



EMPLOYEE MANAGEMENT SYSTEM

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ABSTRACT—

Effective management of employees is paramount for organisational success in today's dynamic business landscape. This abstract presents the conceptualization and development of an advanced Employee Management System (EMS) designed to optimise human resource processes within organisations. EMS is a comprehensive solution integrating various modules to efficiently handle tasks ranging from employee onboarding, attendance tracking, performance evaluation, to payroll management.

Keywords:

Information system, Database system, DBMS, parent table, child table, table fields, primary key, foreign key, relationship, sql queries, objects, classes, controls.

INTRODUCTION

An Employee Management System (EMS) is a comprehensive software solution designed to centralize and automate various HR processes within an organization. It facilitates efficient management of employee information, attendance tracking, performance evaluation, payroll administration, training and development, recruitment and onboarding, benefits administration, compliance monitoring, and employee self-service. By providing a centralized platform for HR professionals, managers, and employees, an EMS improves efficiency, ensures compliance with regulations and company policies, and enhances overall workforce management and organizational success.

1.1 OVERVIEW

The next chapter and its subsections will turn the attention to the method for resolving the problem, the programming environments used for developing the system and the implementation of the operations performed upon the database.

1.2 PROBLEM STATEMENT

This report's documentation goes through the whole process of both application program and database development. It also comprises the development tools have been utilized for these purposes.

1.3 OBJECTIVES

The next chapter and its subsections will turn the attention to the method for resolving the problem, the programming environments used for developing the system and the implementation of the operations performed upon the database.

2.LITERATURE SURVEY

The scope of the Employee Management System project encompasses various aspects of human resource management, including but not limited to:



2.1 Method

At the very commencement, I proceeded to a decision to carry out the development of my task into the following steps:

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- Exploring the available development environments and techniques.
- Database Analyzing.
- Database design and Implementation.
- Program's Structure Analyzing.
- GUI (Graphical User Interface) constructing.
- Bringing all the stuff together (controls data binding and functions implementation).
- Tests.

Each one of these steps could be explained in some brief details as follows:

- **Exploring the available development environments and techniques :**

There is a lot of programming environments available to be used for such kind of elaborations. The point is to choose such an environment that we will be able to operate with in a convenient and easy way. This is more or less optional and individual process, that depends on the developer's experience as well.

- **Database Analyzing :**

It concerns all of the demands, put upon the database content and its functionality .The database should be designed and implemented in a way that the user would expect it to be.

- **Database design and Implementation :**

This step is tightly related with the previous one as it is completely determined by the requirements, analyzed and discussed in step2.

- **GUI Constructing:**

- After analyzing the program's structure and defining what it should consist of, a graphical representation of this stuff is needed in order to enable the user to interact with the data.

- **Bringing all the stuff together:** The next step that should be taken is connecting the program with the database and performing the necessary functionality upon all of the controls.

Tests:To ensure that everything works properly and as it has been expected, test performance has to be done upon the system's functionality

2.2 Programming Enviroments

The given task concerns a small company (organization). For instance, for the needs of a small company, we could use one set of tools, but for the needs of a larger one, it would be much better if we apply our approach by using some different, that could be more appropriate and would fit much better the requirements we have to satisfy.

I decided to use the Access Database Environment as a Database Management System and C# as a programming language for developing my project.

Before proceeding to the explanatory notes of how I have developed the software, I would like to take a preview upon the programming tools (environments) that have been used during this project's development course.

Database Environment: Access is a typical environment for constructing relational databases.

The database is the skeleton and the underlying framework of most of the contemporary Information Systems. The evolution of the Database systems could be divided into three phases: the Manual-filing System, the File-based systems, and the Database and the Database Management systems (DBMS).

The manual-filing system contains files of information, related to a project, product, task, client, or employee and they are usually labeled and stored in one or more cabinets. The cabinets may be located



in the secure area of the building, for safety. To facilitate the process of searching and to find out what we want, more quickly, the different types of item can be put in separate folders and they remain logically related.

