VISVESVARAYA TECHNOLOGICAL UNIVERSITY

BELAGAVI - 590 018, KARNATAKA

A Mini Project Report on

"MARKSHEET GENERATOR"

Submitted in the partial fulfillment for the requirements for the FS Lab with Mini Project (18ISL67)

in

INFORMATION SCIENCE AND ENGINEERING

By

Mr. Narahari M V **USN: 1BY20IS094**

Under the guidance of

Dr. Shanthi D L
Assistant Professor
Department of ISE, BMSIT&M.

DEPARTMENT OF INFORMATION SCIENCE AND ENGINEERING

BMS INSTITUTE OF TECHNOLOGY & MANAGEMNT
YELAHANKA, BENGALURU-560064

2022-2023

VISVESVARAYA TECHNOLOGICAL UNIVERSITY
BELAGAVI – 590 018, KARNATAKA

BMS INSTITUTE OF TECHNOLOGY & MANAGEMENT
YELAHANKA, BENGALURU-560064

DEPARTMENT OF INFORMATION SCIENCE & ENGINEERING

CERTIFICATE

This is to certify that the Project work entitled **"**Employee Salary Appraisal System**"** is a bonafide work carried out by **Mr. Narahari M V (1BY20IS094)** in partial fulfillment of File structures Lab with Mini Project (18ISL67) for the award of **Bachelor of Engineering Degree in Information Science and Engineering** of the Visvesvaraya Technological University, Belagavi during the year 2022-23. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in this report. The project report has been approved as it satisfies the academic requirements in respect of Mini Project work for the B.E Degree.

Signature of the Guide	**Signature of the HOD**
Dr. Shanthi D L	Dr. Pushpa S K
Assistant Professor	Professor and Head
Department of ISE	Department of ISE

EXTERNAL EXAMINERS

Name of the Examiners	Signature with Date
1.	
2.	

ACKNOWLEDGEMENT

We are happy to present this mini project after completing it successfully. This mini project would not have been possible without the guidance, assistance and suggestions of many individuals. We would like to express our deep sense of gratitude and indebtedness to each and every one who has helped us make this mini project a success.

We heartily thank our **Principal, Dr. Mohan Babu G.N, B M S Institute of Technology & Management** for his constant encouragement and inspiration in taking up this mini project.

We heartily thank our **Head of Department Dr. Pushpa S K, Dept. of Information Science and Engineering, B M S Institute of Technology& Management** for his constant encouragement and inspiration in taking up this mini project.

We gracefully thank our Project guide**, Dr. Shanthi D L, Asst. Professor, Dept. of Information Science and Engineering,** for her encouragement and advice throughout the course of the mini project work.

Special thanks to all the staff members of Information Science Department for their help and kind co-operation.

We also thank our parents and friends for their unconditional love and encouragement and support given to us in order to finish this precious work.

Last but not the least we would like to thank God for giving us the strength and motivation through the course of this Project.

By,

Narahari M V

ABSTRACT

The Marksheet Generator file structure project aims to automate the process of generating mark sheets for students. By utilizing file structures to store and retrieve student information and marks, this project provides an efficient and accurate system for generating mark sheets.

The project reduces the manual effort and potential errors involved in traditional mark sheet generation methods. With a user-friendly interface, the system allows users to input student details and marks for different subjects, enabling the automatic generation of mark sheets in a proper format.

The output of the marksheet generator is a comprehensive marksheet report for the student. The report includes the student's name, marks obtained in each subject, total marks, average marks, and corresponding grades. It presents the information in a visually appealing and structured manner, allowing easy interpretation and analysis of the student's performance.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF FIGURES

Chapter 1

Introduction

1.1 Outline

The Marksheet Generator file structure project consists of several key components that collectively automate the process of generating mark sheets for students. The project begins with an introduction that provides an overview of the system. It outlines the objectives of the project, which include streamlining the mark sheet generation process and improving efficiency and accuracy. The introduction also highlights the problem statement, emphasizing the challenges associated with manual mark sheet generation, such as time consumption and potential errors

The Following the introduction, the project provides a detailed outline of the functional and non-functional requirements. These requirements define the desired features and characteristics of the system. The functional requirements encompass functionalities such as user input for student details and marks, calculation of total marks and percentages, and the generation of printable mark sheets. The non-functional requirements include factors like a user-friendly interface, fast processing speed, robust error handling, scalability, and secure data storage.

