GURU GHASIDAS VISHWAVIDYALAYA

DEPARTMENT OF CSIT

Minor Project

on

Employee Payroll Management System

Guided By :

Mr. Vivek Sarathe

Assistant Professor,

Dept. of CSIT, GGV

Developed By :

Manikant Mahto

Roll no.: 20606070

Dept. of CSIT, GGV

GURU GHASIDAS VISHWAVIDYALAYA

DEPARTMENT OF CSIT

Acknowledgement

I am extremely grateful and remain indebted to my guide for being a source of inspiration and for his constant support in the project. I am thankful to him for the constant constructive criticism and invaluable suggestions, which benefitted me a lot while developing the project. Through this column, it would be my utmost pleasure to express my warm thanks to him for encouragement, cooperation and constant help without which I might not be able to accomplish this project. I am also expressing my gratitude towards him for providing me the infrastructure to carry out the project and to all the staff members who were directly and indirectly indulged in enabling me to stay committed for this project.

Manikant Mahto

GURU GHASIDAS VISHWAVIDYALAYA

DEPARTMENT OF CSIT

Certificate By Guide

This is to certify that "Manikant Mahto" of MCA 2nd semester, from dept. of Computer Science and Information and Technology, has satisfactorily completed the minor project on "Employee Payroll Management System" in partial fulfillment for the degree of Master of Computer Applications of this university. I am forwarding this project to the university to partially fulfill the requirements of the degree of MCA 2nd semester (C.S.I.T. dept.), during the academic session 2020-21.

Approved By:

Mr. Vivek Sarathe

Assistant Professor,

Dept. of C.S.I.T., GGV

GURU GHASIDAS VISHWAVIDYALAYA

DEPARTMENT OF CSIT

Certificate By Examiner

This certifies that "Manikant Mahto" of MCA 2nd semester, from dept. of Computer Science and Information and Technology, Guru Ghasidas Vishwavidyalaya, has submitted the project report on "Employee Payroll Management System" in partial fulfillment for the Degree of Master in Computer Applications of this university during the academic session 2020-21.

Internal Examiner

Mr. Vivek Sarathe

Assistant Professor,

Dept. of CSIT, GGU

GURU GHASIDAS VISHWAVIDYALAYA

DEPARTMENT OF CSIT

Declaration

I Manikant Mahto, hereby declare that the minor project entitled "Employee Payroll Management System" is a record research work done by me under the guidance of Mr. Vivek Sarathe, Assistant Professor, dept. of C.S.I.T., GGV and it has not formed the basis of an award or degree or diploma but it is partially fulfilling the requirement for MCA 2nd semester.

Manikant Mahto

RollNo: 20606070

MCA 2nd semester

Dept. of C.S.I.T, GGV

ABSTRACT

"Employee Payroll Management System" is one of the core areas of your business. Usually, it is used to manage the employee's expenses, allowances, salary, Gross Salary, deduction, tax and many more for a specific time period. Management and Accounting are two main essential parts for payroll. Payroll is an area in which you do not want to take any risk because it leads to some financial and serious legal consequences. Payroll is a serious concern for every SMSE. It is mandatory for all business to pay every employee as per the government rules and regulations. Furthermore, this project will enhance business in market and maintain the prestige and reputation of the company.

“Employee Payroll Management System”

Introduction

A payroll management system is a software that is used to manage all your employee's financial records in a simple and automated fashion. This payroll management system manages employee's salaries, deductions, other conveyance, net pay, bonuses and generation of pay-slips, etc.

Description of existing system

The existing system is quite slow and inefficient. Perhaps, it is more prone to errors. This type of system mainly depends on the effectiveness of the employee working which makes this system a slower process.

Drawbacks:

1. Slow
2. Inefficient
3. Prone to errors
4. Ineffective
5. Less secure

Description of project

The project consists of all the required modules to increase the speed and efficiency of the user. It also helps in making the calculations error free. The details of the entire invoice can be seen in a detailed format. The list of all the stocks is also displayed in a tabular form.

Main features:

1. Faster than existing way
2. Error free
3. Records saved in digital format
4. Tabular format
5. High level of security

Methodology of the Project

The software development life cycle model that we used for developing this project is “Incremental Model”.

Incremental Model

Incremental Model is a process of software development where requirements are broken down into multiple standalone modules

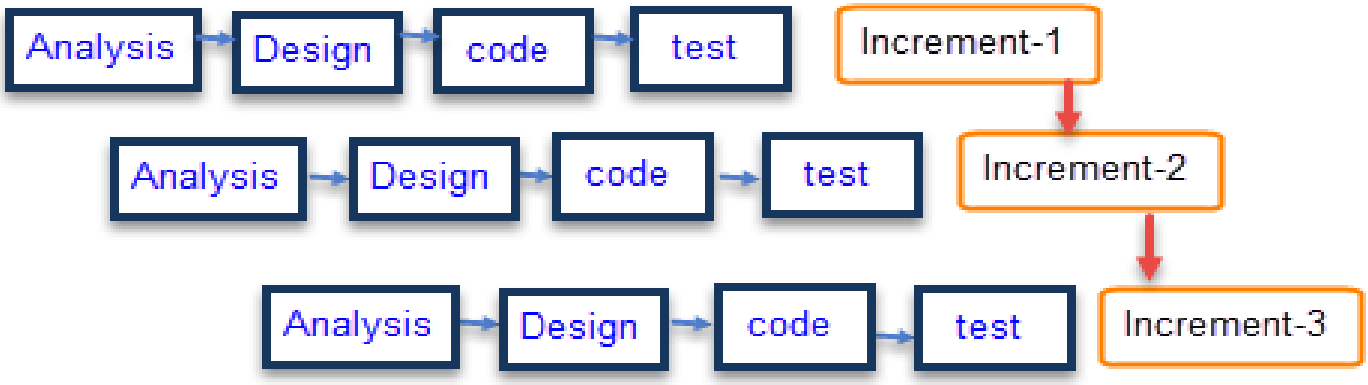
of software development cycle. Incremental development is done in steps from analysis design, implementation, testing/verification, maintenance.

Each iteration passes through the requirements, design, coding and testing phases. And each subsequent release of the system adds function to the previous release until all designed functionality has been implemented.

The system is put into production when the first increment is delivered. The first increment is often a core product where the basic requirements are addressed, and supplementary features are added in the next increments. Once the core product is analyzed by the client, there is plan development for the next increment.

Characteristics of an Incremental module includes

- System development is broken down into many mini development projects
- Partial systems are successively built to produce a final total system
- Highest priority requirement is tackled first
- Once the requirement is developed, requirement for that increment are frozen



Incremental Model

Incremental Phases	Activities performed in incremental phases
Requirement Analysis	• Requirement and specification of the software are collected
Design	• Some high-end function are designed during this stage
Code	• Coding of software is done during this stage

Incremental Phases	Activities performed in incremental phases
Test	• Once the system is deployed, it goes through the testing phase

When to use Incremental models?

- Requirements of the system are clearly understood
- When demand for an early release of a product arises
- When software engineering team are not very well skilled or trained
- When high-risk features and goals are involved
- Such methodology is more in use for web application and product based companies

Advantages and Disadvantages of Incremental Model

Advantages	Disadvantages
• The software will be generated quickly during the software life cycle	• It requires a good planning designing

Advantages	Disadvantages
• It is flexible and less expensive to change requirements and scope	• Problems might cause due to system architecture as such not all requirements collected up front for the entire software lifecycle
• Throughout the development stages changes can be done	• Each iteration phase is rigid and does not overlap each other
• This model is less costly compared to others	• Rectifying a problem in one unit requires correction in all the units and

Advantages	Disadvantages
	consumes a lot of time
• A customer can respond to each building	
• Errors are easy to be identified	

Software Requirements Specification

Introduction:

SRS is a document that completely describes what the proposed software should do without describing how the software will do it. The basic purpose of SRS is to bridge the communication gap between the parties involved in the development of the software SRS is the medium through which the client and the user needs are accurately specified.

A good SRS should satisfy all the parties some thing very hard to achieve and involves trade offs and persuasion. Another important purpose of developing an SRS is helping the users to understand their own needs.

Purpose:

Main aim of developing Employee Payroll Management is to provide an easy way not only to automate all functionalities involved managing leaves and Payroll for the employees of Company.

Scope:

This Application works in Multiple PC's installed on multiple Computers but sharing same database by which users of different department can use it sitting at different locations simultaneously.

But in future we can make the Application where the database will be hosted in order to manage the all departments which will be located in different places and by keeping domain of Application as Online.

References:

- Programming Visual Basic .NET, Second Edition by Jesse Liberty
- The needed requirements for this project has been obtained from the stock by observing manual records and also gathered some of the information by asking questions.

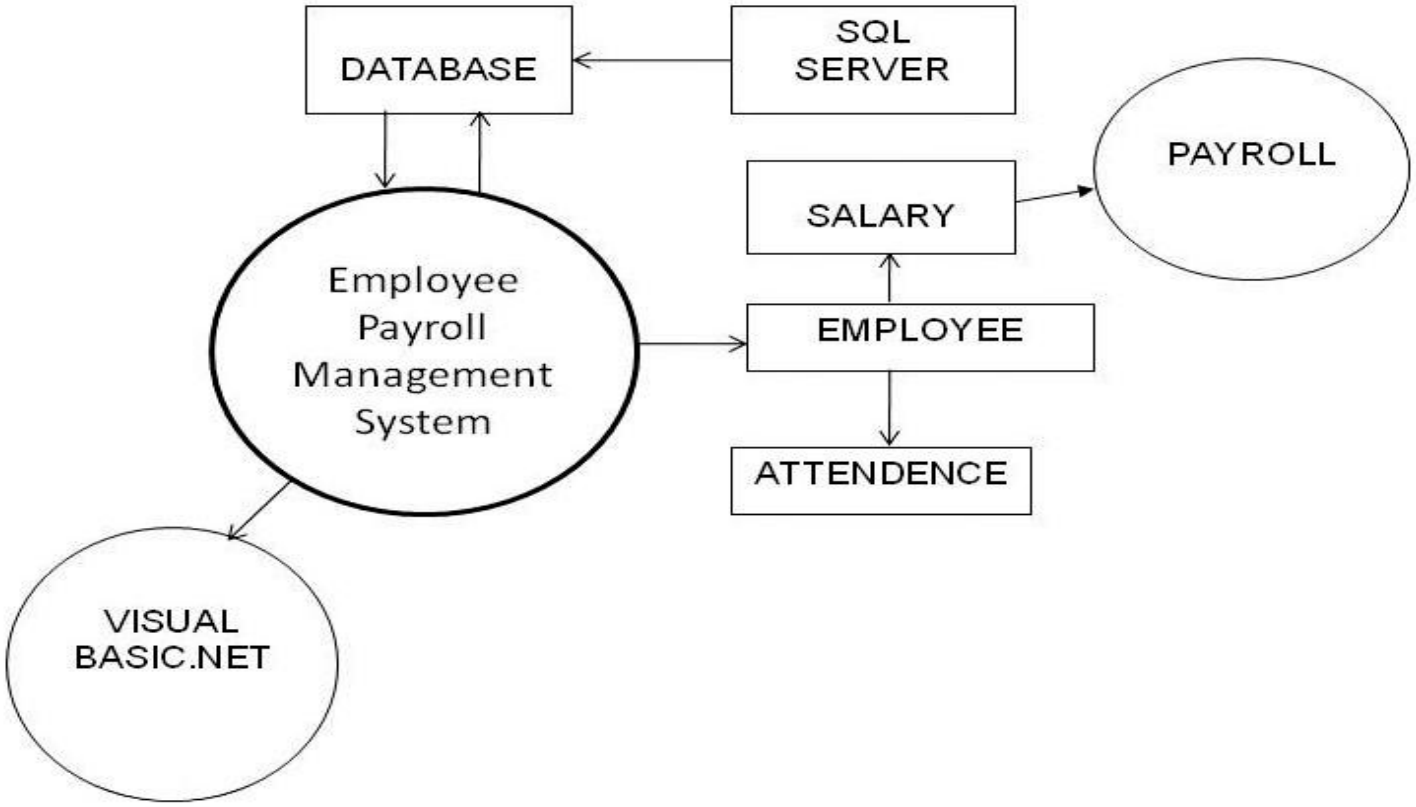
System Design Document

Introduction:

Design of the new system begins by elaborating the statement of requirements in terms of more detailed objectives. The main aim of design process is to produce a model or representation of the system, which can be used later to bind the system. The produced model is called design of the system. A system design is a top down approach to minimize complexity and make a problem manageable by subdividing it into smaller segments.

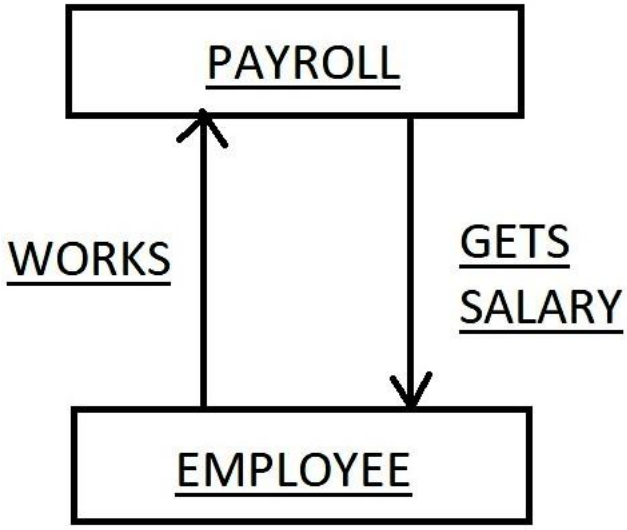
The most changing phase of the system development of life cycle is system design. It refers to the technical specification that will be applied in implementing the candidate system. The potential objects are thoroughly analyzed. Class hierarchies are to check whether the system is behaving the way it has to. There after the classes are individually tested and subsequently they are integrated from the overall system. This level focuses on deciding which modules are needed for system the specifications for those modules and how these modules are interconnected.