Actually, the needs of the contemporary industrial world could not be covered or satisfied by using such kind of systems, and especially what concerns their reliability and efficiency. Thus, we historically reach to the second phase of the Database systems evolution – the File-based systems. This kind of systems had been developed

in response to the needs and demands of industry for a more efficient data access

2.3 Database Analyzing, design and implementation

| Employees' Basic Details | Working History | Time Information |
|--|--|--|
| Employee_ID_Number Personal_ID_Number First_Name Middle_Name Last_Name Day_of_Birth Month_of_Birth Year_of_Birth Cellular_Phone Home_Phone City Address Postal_Code Qualification Current_Experience Start_Date_Day Start_Date_Month Start_Date_Year End_Date_Day End_Date_Month End_Date_Year Type_of_Employee Gender Marital_Status | Employee_ID_Number Company_Name Employer_Name Company_Employer_Address Company_Employer_Cellular_Phone Company_Employer_Office_Phone Previous_Qualification Previous_Experience p_Start_Date_Day p_Start_Date_Month p_Start_Date_Year p_End_Date_Day p_End_Date_Month p_End_Date_Year | Employee_ID_Number Wroked_Hours Off_Hours Days_off Over_Time Extra_Days w_From_Date_Day w_From_Date_Month w_From_Date_Year w_To_Date_Day w_To_Date_Month w_To_Date_Year |

I have constructed a database that consists of six data tables. There will be one main table (parent table) and five child tables, related to each other. Patently, for this purpose the necessary primary and foreign keys should be defined into the responding tables. The so defined structure above is made up in conformity with the user's needs and demands. Each employee of the staff is intended to have several records, responding to his Working History, Contact Person Information, Salary Information, Time Information and Holiday Information, and only one record containing his basic information within the company – his personal details as: date of birth, gender, marital status, address and phone details, and his current working record. An employee is supposed to have not only one record of his Working history, or his Contact Person Information....For instance, if we take a look to the Time Information data table – an employee may have several records in case he has some experience within the current company. It is absolutely the same with the Salary Information, Contact Person Information and Holiday Information data tables.



The relationships between the data tables are shown in Figure 4-Appendix A. In Figure 4 we can distinguish six tables that the database consists of. All of the relationships are of type: “one-to-many”. (For more details about the data tables, see Appendix

2.4 Program’s Structure Analyzing and GUI Constructing

After getting the database prepared, application program should be constructed and implemented in some programming environment to enable the users to communicate with the database.

Graphical User Interface (GUI) is intended to be built up as a basic structure of the program. The first general advice when constructing GUIs is to “know thy users” as there is a large number of rules and requirements, concerning the whole process of GUI development. Every GUI consists of certain number of controls (text-boxes, comboboxes, buttons...etc.). The list of all properties and methods for all controls is called Application Programming Interface (API). The Program’s GUI is shown in (Appendix B: Figure 1):

A set of controls is used in order to reach the desired purpose, what concerns the functionality of the application, including Labels, Text boxes, Combo Boxes, Data Grid, Buttons, Group Boxes, Panels, Tab controls etc. All of these controls, available in the program, are fitted to the corresponding forms that are used in the application.

General - used as a platform (Appendix B: Figure 2 Basic form): And a second one (Appendix B: Figure 3) that is loaded onto the first (General) form. One control that is heavily used is the Label control .

For all controls, the default constructor is used as their properties are set after that. A set of Label controls is depicted on Figure 4 – Appendix B. The role of the Label is to point at the responding text field, showing what it is intended to be used for. Other set of controls, used in the program, is the set of text boxes and combo boxes, shown in Figure 5 – Appendix B. All of the text boxes and combo boxes are marked with greencoloured circle points.

Text boxes can display multiple lines, wrap text to the size of the control, and add basic formatting. The Windows Forms ComboBox control is used to display data in a drop-down combo box. By default, the ComboBox control appears in two parts: the top part is a text box that allows the user to type a list item.”

The Program contains two basic forms:

3.METHODOLOGY

The learning procedure starts with the perception of information, so examples can be discovered in information and prevalent choices can be taken later on which depend on the precedents gave.