1.2 Objectives

The soul objective of this project is to:

- Automate the process of mark sheet generation for students.
- Improve efficiency and accuracy in managing student information and marks.
- This Reduces the time and effort required for manual mark sheet generation.
- Provide a user-friendly interface for data input and mark sheet generation.

1.3 Problem Statement

The manual process of generating mark sheets is time-consuming and prone to errors. Maintaining accurate records and calculating marks manually is a challenging task. The Marksheet Generator project aims to address these issues by automating the mark sheet generation process and providing a reliable system for managing student information and marks.

Chapter 2

Requirements Specification

2.1 Functional Requirements

Creating a File

In this we need to create a new file, to enter its contents into a buffer and save the buffer contents to memory.

Opening an Existing File

Here we must open a valid file existing on disk to perform specific operations such as insert, display or searching of student records.

Writing a File/Inserting File Contents

Once we open a file we need to write contents or insert student details into an existing file or by creating a new file.

Display

The student details can able to displayed by giving the usn in the existing student record.

Search

We can able to search the student record in an existing file by giving the student USN.

Marksheet Generation

This function will generate student marksheet based on internal and external marks scored by student and also grade assigned with respect to it.

2.2 Non-Functional Requirements

Performance

Time taken to create files, open existing files, flushing contents of buffer onto disk when user hits save is minimal. Searching or displaying a record is also easier and time taken is to do so is also less.

Usability

The system should have a user-friendly interface that is easy to navigate and understand. It should provide clear instructions and intuitive controls for inputting student details and marks. The system should also display error messages and prompts to guide users in case of incorrect inputs or invalid data.

Reliability

The system should be reliable and robust, ensuring the accurate generation of mark sheets without data corruption or loss. It should have appropriate error handling mechanisms to handle unexpected scenarios gracefully. The system should also have backup and recovery mechanisms in place to safeguard data integrity.

2.3 Hardware Requirements

Hardware limitations: There must be a 4 GB of memory.
Control functions: The software must be very user-friendly.
Software: Windows 7/8/10/11 or any equivalent operating systems.

Chapter 3

System/Requirements Analysis

The overall description of the system is as follows:

The user is presented with the Main Panel. Here user has a set of options.

- **Insert Student Details:** New student detail will be added in a text file.
- **Modify Existing Details:** Existing students details can be easily updated.
- **Search:** This application allows the users to quickly find student detail within the file using the search functionality.
- **Display:** If the user wants to see every record present in file, a display function can be used.
- **Marksheet Generation:** This function will generate student marksheet based on internal and external marks scored by student and also grade assigned with respect to it.

3.1 Overall System Description

Referring to the Figure 3.1 which represent the overall system design of the project Containing various functions like Insert, Delete, search etc.