Context Flow Diagram

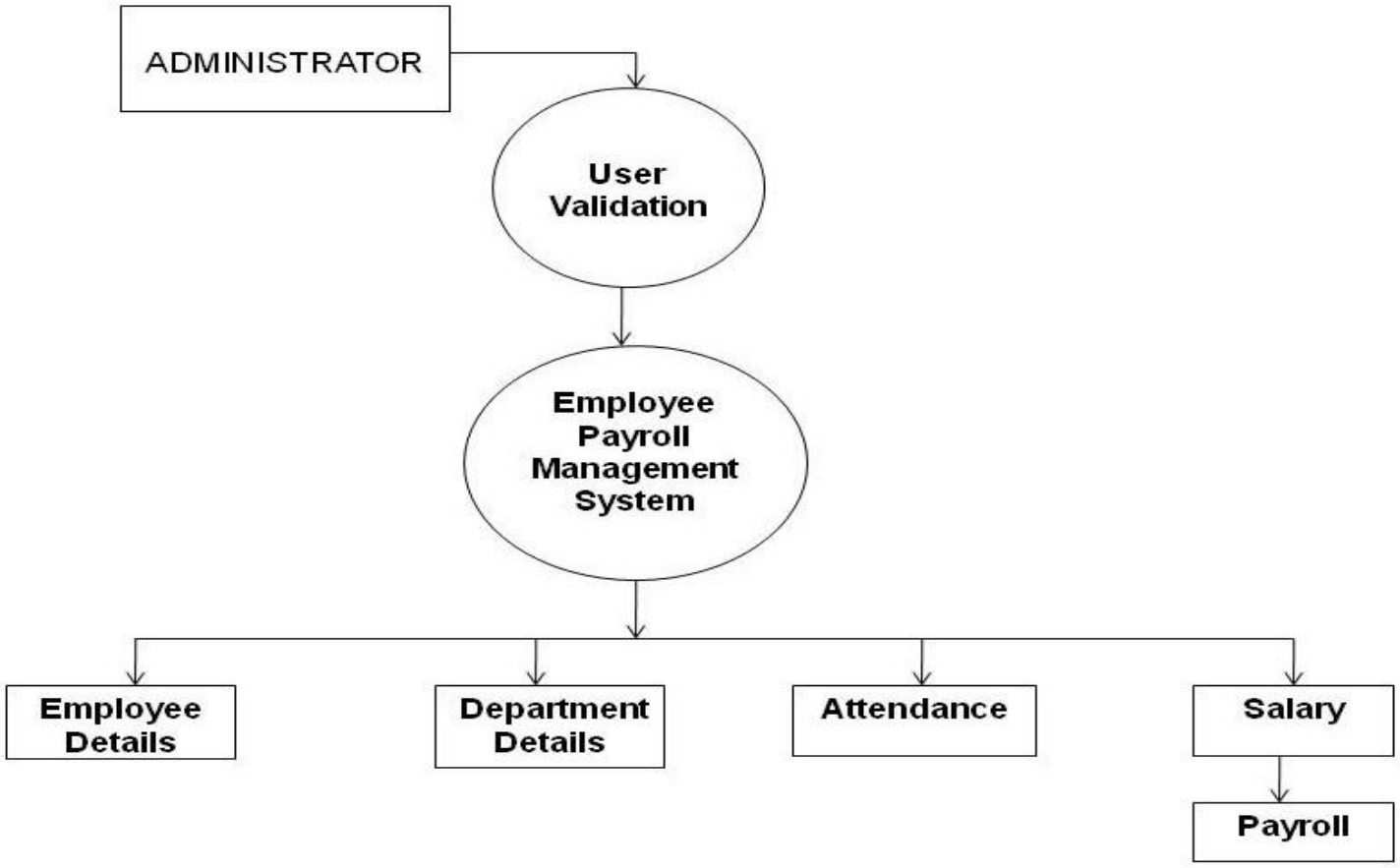


Data Flow Diagram

DFD(Level 0)



DFD(Level 1)



System Requirement Analysis

In software engineering, requirements analysis focuses on the tasks that determine the needs or conditions to meet the new or altered product or project, taking account of the possibly conflicting requirements of the various stakeholders, analyzing, documenting, validating and managing software or system requirements.

Requirements analysis is critical to the success or failure of a systems or software project. The requirements should be documented, actionable, measurable, testable, traceable, related to identified business needs or opportunities, and defined to a level of detail sufficient for system design.

Information Gathering

Methods:

In order to determine the requirements of a system, information must be gathered from the customer. Ideally, the information obtained will enable a well-defined, accurate, and complete description of how the business functions as well as the people, functions and data involved. However, this is not always the case, and information is often misinterpreted or omitted entirely. There are many techniques that can be employed when gathering information. The type of information you are trying

to obtain, as well as the people providing the information, will determine which techniques you should use.

Traditional Methods of Gathering Information

Traditional methods of gathering information include:

1. Interviews
2. Questioning
3. Questionnaires
4. Observation
5. Study of existing organizational documents, forms and reports

Traditional methods are often used when the overall objective is clear and requirements are well defined. In addition, methods such as questioning and interviewing are generally regarded as the only choice for particular phases such as the initial contact.

Modern Methods of Gathering Information

Modern methods of gathering information include:

1. JAD
2. RAD

3. Prototyping

Modern methods are often used when the requirements and objectives are not clearly understood. Modern methods of gathering information require a greater effort, but often the results are much faster and more accurate than those gathered by traditional methods.

Data Source

The data source of this project is faculty of the store. Internet is used to get all the desired information for the proper development of the system. Paper works done by the institution head for record maintenance.

Fact Finding Techniques

Fact finding is process of collection of data and information based on techniques which contain sampling of existing documents, research, observation, questionnaires, interviews, prototyping and joint requirements planning. System analyst uses suitable fact-finding techniques to develop and implement the current existing system. Collecting required facts are very important to apply tools in System Development Life Cycle because tools cannot be used efficiently and effectively without

proper extracting from facts. Fact-finding techniques are used in the early stage of System Development Life Cycle including system analysis phase, design and post implementation review. Facts included in any information system can be tested based on three steps: data- facts used to create useful information, process- functions to perform the objectives and interface-designs to interact with users.

There are seven common fact-finding techniques:

1. Sampling of existing documentation, forms and databases

2. Research and Site visits

3. Observation of the work environment

4. Questionnaires

5. Interviews

6. Prototyping

7. Joint requirements planning

Feasibility Study

A feasibility study is an assessment of the practicality of a proposed project or system. A feasibility study aims to objectively and rationally uncover the strengths and weaknesses of an existing business or proposed venture, opportunities and

threats present in the natural environment, the resources required to carry through, and ultimately the prospects for success. In its simplest terms, the two criteria to judge feasibility are cost required and value to be attained. A well-designed feasibility study should provide a historical background of the business or project, a description of the product or service, accounting statements, details of the operations and management, marketing research and policies, financial data, legal requirements and tax obligations. Generally, feasibility studies precede technical development and project implementation. A feasibility study evaluates the project's potential for success; therefore, perceived objectivity is an important factor in the credibility of the study for potential investors and lending institution. It must therefore be conducted with an objective, unbiased approach to provide information upon which decisions can be based.

The acronym TELOS refers to the five areas of feasibility:

Technical: This assessment is based on an outline design of system requirements, to determine whether the company has the technical expertise to handle completion of the project.

Economic: It defines the availability of all the requirements under the desired expenses.

Legal: It determines whether the proposed system conflicts with legal requirements, e.g., a data processing system must comply with the local data protection regulations and if the

proposed venture is acceptable in accordance to the laws of the land.

Operational: Operational feasibility is the measure of how well a proposed system solves the problems, and takes advantage of the opportunities identified during scope definition and how it satisfies the requirements identified in the requirements analysis phase of system development.

Scheduling: A time feasibility study will take into account the period in which the project is going to take up to its completion. A project will fail if it takes too long to be completed before it is useful.

Minimum System Requirements

Hardware Configuration:

- A computer (i.e. a laptop or a desktop)
- Processor: Intel Core Processor series
- RAM : 2 GB
- Hard Disk: 256 GB
- Printer (for printing pay slips)

Software Configuration:

- Back End: Microsoft SQL Server Management Studio 18 (SQL Database)
- Environment : Microsoft Visual Studio 2019 Community Edition
- Language : VB.NET
- Operating System : Microsoft Windows 10 (Home/ Professional/ Education/ Enterprise)

Back End Description

Microsoft SQL Server is a relational database management system developed by Microsoft. As a database server, it is a software product with the primary function of storing and retrieving data as requested by other software applications—which may run either on the same computer or on another computer across a network (including the Internet).

Data in SQL Server:

db.SALARY

EMPLOYEE_CODE	EMPLOYEE_NAME	BASIC_PAY_PER_HOUR	EPF	TA	DA	HRA
100001	VIJAY SINGH	400	6	6	6	6
100002	SANJAY GROVER	200	4	4	4	4
NULL	*NULL*	*NULL*	*NULL*	*NULL*	*NULL*	*NULL*

db.EMPLOYEE_DETAILS

EMPLOYEE_CODE	DEPARTMENT_CODE	DEPARTMENT_NAME	DESIGNATION	EMPLOYEE_NAME	EMPLOYEE_GE...	EMPLOYEE_DOB	EMPLOYEE_BLOOD_GROUP
100001	101	PRODUCTION	Sr. Associate	VIJAY SINGH	Male	01-12-1995	A+
100002	104	CHEMICAL	HoD	SANJAY GROVER	Male	31-07-1975	B+
NULL	*NULL*	*NULL*	*NULL*	*NULL*	*NULL*	*NULL*	*NULL*

EMPLOYEE_MOB_NO	EMPLOYEE_ADDRESS	EMPLOYEE_PF_AC_NO	EMPLOYEE_BANK_AC_NO
8979879878	B-77, NEHRU COLONY, BILASPUR, CHHATTISGARH	09876543213456876543	098765432167875
9780978685	C-67, RAJEEV COLONY, BILASPUR, CHHATTISGARH	09876543211234567809	098765432112354
NULL	*NULL*	*NULL*	*NULL*

db.DEPARTMENT_DETAILS

DEPARTMENT_CODE	DEPARTMENT_NAME
101	PRODUCTION
102	MECHANICAL
103	ELECTRICAL
104	CHEMICAL
NULL	*NULL*

db.ATTENDANCE

EMPLOYEE_CODE	EMPLOYEE_NAME	EDATE	ENTRY_HOUR	ENTRY_MINUTE	EXIT_HOUR	EXIT_MINUTE	WORKING_HOURS
100002	SANJAY GROVER	22-08-2021	15	15	18	15	3.000
100001	VIJAY SINGH	22-08-2021	8	15	22	15	14.000
100001	VIJAY SINGH	23-08-2021	15	15	22	15	14.000
NULL	*NULL*	*NULL*	*NULL*	*NULL*	*NULL*	*NULL*	*NULL*

