user to view their attendance details.

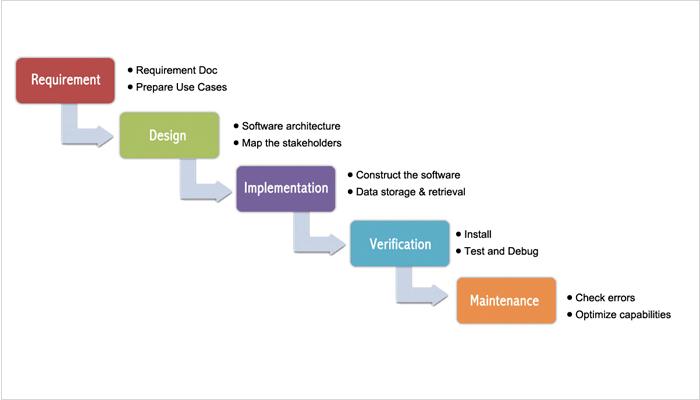
1. **LEAVE APPLICATION MODULE**

The leave application module allows the user (employee) to leave an application for leave which will later be approved or denied by the administrator. The user will be able to see if their leave application was approved or denied.

1. **SOFTWARE DEVELOPMENT APPROACH**

The waterfall model is a sequential design process, often used in software development processes. It takes the fundamental process activities of specification, development, validation, and evolution and represents them as separate process phases such as requirements specification, software design, implementation, testing, and so on.

In our project, we used this waterfall method of software development.

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1. **TOOLS AND TECHNOLOGIES**

|  |  |  |
| --- | --- | --- |
| TOOLS | VERSION | RATIONALE |
| MS WORD | 2007 | DOCUMENTATION |
| MS POWERPOINT | 2003 | PRESENTATION |
| DEV C | 2.0 | PROGRAMMING LANGUAGE compiler |
| STAR UML | 2007 | USE CASE DIAGRAM |
|  |  |  |

5.1 PROJECT STAKEHOLDERS AND ROLES

|  |  |
| --- | --- |
| PROJECT SPONSOR | NANJING UNIVERSITY OF AERONAUTICS AND ASTRONAUTICS |
| STAKEHOLDERS | TEAM MEMBERS:  AANCHAL  SEMBA  TANJILA  DAVID |
|  |  |

* 1. TEAM MEMBERS INDIVIDUAL TASKS/WORK DIVISION

|  |  |  |
| --- | --- | --- |
| **Name** | **Work** | **Duration** |
| **Aanchal Upreti**  **191764145** | Intro, Use case diagram, UC-1, UC-2, UC-3, Table 1 and 2, Usability Availability, Conclusion | Week 9th to Mid-Week 11th |
| **David**  **191761253** | Scope, UC- 4, UC-5, Table 3 and 4 Reliability, Security, Conclusion | Week 9th to Mid-Week 11 |
| **Tanjila**  **191764121** | UC-6, UC-7, Table 5, Integrity, Performance | Week 9th to Mid-Week 11th |
| **Semba**  **191764134** | UC-8, Table 6 and 7, Design Constraints, Supportability | Week 9th to Mid-Week 11th |

**Note:** Everyone worked for the code to one’s capability.

User Interface is abstracted from the DevC++ Compiler after the code was compiled and Run.

1. **DATA GATHERING APPROACH**

6.1 GROUP DISCUSSIONS

We scheduled meetings so that we could discuss and separate tasks accordingly and also keep tabs on the procession of tasks. If anyone from our group had questions, we had a weChat group where we could ask for clarifications for the times when we were unable to meet physically due to our different schedules.

As software engineering students we used a little of our knowledge from prior tasks and coding courses. We were able to incorporate this knowledge into the given task.

6.2 ONLINE BROWSING

Of course, we facilitated the use of the internet so as to browse for information and examples of similar projects so as to guide us during the course of our project.

1. **CONCLUSION**

The main purpose of the employee management system is to ensure that the maintenance of the records of employees is reliable, secure and easy to use. The system will enable users to login to the system using their employee ID numbers and passwords. When the employees enter the correct data, it acts as a trigger to login to the system they will be able to login to their personal system. The administrator will be able to access all the data pertaining to the entire database and the profiles of other employees and update the profiles of employees.

In the future we wish to incorporate the use of advance graphical user interface (GUI) with proper backend scripting and database software like MYSQL for secured database record, and allowing it to be accessible online as web or mobile based application.