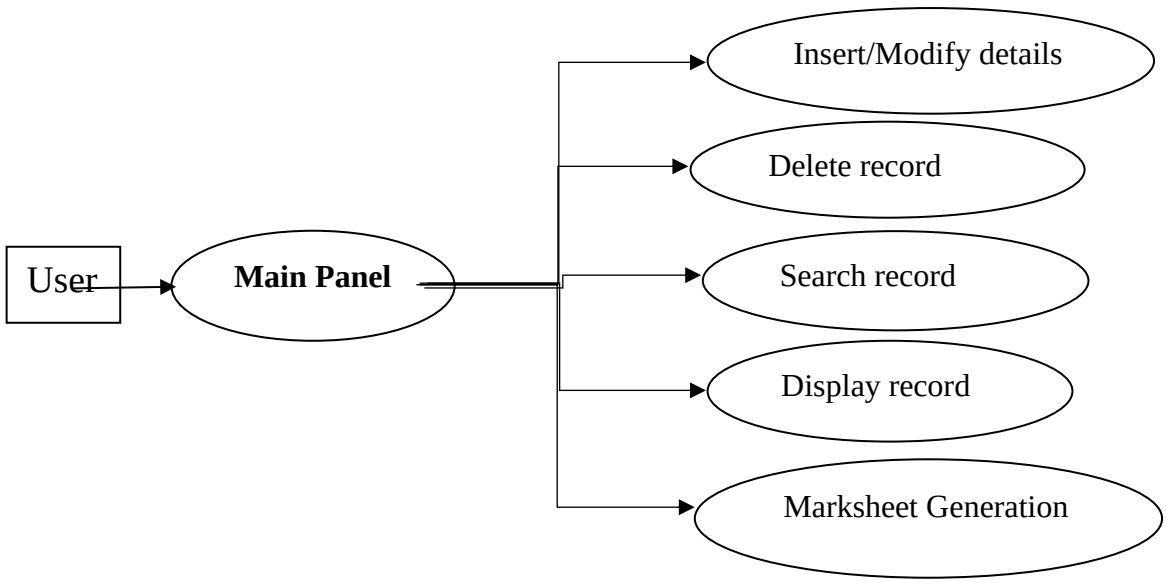

Fig. 3.1: Overall System Design

3.2 Components/Subsystem Design

Insert/Modify Employee Details Module

Referring to the figure 3.2 In insert employee details section, the user enters all the necessary details of a student and stores it in an existing file. This detail includes as student name, father name, mother name, internal marks, external marks, semester etc. If the usn is already present then it will modify the existing usn details.