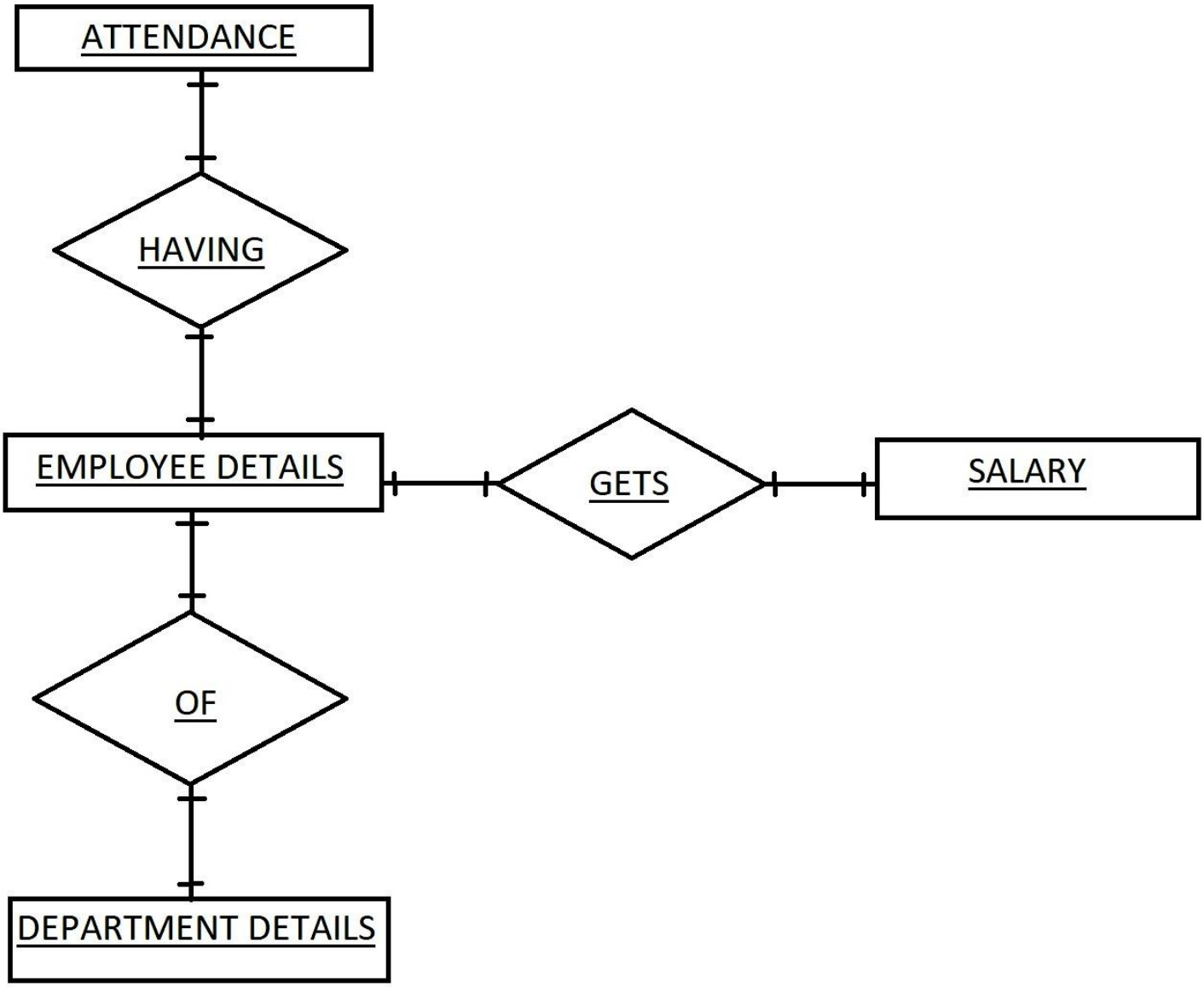
db.ADMINISTRATOR

ADMINID	USERNAME	PASSWORD
1	ABC	123
2	DEF	456
3	GHI	789
NULL	*NULL*	*NULL*

db.PAYROLL

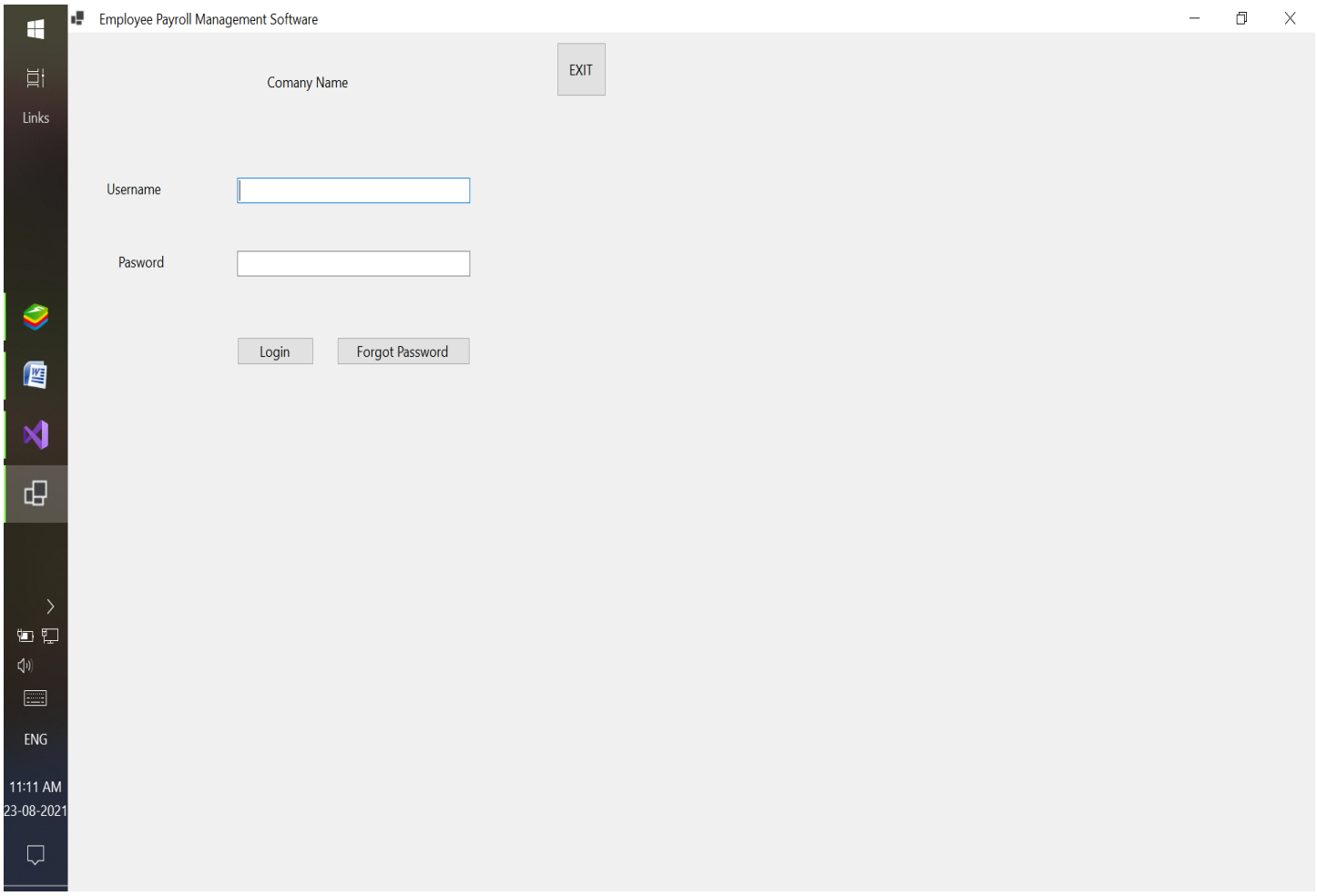
EMPLOYEE_CODE	EMPLOYEE_NAME	FROM_DATE	TO_DATE	AMOUNT
100001	VIJAY SINGH	01-08-2021	31-08-2021	11648
100002	SANJAY GROVER	01-08-2021	31-08-2021	648
NULL	*NULL*	*NULL*	*NULL*	*NULL*

Entity Relationship Diagram

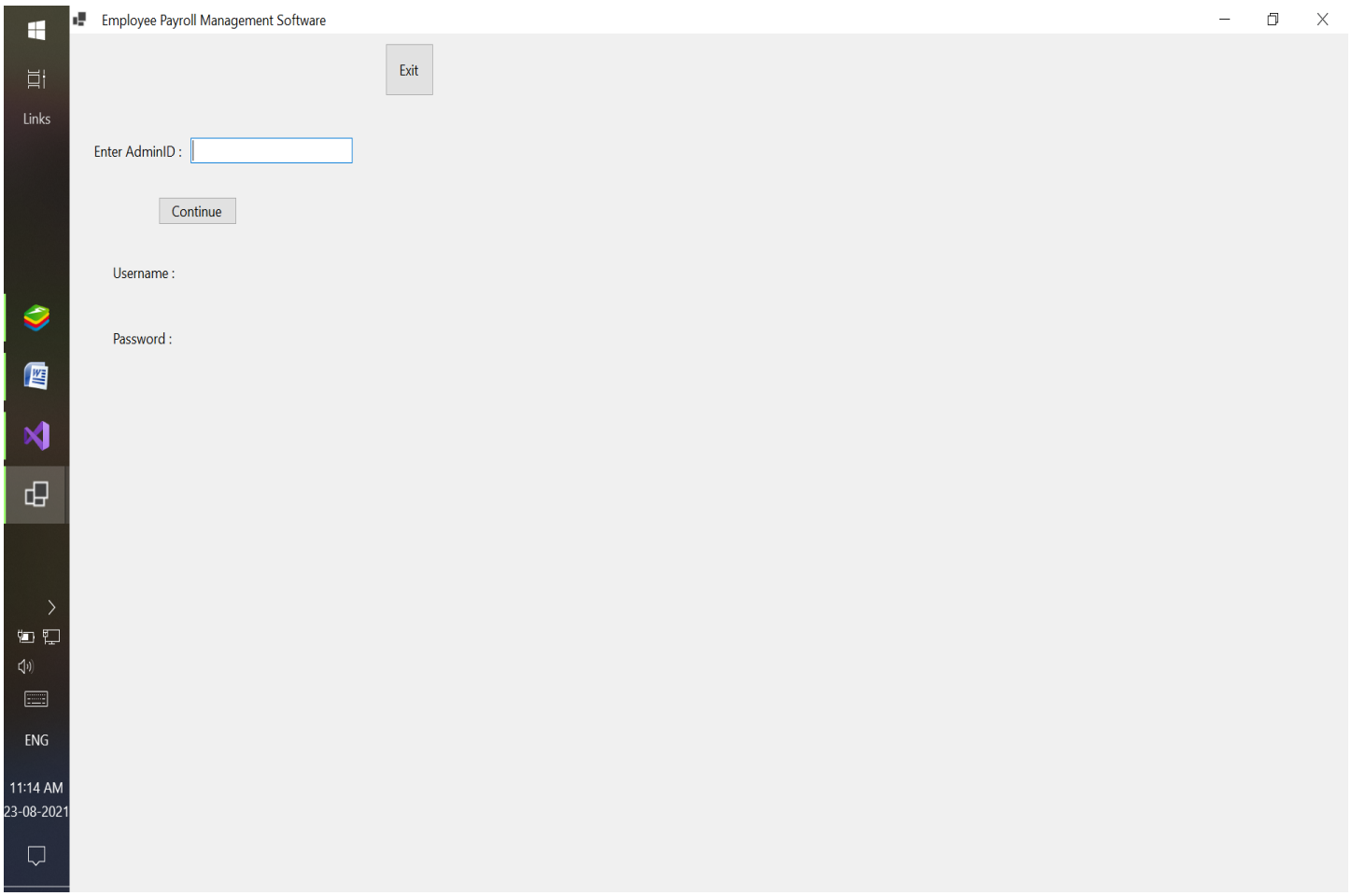


Screenshots of forms used in the software :