Certainly! Here's a condensed version:

- Analysis and Planning: Understand organization requirements.
- Requirements Gatherin: Collect detailed requirements from stakeholders.
- System Design: Design architecture and user interface.
- Development: Code, test, and integrate system components.
- Testing: Ensure system functionality and compliance.
- Deployment: Implement the system within the organization.
- Training: Train users on system operation.
- Maintenance and Support: Provide ongoing technical support.
- Evaluation and Iteration: Continuously improve system based on feedback..

This streamlined methodology covers the essential steps in implementing an employee management system.

This extended methodology provides a more detailed overview of the steps involved in developing and implementing an employee management system.



4. RESULT & DISCUSSION

The "Result and Discussion" section of a study on an employee management system would typically present the findings and analysis of the implemented system. Here's how it might be structured:

Results:

- **System Functionality Evaluation:** Discuss the functionality of the implemented system, including its ability to manage employee data, track attendance, process payroll, and facilitate performance evaluation.
- **User Feedback:** Present feedback gathered from HR personnel, managers, and employees regarding their experience with the system, including ease of use, efficiency, and effectiveness in meeting their needs.
- **Performance Metrics:** Provide quantitative metrics on system performance, such as processing time for payroll, accuracy of attendance tracking, and system uptime.

Discussion:

- **Effectiveness of the System:** Interpret the results of the system functionality evaluation and user feedback to assess the overall effectiveness of the implemented employee management system in meeting organizational goals and addressing user needs.
- **Areas for Improvement:** Identify any shortcomings or areas for improvement based on user feedback and performance metrics. Discuss potential enhancements or modifications that could be made to further optimize the system.
- **Impact on Organizational Processes:** Analyze the impact of the employee management system on organizational processes, such as streamlining HR operations, improving data accuracy, and enhancing communication between departments.
- **Integration and Compatibility**:** Discuss the integration of the system with existing organizational systems and its compatibility with other software tools. Highlight any challenges or successes in achieving seamless data flow and interoperability.

5. CONCLUSION & FUTURE WORK

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. As a future work, some additional stuff could be implemented and integrated into the application code making it much more reliable and flexible; especially what concerns a pay-roll module, for instance. 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. Future Directions: Propose future directions for the employee management system, such as additional features or functionalities to be implemented, ongoing maintenance and support strategies, and potential expansion to accommodate organizational growth or evolving needs.



By presenting the results and discussing their implications, this section provides a comprehensive overview of the implemented employee management system, its performance, and its impact on the organisation.

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7.APPENDIX OR APPENDICES

This section will give some visual details about the content and the structure of the database that has been designed and constructed for the purposes of the program. • MS-Access (2000):

The screenshot shows a Microsoft Access form with a tabbed interface. The active tab is 'Personal Details'. The form is divided into two main sections: 'Company / Employer Details' and 'Experience and Qualification Details'.
Under 'Company / Employer Details':
- Company Name: Marks&Spencer
- Employer Name: (empty)
- Company / Employer Address: Canterbury, Kent, England
- Company / Employer Phone Details: Cellular Phone and Office Phone (both empty)
Under 'Experience and Qualification Details':
- Qualification: not specified
- Experience: not specified
- Start Date: Day: 2, Month: 3, Year: 2005
- End Date: Day: 6, Month: 6, Year: 2005
At the bottom, there are navigation buttons for 'Records Preview' (First, Last, Next, Previous) and 'Records Management' (Add, Update, Delete, Save).

The screenshot shows a Microsoft Access form with a tabbed interface. The active tab is 'Personal Details'. The form is divided into two main sections: 'Personal Details' and 'Address Details'.
Under 'Personal Details':
- First Name: David
- Second Name: (empty)
- Last Name: Chappel
- Phone Details: Home Phone and Cellular Phone (both empty)
Under 'Address Details':
- City / Village: Bromley South, Kent
- Address: St.Mary Road, B2193
At the bottom, there are navigation buttons for 'Records Preview' (First, Last, Next, Previous) and 'Records Management' (Add, Update, Delete, Save).