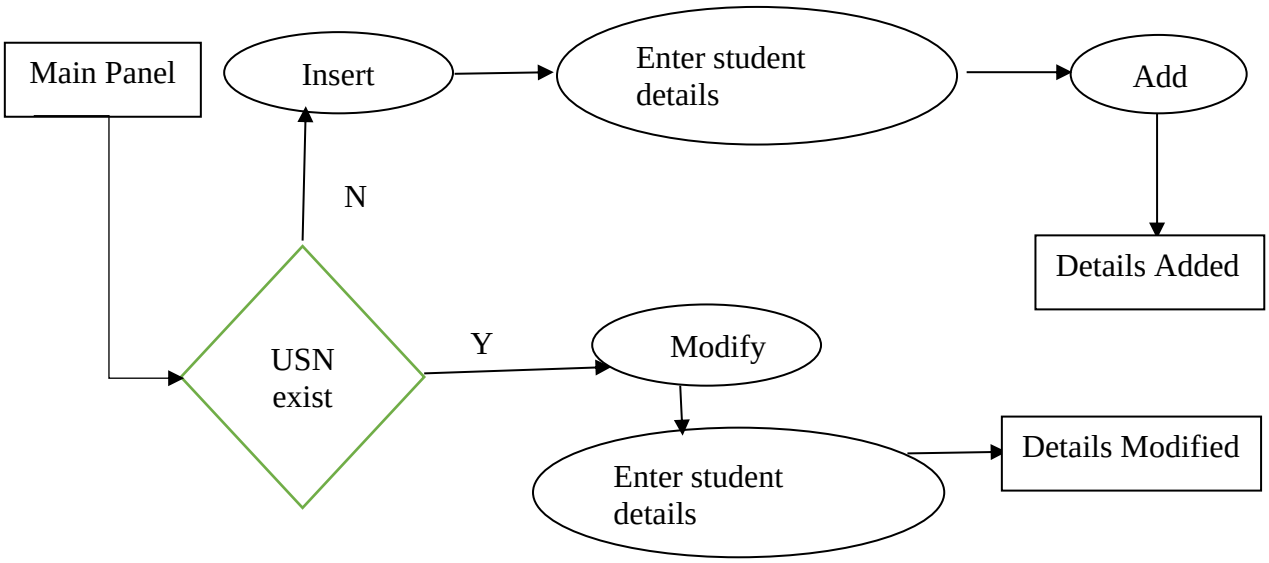

Fig. 3.2: Insert/ Modify Existing Details Flow Diagram

Search Student Details Module

Referring to the Fig.3.3 which represents the search student details flow diagram where details of the student can be searched.

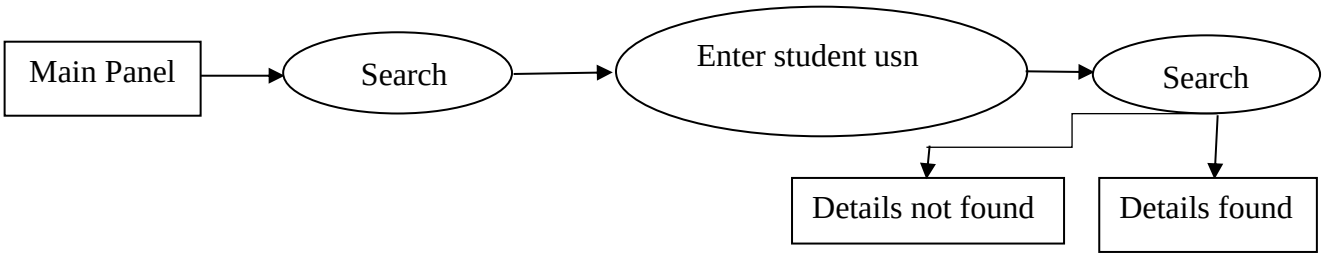

Fig. 3.3: Search student detail Flow Diagram

Delete Record Module

Referring to the Figure 3.4 represents the function can be used by the user when he wants to delete the records of particular student with respective usn's.

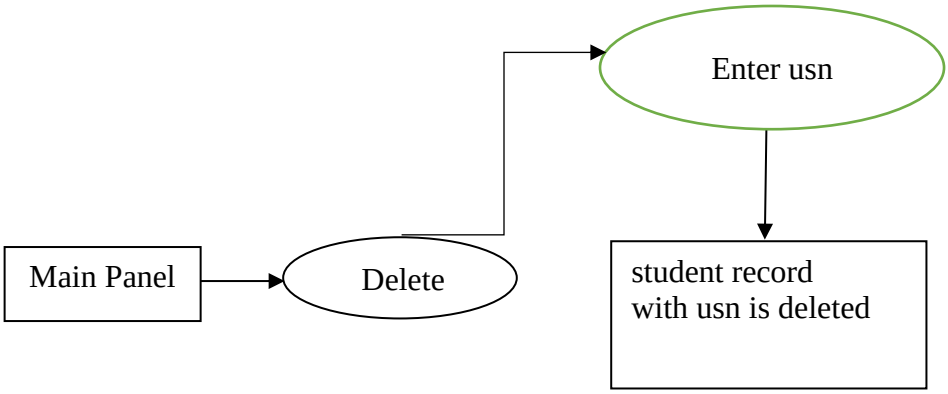

Fig. 3.4: Delete All Student Record Flow Diagram

Display Record Module

Referring to the Figure 3.5 represents the function can be used by the user when he wants to see all the records which are stored in the file. By clicking the display button, the user can see all the student details present in the file.