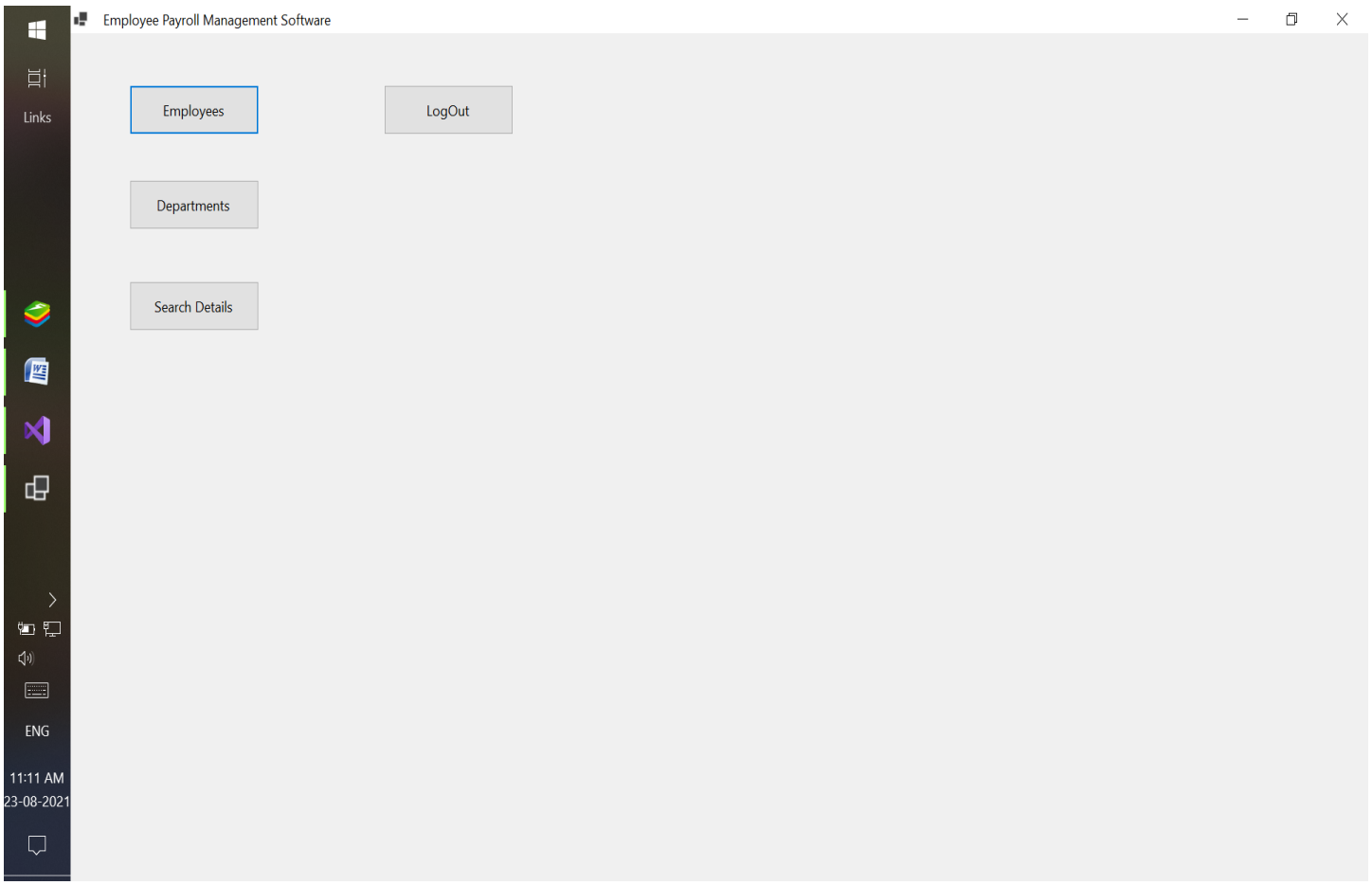
Login Page



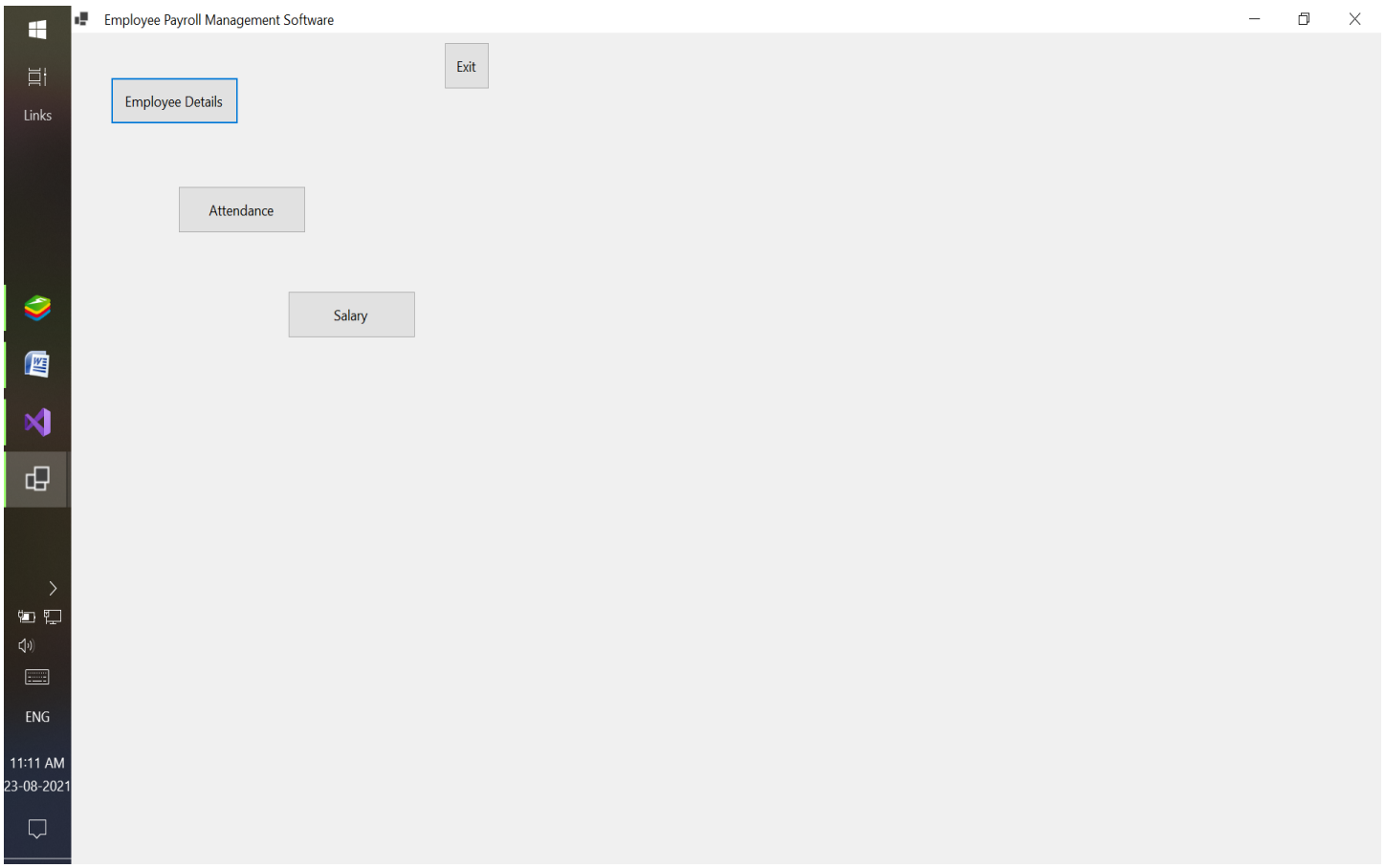
Forgot Password



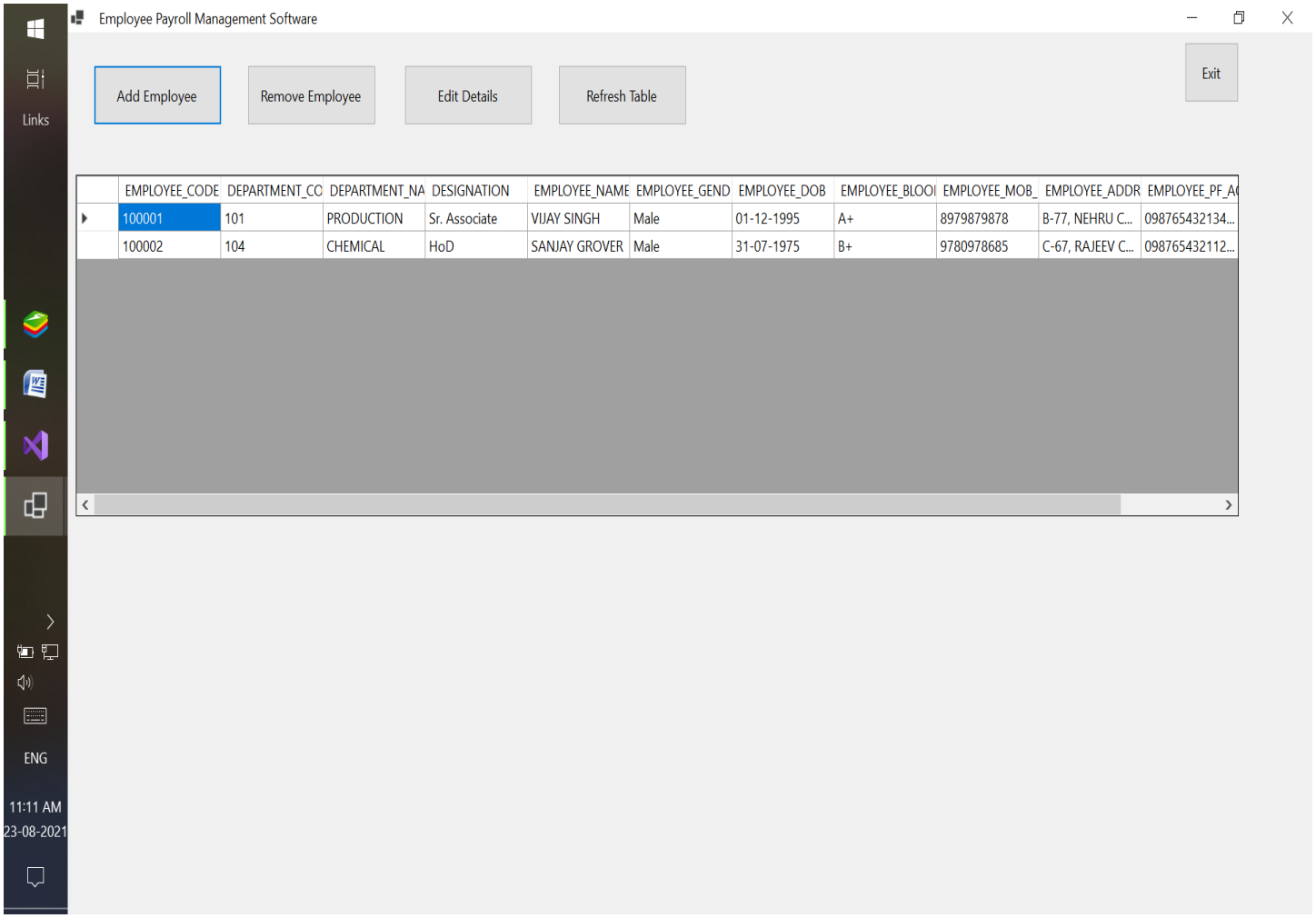
Main Menu


Employee Payroll Management Software
Employees
LogOut
Departments
Search Details
Links
ENG
11:11 AM
23-08-2021