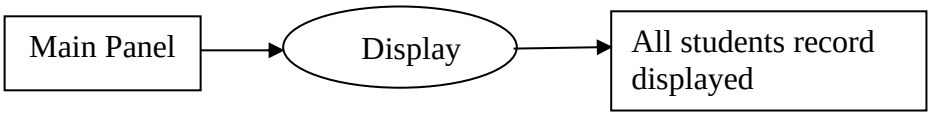

Fig. 3.5: Display All Student Record Flow Diagram

Marksheet Generation

Referring to the Figure 3.6 represents where usn can be entered and marks sheet can be generated.

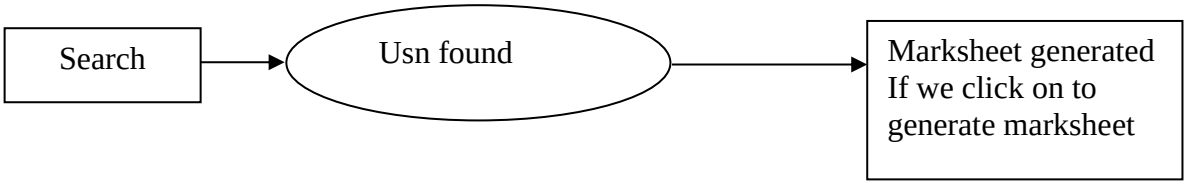

Fig. 3.6: Marksheet Generation Flow Diagram

Chapter 4

System Design

In System design represents the overall interface of the project containing various functionalities Implemented in the project.

4.1 User Interface Interaction Details.

Referring to the Fig 4.1 displays home page of employee salary appraisal system project user interface, we get the following options to select from Insert Student Record, Display student Record, Search Student Record, Delete Student Record, Marksheet Generation, Exit