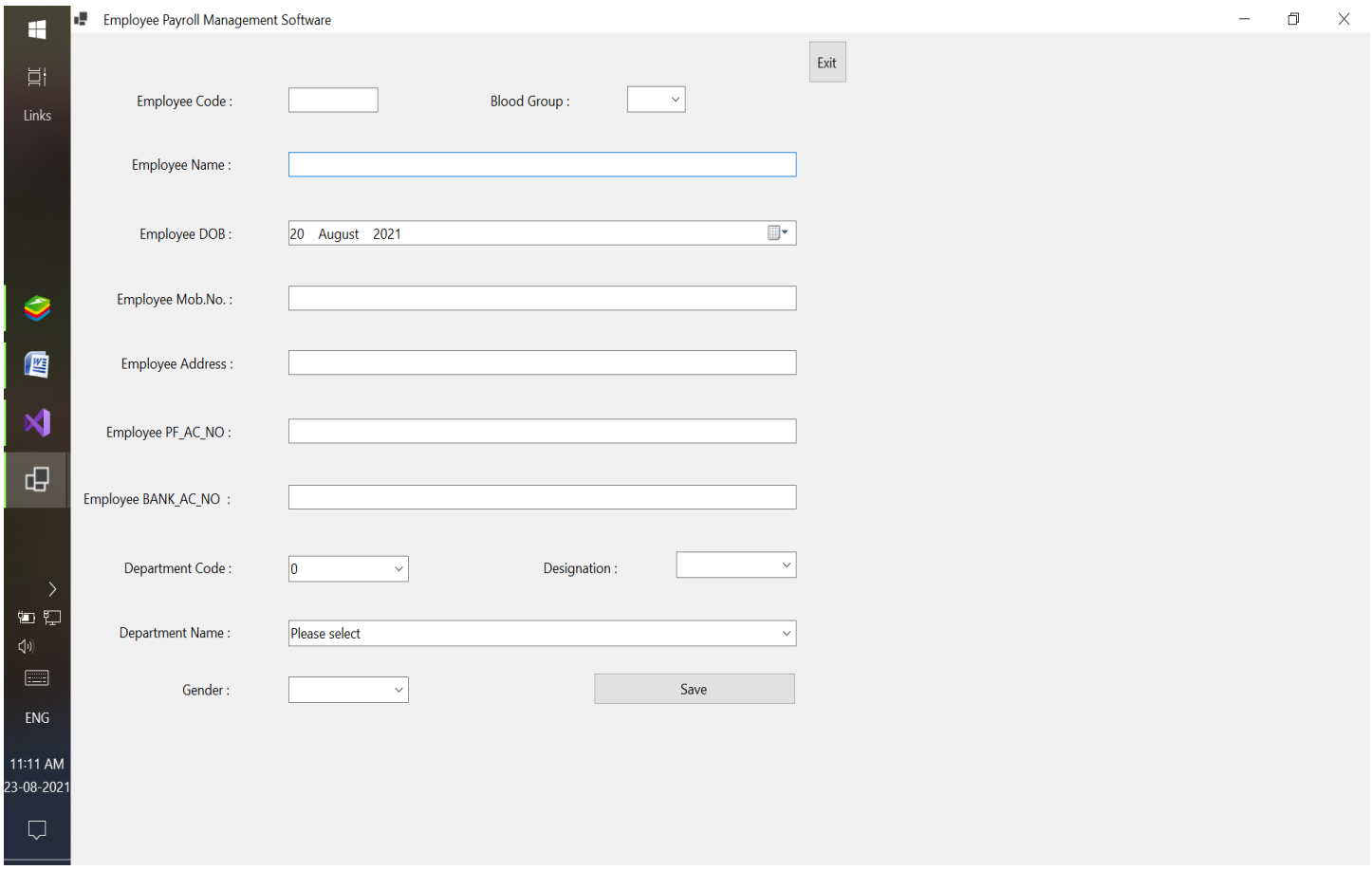
Employee Section



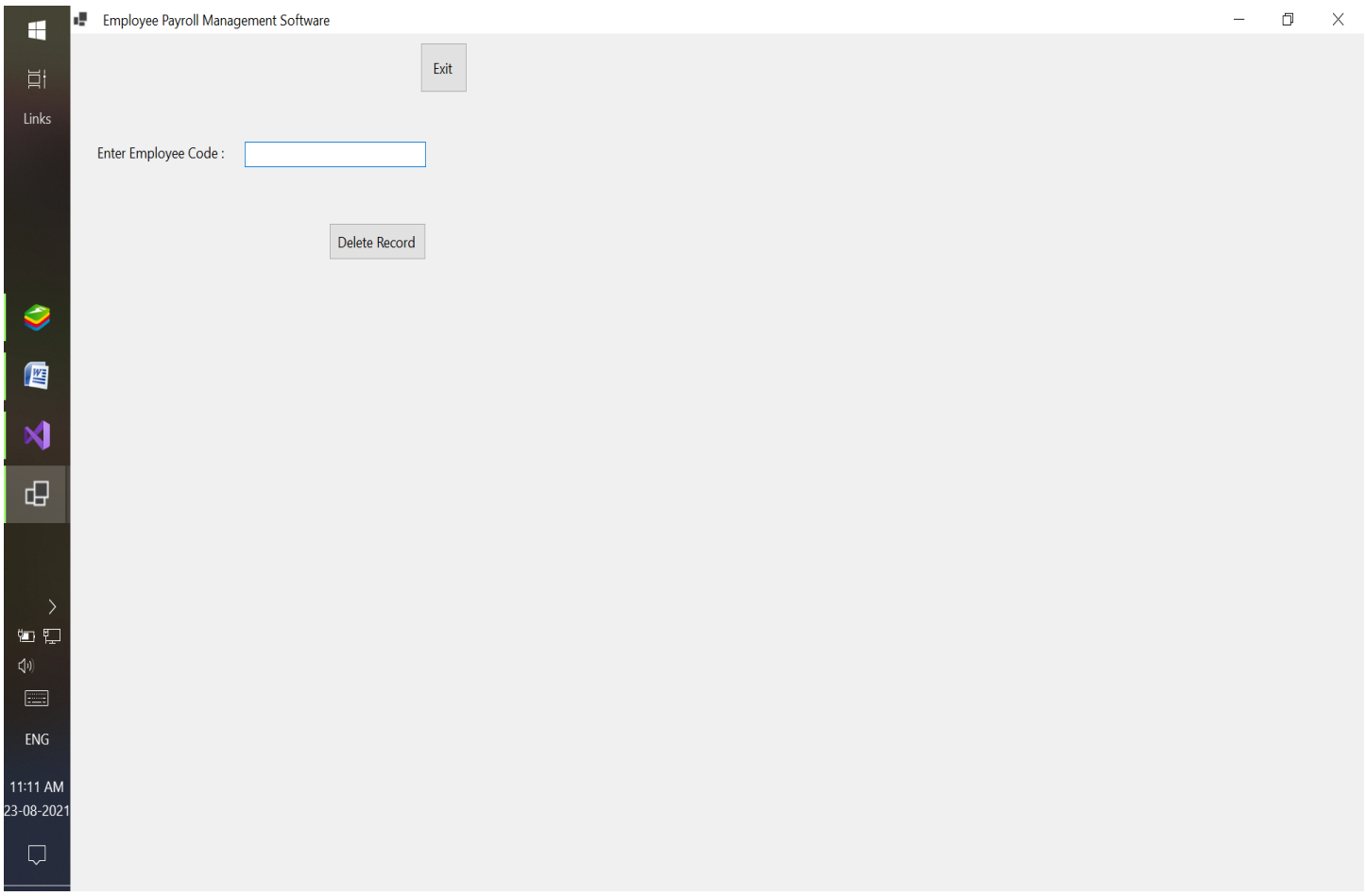
Employee Details



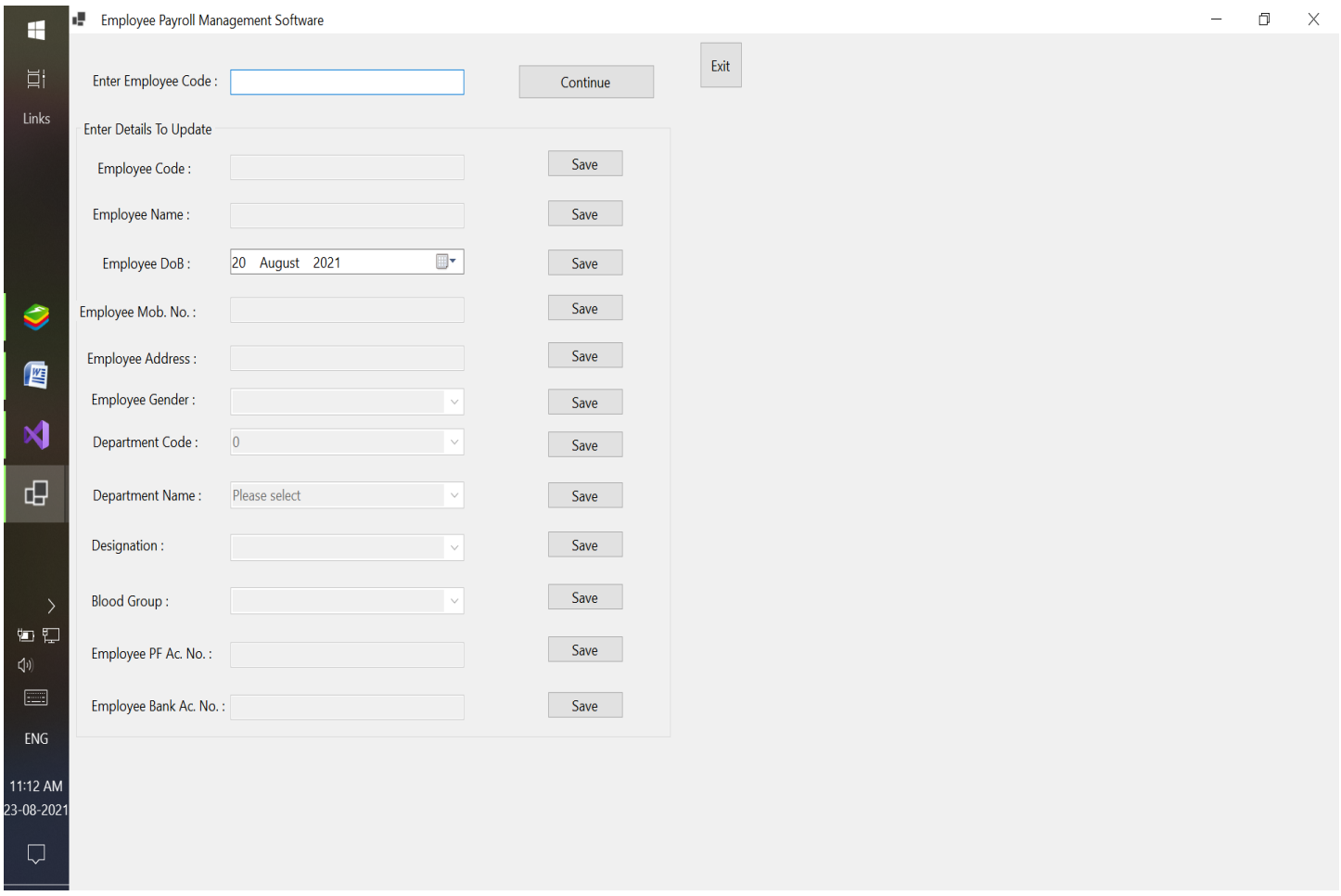
Add Employee



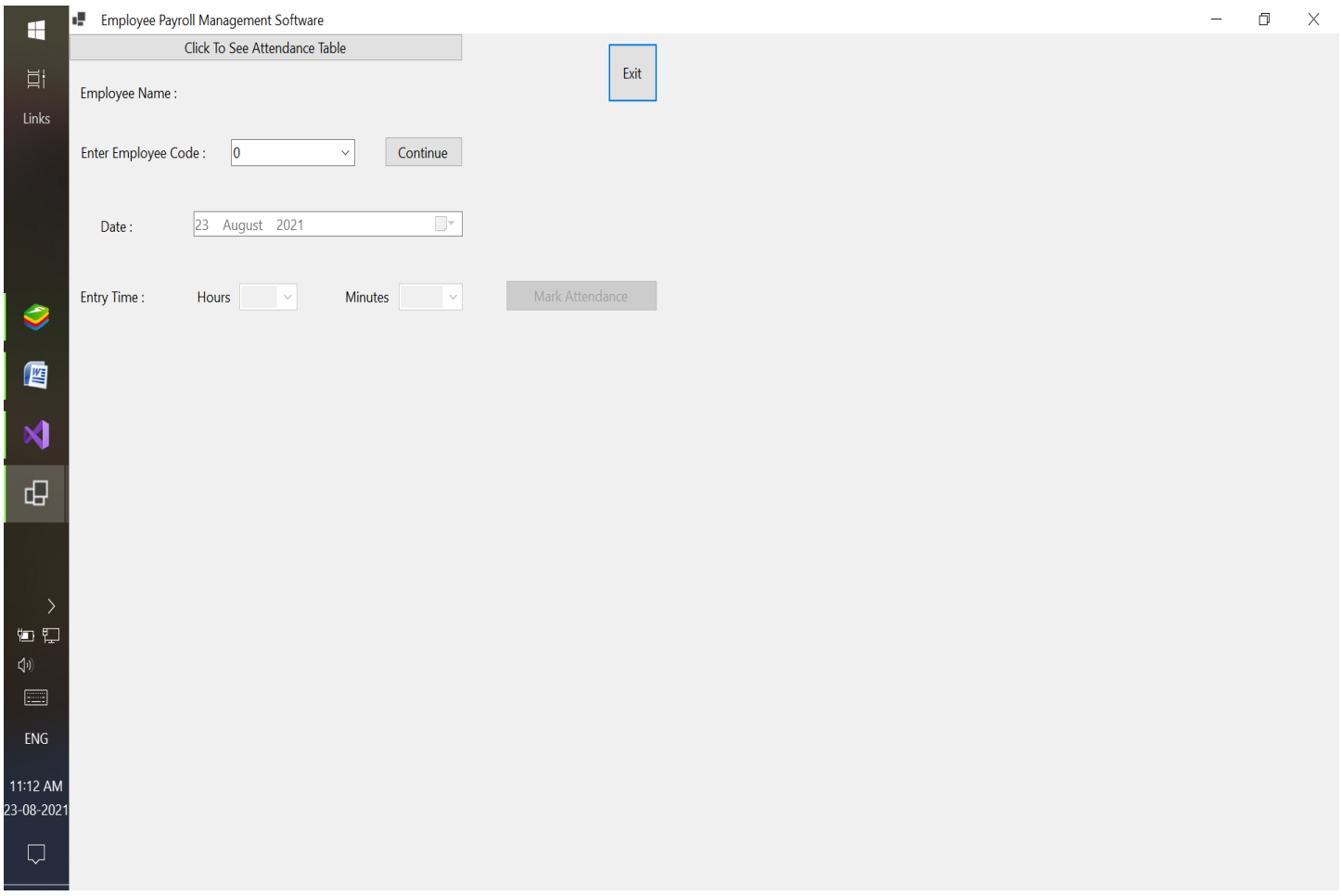
Remove Employee



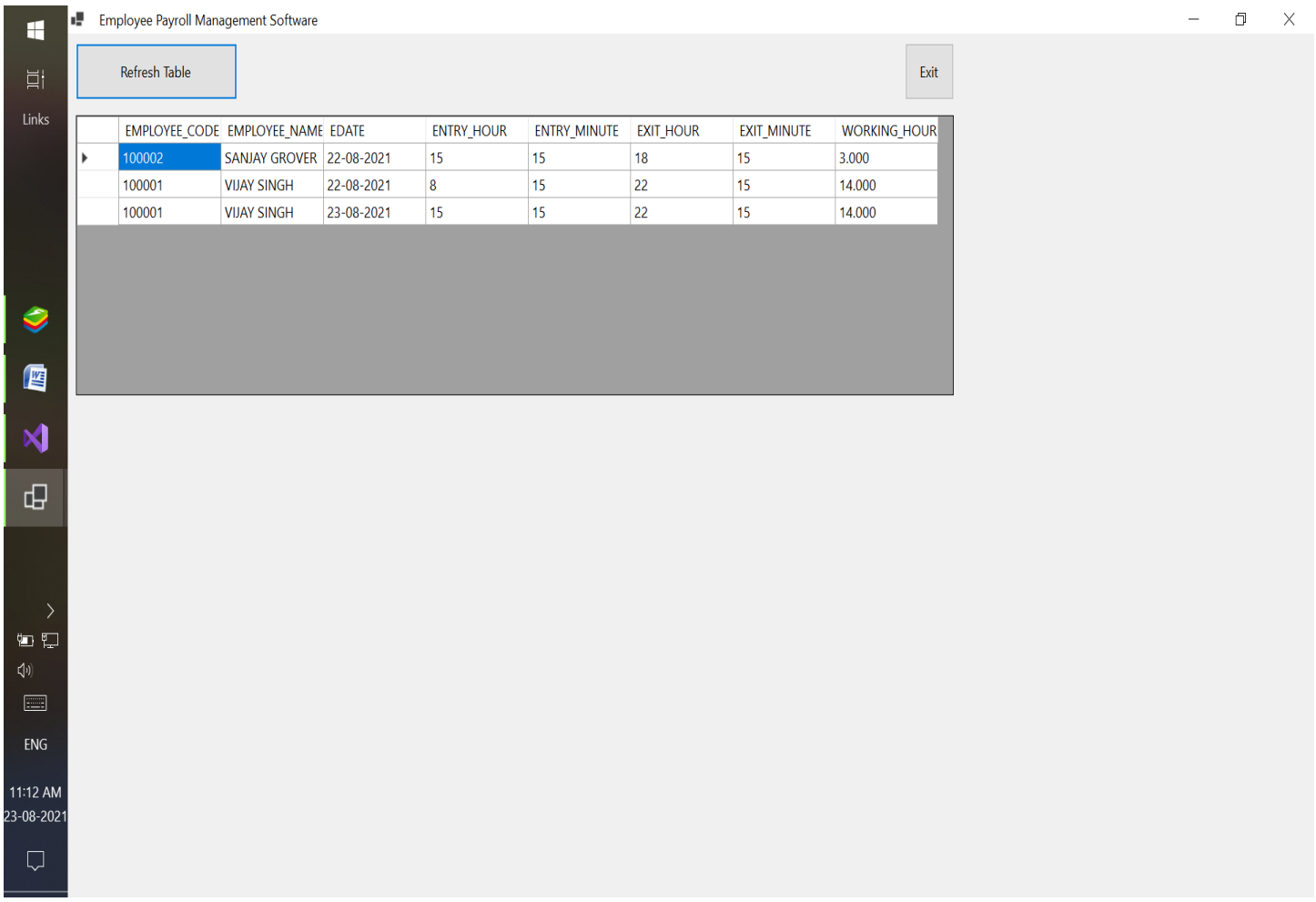
Edit Employee Details



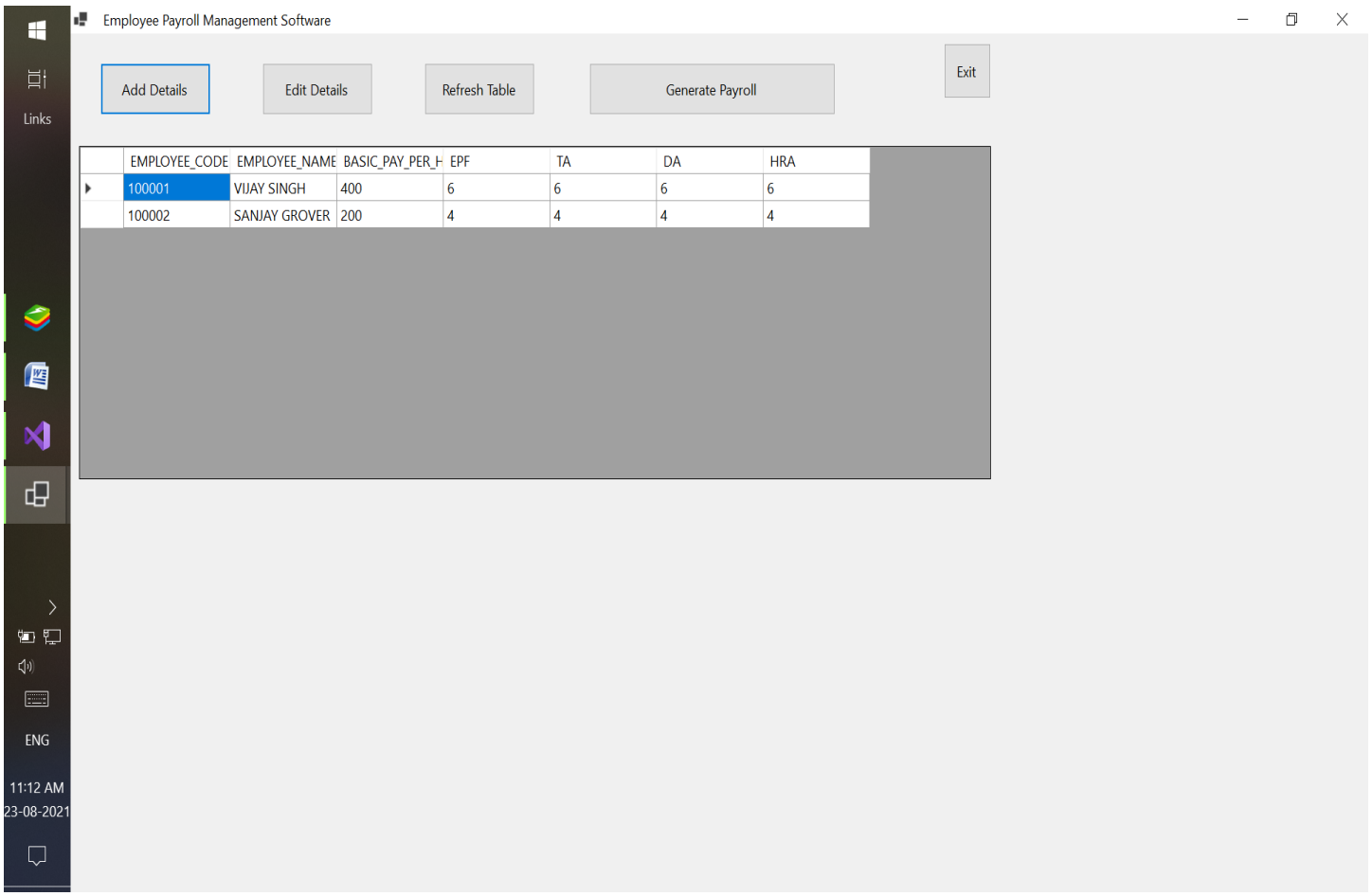
Attendance Allotment



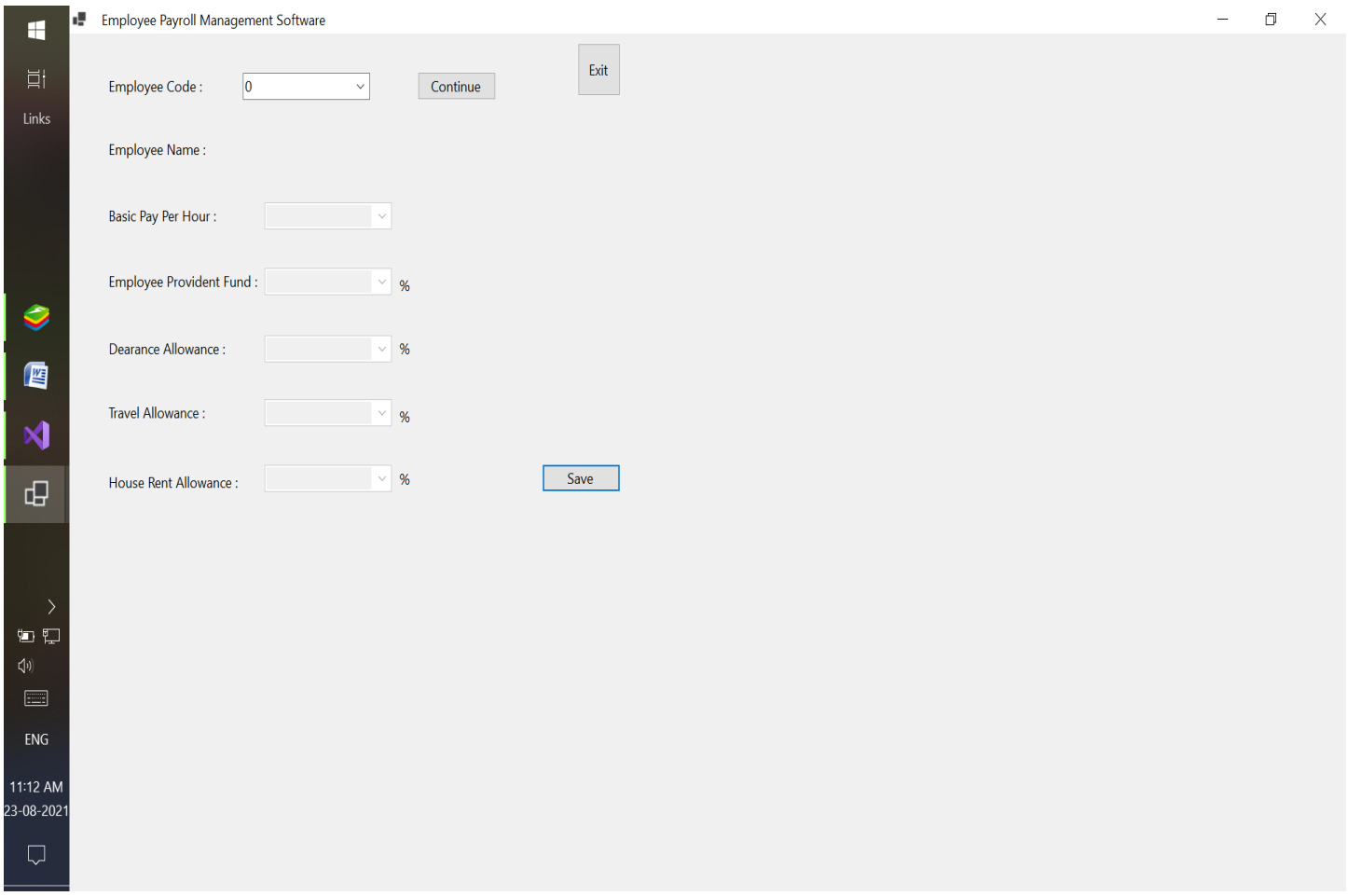
Attendance Table



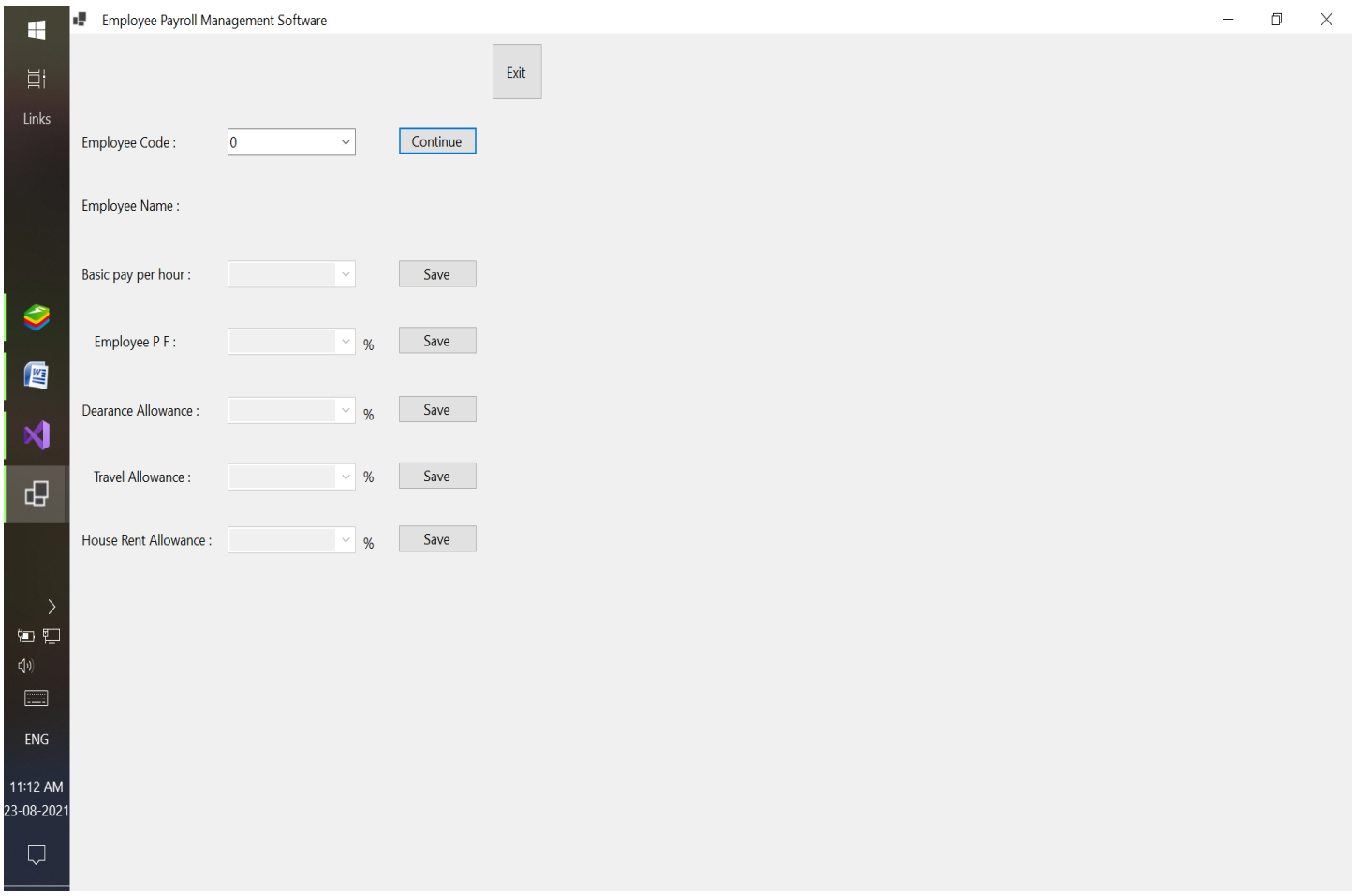
Salary Details



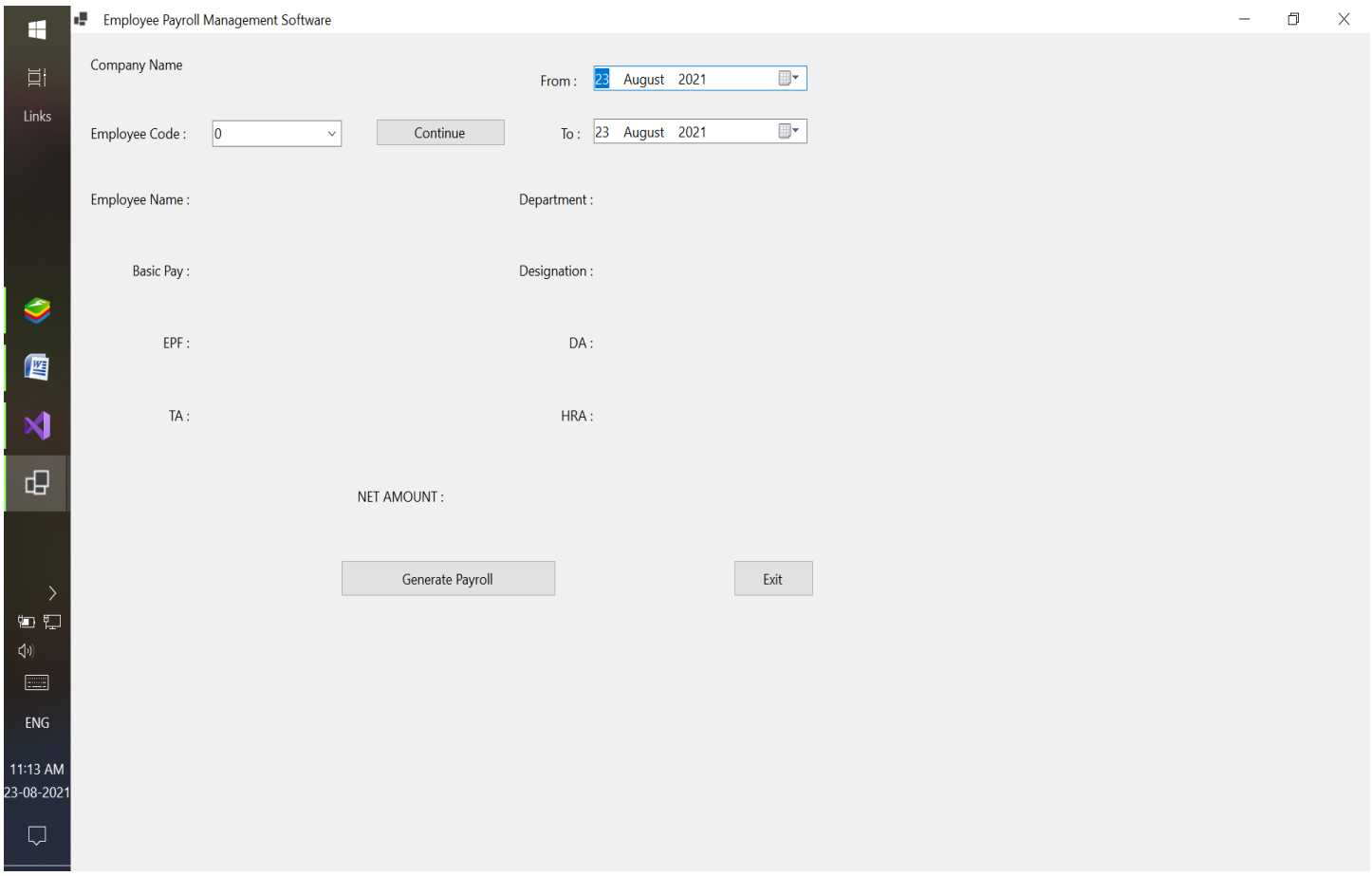
Add Salary Details



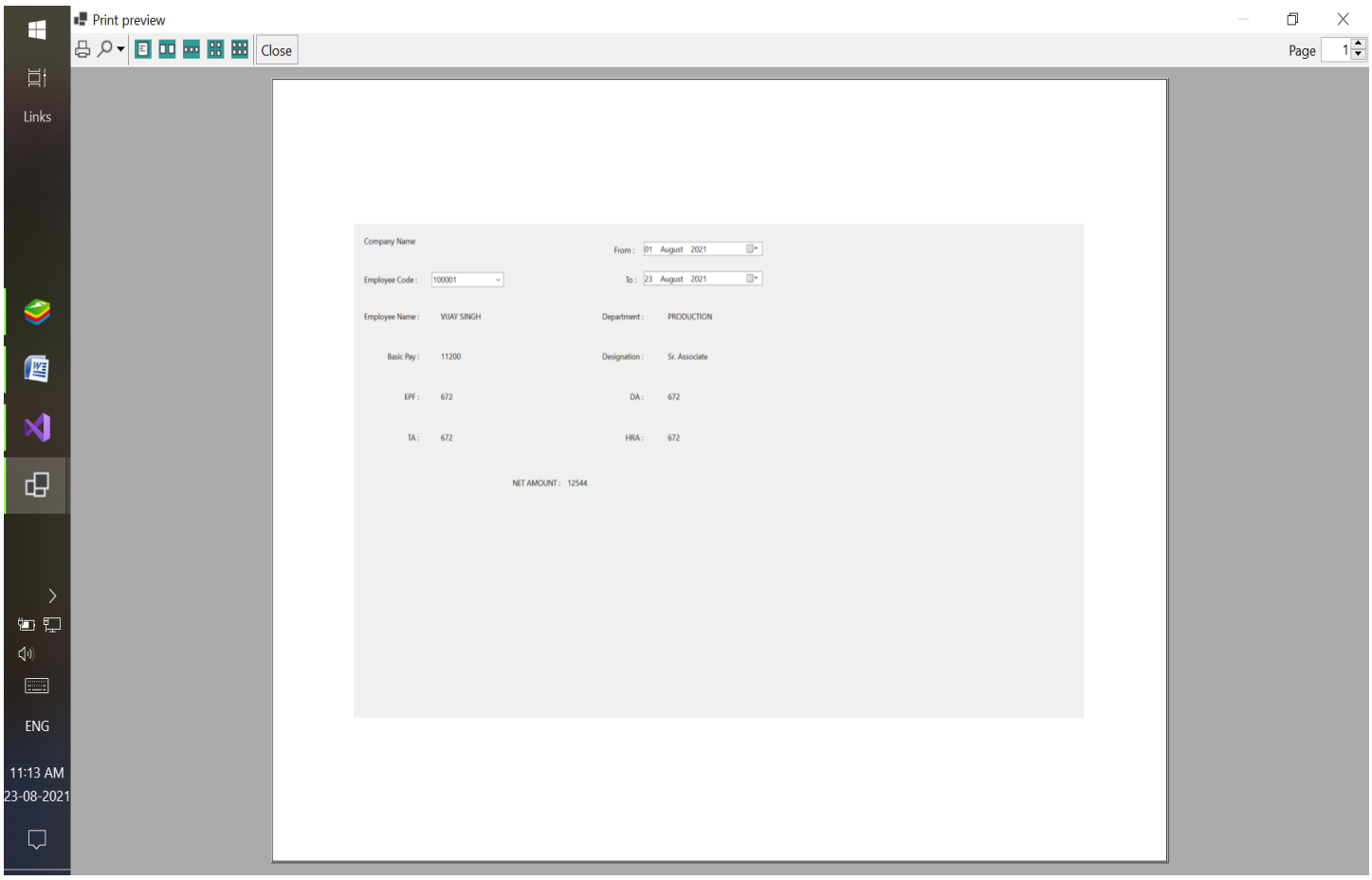
Edit Salary Details



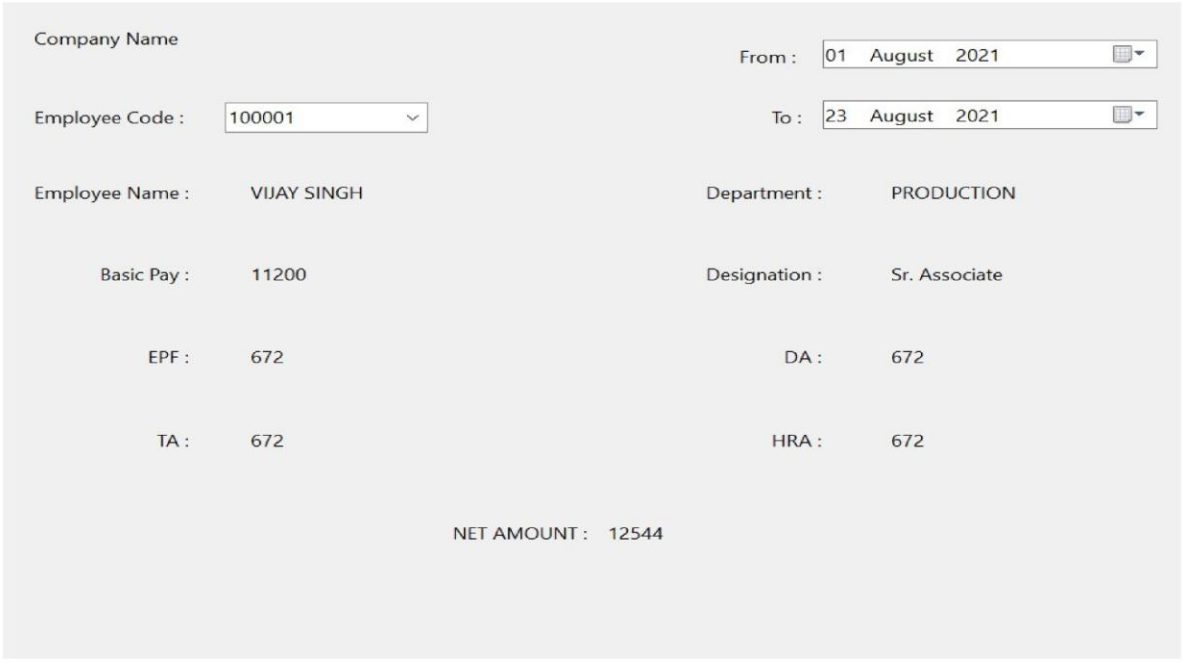
Generate Pay Slip / Payroll



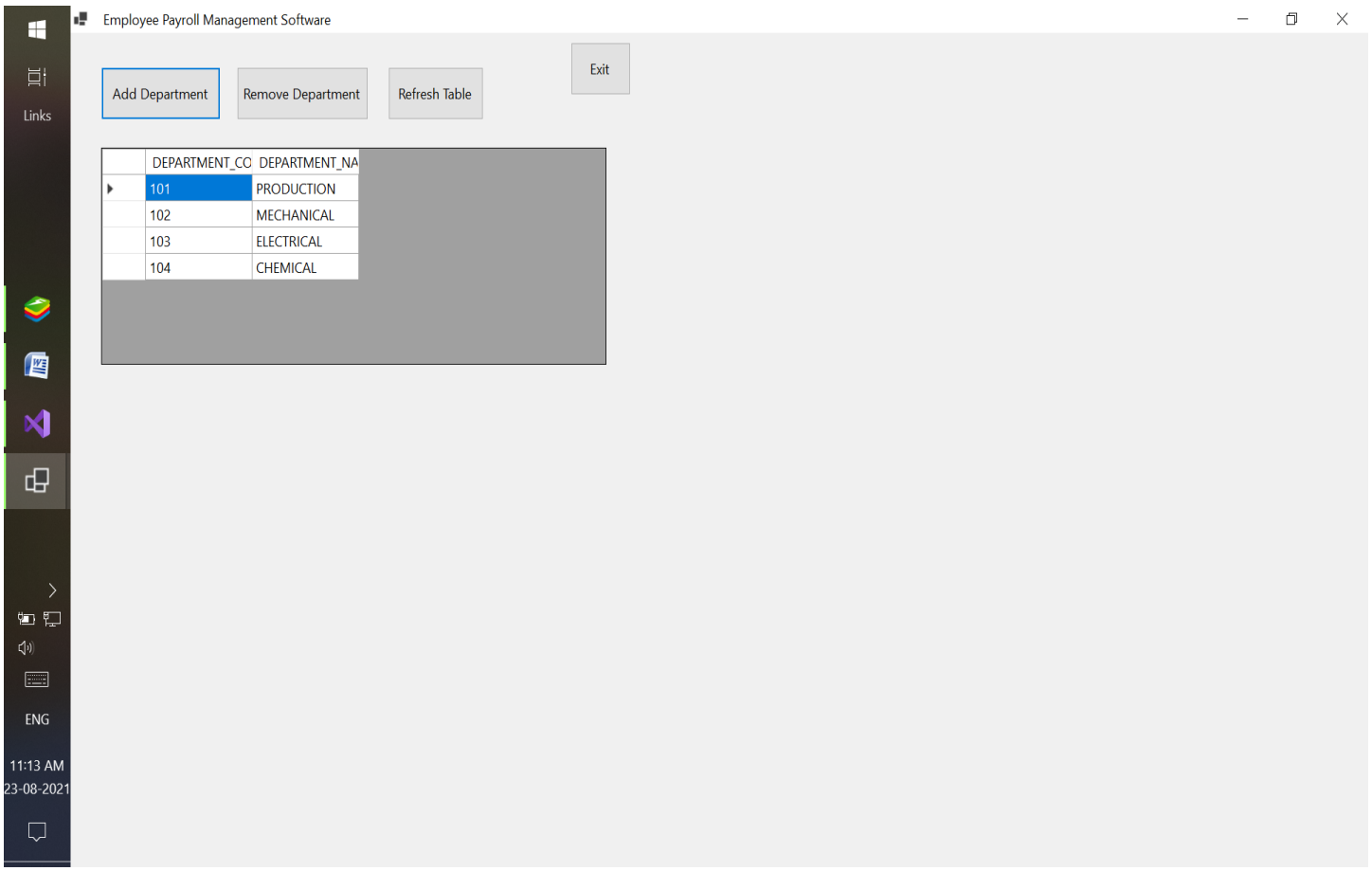
Printing Payroll



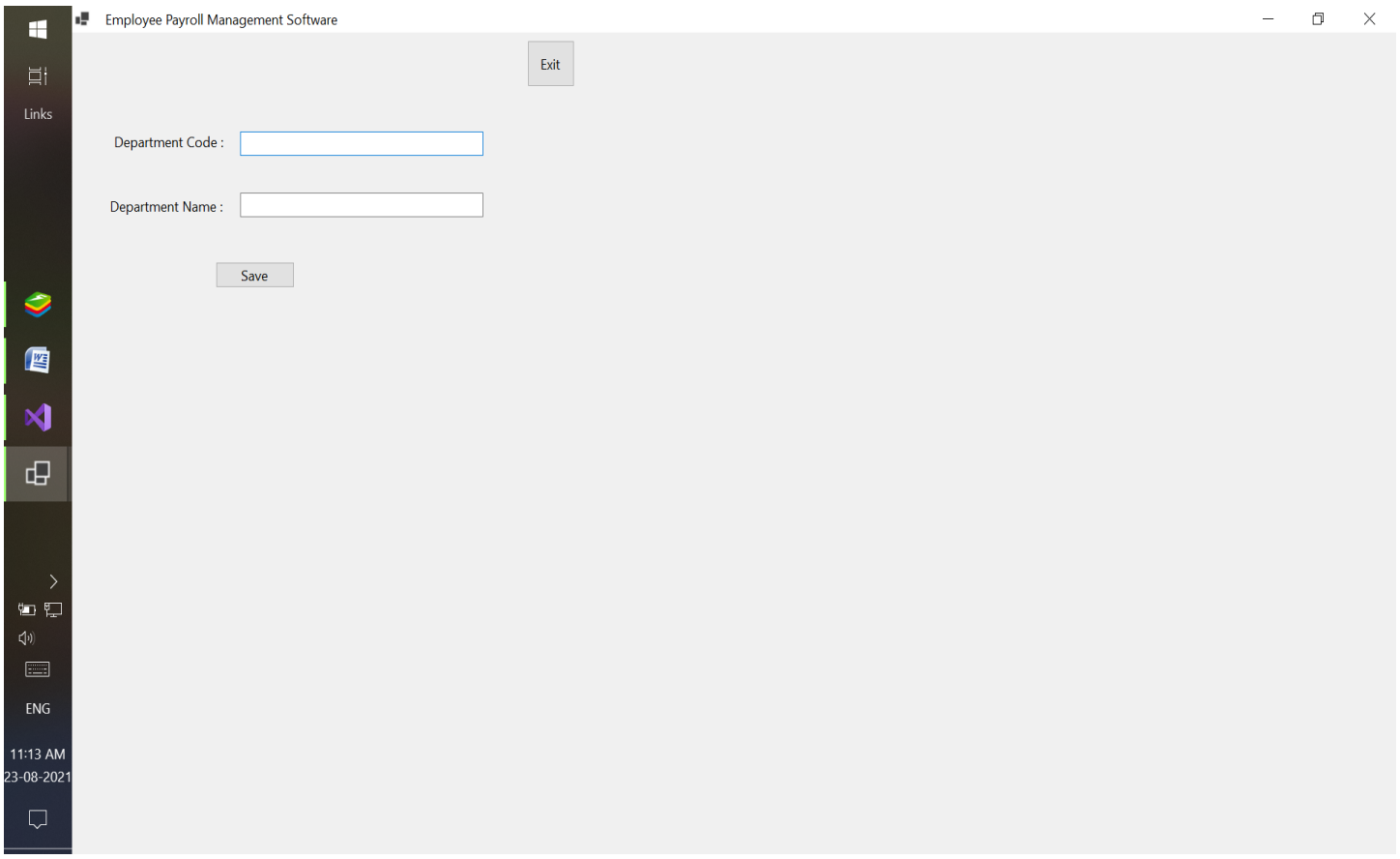
Payroll


Company Name
From : 01 August 2021
Employee Code : 100001
To : 23 August 2021
Employee Name : VIJAY SINGH
Department : PRODUCTION
Basic Pay : 11200
Designation : Sr. Associate
EPF : 672
DA : 672
TA : 672
HRA : 672