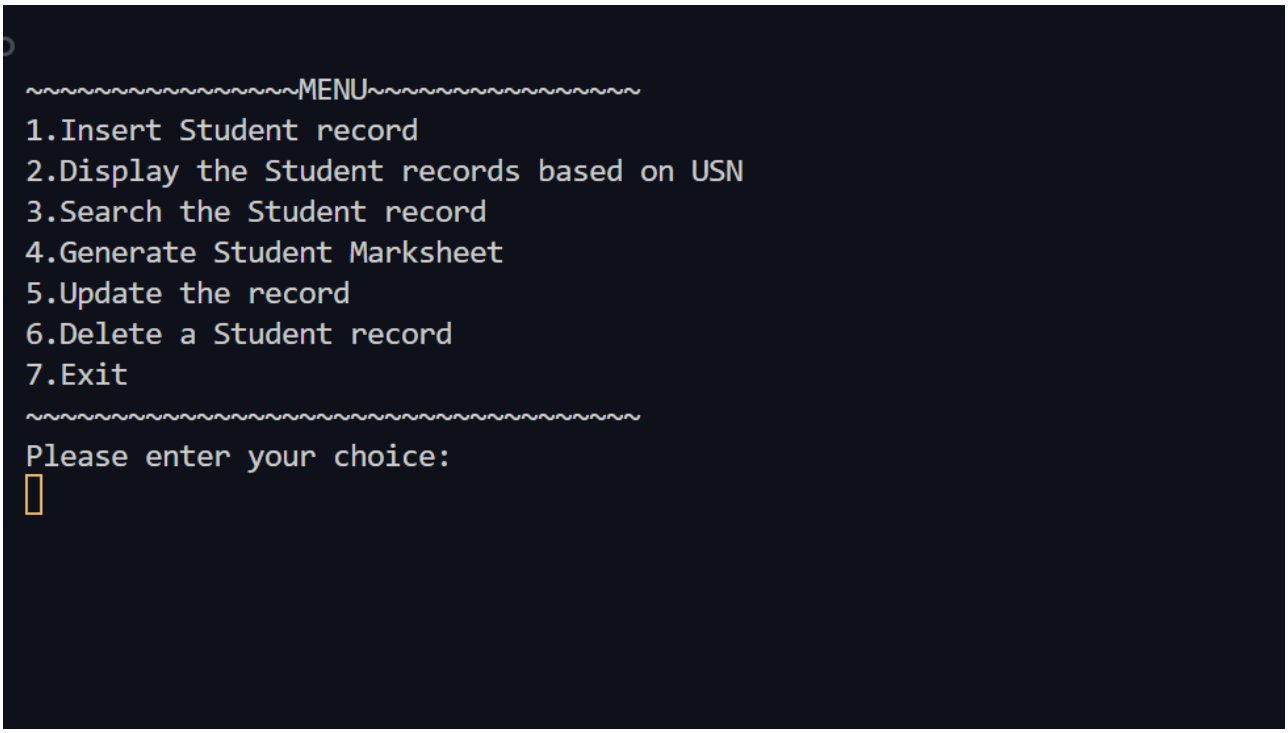

Fig. 4.1: Home page of salary appraisal system project

Chapter 5

Implementation

Implementation of the project involves the description of the project involves the description of the front-end frameworks and backend languages.

5.1 Description of Framework Used

Visual Studio

The Visual Studio Code Terminal is an integrated feature within the Visual Studio Code (VS Code) editor that provides a command-line interface directly within the editor environment. It allows developers to execute various command-line operations and interact with their project without having to switch to an external terminal application.

The VS Code Terminal supports different shells, including PowerShell, Command Prompt (CMD), Git Bash, and more. It offers a convenient way to run commands, compile code, execute scripts, manage version control operations, and perform various development tasks without leaving the editor.

The terminal in Visual Studio Code is highly customizable, allowing developers to choose the shell they prefer, customize the appearance, and configure additional settings. It supports multiple terminal instances, enabling simultaneous execution of different commands or tasks.

5.2 Description of Backend language used

Java

Java is a widely used programming language known for its versatility, portability, and robustness. Developed by Sun Microsystems (now owned by Oracle), Java is an object-oriented language that follows the "write once, run anywhere" principle, allowing code to be executed on various platforms without recompilation. It is commonly used for building enterprise-level applications, web and mobile applications, server-side development, and Android app development. Java's extensive libraries, frameworks, and tools make it a popular choice among developers for its scalability, security features, and community support. So in this project java programing language is used to control all the activities taking place in backend.

Chapter 6

Testing

6.1 Component Test

Table 6.1: Main Panel Tests

Referring to the Table 6.1 represents the main panel tests which contains various test units including test cases and necessary results.

TEST UNIT	TEST CASE	RESULT
Insert/Modify details panel	Insert/Modify details button is pressed	The system invokes respective function and displays the window to Insert/Modify details.
Delete record panel	Delete record option is pressed.	The system invokes respective function and displays the window to Delete record.
Display record panel	Display record option is pressed.	The system displays all the record.
Search record panel	Search record option is pressed.	The system display enter usn to search.
View changes panel	View changes option is pressed.	Changes history displayed successfully.
Marksheet generation panel.	To generate marksheet decided here whether yes or no.	Marksheet generated successfully.

Table 6.2: Insert/Modify Panel Tests

Referring to the Table 6.2 represents the insert/modify panel tests.

TEST UNIT	TEST CASE	RESULT
Insert	Insert option is pressed	The system invokes respective function and displays details to be entered.

Table 6.3: Delete record panel

Referring to the Table 6.3 represents the delete record panel tests which helps in deleting the records.

TEST UNIT	TEST CASE	RESULT
Delete	Delete option is pressed	The system invokes respective function and displays usn to be entered that got deleted.

Table 6.4: Display record panel

Referring to the Table 6.4 represents the display record panel tests which helps to display all students record that have been entered.

TEST UNIT	TEST CASE	RESULT
Display	Display option is pressed	The system invokes respective function and displays all student record that have been entered.

Table 6.5: Search record panel

Referring to the Table 6.5 represents the search record panel tests which helps in searching the record of the students.

TEST UNIT	TEST CASE	RESULT
Search	Search option is pressed	The system invokes respective function and ask to enter usn of an student that need to be searched.