NET AMOUNT : 12544

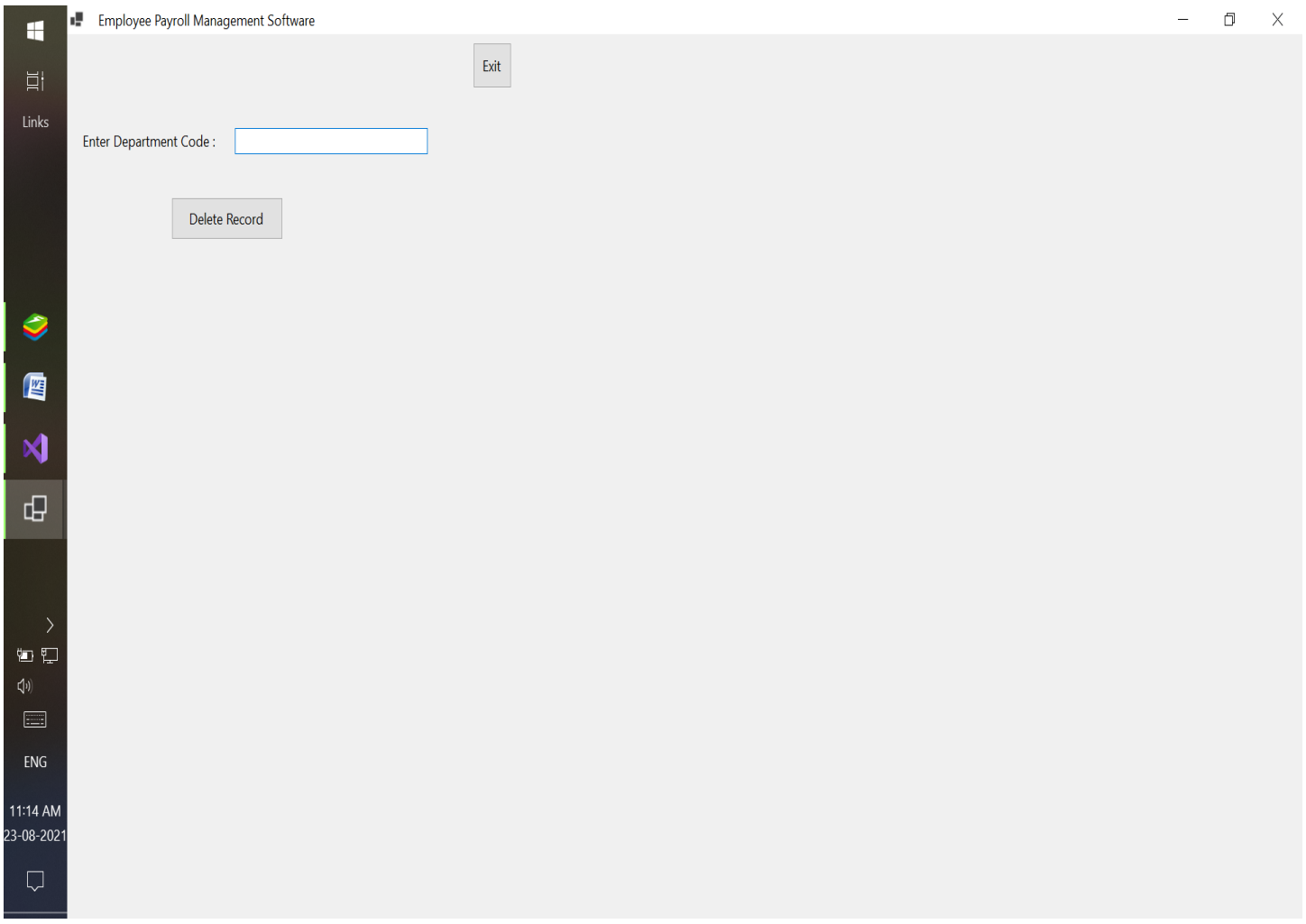
Department Details



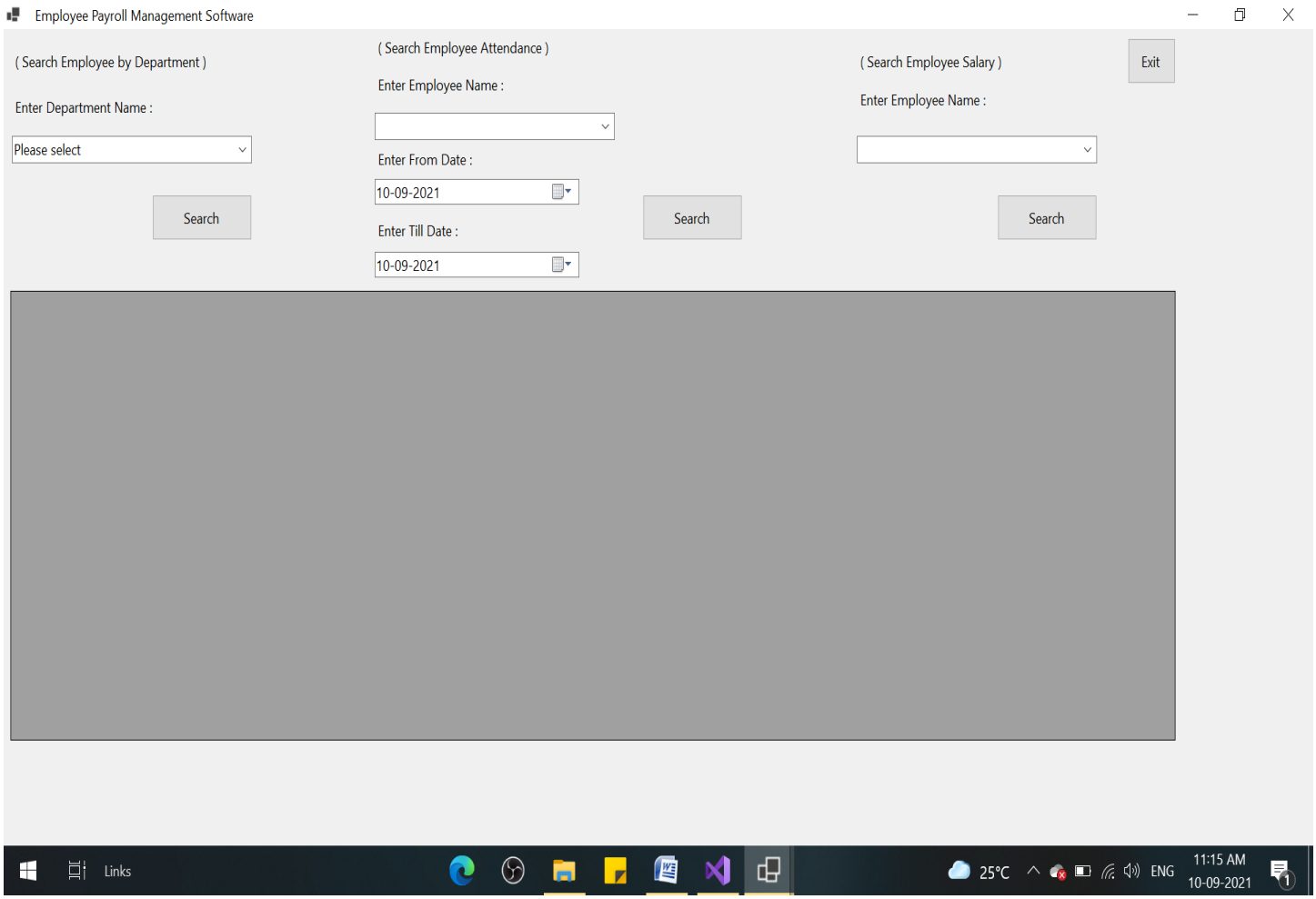
Add New Department



Delete A Department



Search Employee Details (Department wise, Attendance, Salary per month)



Testing

Software testing is a process, to evaluate the functionality of a software application with an intent to find whether the developed software met the specified requirements or not and to identify the defects to ensure that the product is defect free in order to produce the quality product.

Software Testing Definition according to ANSI/IEEE 1059 standard – A process of analyzing a software item to detect the differences between existing and required conditions (i.e., defects) and to evaluate the features of the software item.

The types of testing we have used over here are:

1. Black Box testing

2. White Box testing

3. Unit testing

4. Integration testing

5. Interface Testing

Black Box Testing: It is also called as Behavioral/Specification-Based/InputOutput Testing. Black Box Testing is a software testing method in which testers evaluate the functionality of the software under test without looking at the internal code structure.

White Box Testing: It is also called as Glass Box, Clear Box and Structural Testing. White Box Testing is based on applications internal code structure. In white-box testing, internal perspectives of the system, as well as programming skills, are used to design test cases. This testing is usually done at the unit level.

Unit Testing: Unit testing is done to check whether the individual modules of the source code are working properly i.e. testing each and every unit of the application separately by the developer in the developer's environment. Integration Testing: Integration Testing is the process of testing the connectivity or data transfer between a couple of unit tested modules.

Interface Testing: Interface Testing is defined as a software testing type which verifies whether the communication between two different software systems is done correctly. A connection that integrates two components is called interface.

Future Scope

1. Provide options for backup of database
2. Provide options for export of data to excel sheets
3. Provide options for compaction of data
4. Provide options for retrieval of if database crashes down

Conclusion

It has been a matter of immense pleasure, honour and challenge to have this opportunity to take up this project and to complete it successfully. While developing this project I have learned a lot about academic records. I have also learnt how to make it user friendly by hiding the complicated parts of it.

During the development of this project, I studied and carefully understood the criteria for making software more demanding. I realized the importance of file backups and recovery facilities. I also realized the importance of maintaining a minimal margin for errors.

Bibliography

Websites

- http://www.stackoverflow.com

Books

- Introduction to VB Programming : By V. K. Jain