Table 6.6: View changes panel

Referring to the Table 6.6 represents the changes of the student record panel tests which displays the change in the student record.

TEST UNIT	TEST CASE	RESULT
View changes	View changes option is pressed	The system invokes respective function and display the history of changes done in the files.

6.2 System Testing

System testing involves systematically testing of all the functionalities of the project.

Table 6.7: Complete System Tests

Referring to the Table 6.7 shows the various system testing of functions involved in the project.

TEST UNIT	TEST CASE	RESULT
Inserting record	Click insert/modify button.	Enter the usn if it is not present in files it was created. If it is present it will get updated.
Deleting record	Click delete option.	Enter the usn if it is present in files it gets deleted.
Display record	Click display option.	All the student record present was displayed.
Search record	Click search option.	Enter the usn if it is present in files it is displayed.
View changes	Click view changes option.	It will display the history of changes done to the file.
Marksheet Generation	Click view changes option.	It will display the marksheet of the student.

Chapter 7

Interpretation of Results

Referring to the Figure 7.1 represents insert/modify panel to enter the student details of the student record.

```
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Please enter your choice:
1
Enter Name:
Nikhil
Roll no:
1by20is094
sem:
6
Enter the Father name:
Gopal
Enter mother name:
Girija
Enter the Internal Marks of every subject
18MAT41 18CS42  18CS43  18CS44  18CS45
31 32 33 34 35
Enter the External Marks of every subject
18MAT41 18CS42  18CS43  18CS44  18CS45
55 45 54 52 51

Student Data Successfully Added
```

Fig 7.1: Insert/modify panel

Referring to the Figure 7.2 displays the student records present in the file.

```
Please enter your choice:
2
Students List:

Sl.NO:1         Name:Nikhil      RollNo:1by20is099      Sem:6
Sl.NO:2         Name:Nikhil      RollNo:1by20is094      Sem:6
```

Fig 7.2: Display Student Record

Referring to the Figure 7.3 performs the delete function.

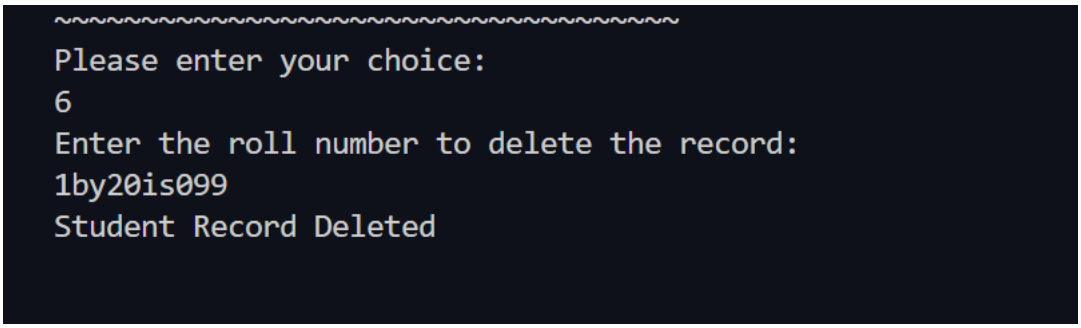

Fig 7.3: Delete panel

Referring to the Figure 7.4 displays the searched student record with usn.

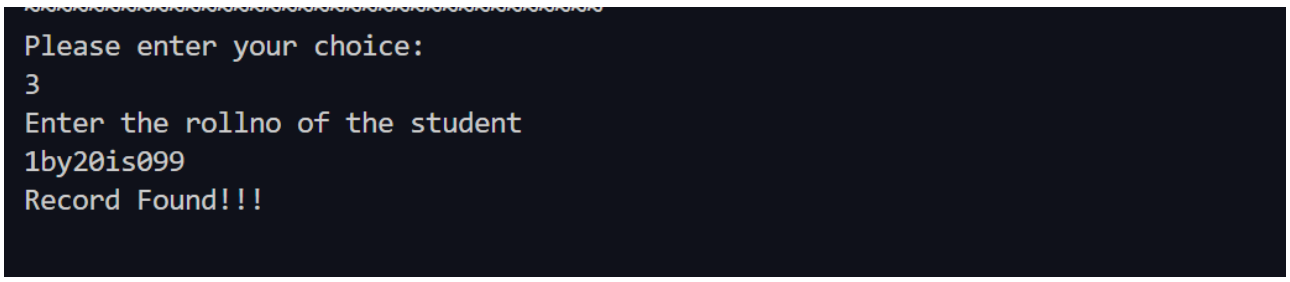

Fig 7.4: Search panel

Referring to the Figure 7.5 displays the student record after the modification of the record.

```
Please enter your choice:
5
Enter the rollno of the student
1by20is094
Student record found

Do You really want to modify this record (y/n)
y
Enter Name:
Narahari
sem:
6
Enter the Father name:
g
Enter mother name:
g
Enter the Internal Marks of every subject
18MAT41 18CS42  18CS43  18CS44  18CS45
31 32 34 33 35
Enter the External Marks of every subject
18MAT41 18CS42  18CS43  18CS44  18CS45
51 52 53 54 55
```

Fig 7.5: View changes pane

Referring to the Figure 7.6 displays the generation of the student marksheet after all marks and details entered.

```
-------------------------------------------------------------------------------------------
B M S   I N S T I T U T E       O F     T E C H N O L O G Y    A N D   M A N A G E M E  N T

                                B A N G L O R E

NAME:Nikhil                                                              USN:1by20is099
FATHER NAME:Gopal                                                               SEM:6
MOTHER NAME:Girija


SL.NO   SUBJECTS        INTERNAL SCORE          EXTERNAL SCORE          TOTAL          GRADE
                        MAX     SCORED          MAX     SCORED

1.      18MAT41         40      35              60      55              90              A
2.      18cs42          40      30              60      54              84              B
3.      18cs43          40      31              60      53              84              B
4.      18cs44          40      32              60      52              84              B
5.      18cs45          40      34              60      51              85              B



Date:2023-06-20                                                          Sign
Place:Banglore                                                           $$$$
-------------------------------------------------------------------------------------------
```

Fig 7.6: Generate Marksheet

Conclusion

The Marksheet Generator file structure project has successfully achieved its objectives of automating the mark sheet generation process and improving efficiency and accuracy. By replacing the manual effort required for generating mark sheets, the project has significantly reduced the time and potential errors associated with traditional methods.

The implementation of file structures to store and retrieve student information and marks has facilitated efficient data management. The system's user-friendly interface ensures ease of use for data input and mark sheet generation. The inclusion of functionalities such as calculating total marks and percentage has further enhanced the system's utility.

In summary, the Marksheet Generator file structure project has successfully addressed the limitations of manual mark sheet generation. It has provided an efficient, accurate, and user-friendly solution for generating mark sheets. By automating the process, the project has significantly reduced the time and effort required, while ensuring data accuracy and reliability. The system's implementation of file structures and its adherence to functional and non-functional requirements contribute to its effectiveness and potential for future enhancements.

References

- "File Structures: An Object-Oriented Approach with Java" by Michael J. Folk, Bill Zoellick, and Greg Riccardo.

- Coronel, Carlos, et al. Database Systems: Design, Implementation, and Management. Cengage Learning, 2018.

- Sipser, Michael. Introduction to the Theory of Computation. Cengage Learning, 2012.

- Data Structures and Algorithms Made Easy in Java" by Narasimha Karumanchi: Although this book focuses on data structures and algorithms, it includes a section on file structures as well. It provides an overview of different file organizations, file indexing techniques, and their implementation in Java. This book can help you gain a deeper understanding of file structures and how they can be utilized in your marksheet sheet generator project.