

INFORMATION MANAGEMENT SYSTEM

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AGENDA

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INTRODUCTION

The **Student Information System** is a software application designed to efficiently manage and store information and related to students in an education institution. This project is implemented in the C programming language , utilizing various data structure and algorithms to ensure the system's performance and functionality.

OBJECTIVE

The objective is to efficiently and effectively **manage, store, and process** information related to students in an educational institution. This software system serves various purposes and benefits, including:

- 1.Data Centralization:** It helps in consolidating and centralizing student data, such as personal information, academic records, and more, making it easily accessible to authorized users.
- 2.Record Management:** It assists in maintaining accurate and up-to-date records of students.
- 3.Efficient Registration and Enrollment:** Simplifies the process of student registration, enrollment, and course selection, reducing administrative workload and minimizing errors.
- 4.Academic Progress Monitoring:** Facilitates tracking of student academic performance, including grades, exam results, and other assessments.
- 5.Reporting:** Generates various reports for administrators, teachers, and parents, providing insights into student performance and other relevant data.
- 6.Security:** Ensures the security and confidentiality of student data by implementing user access controls and data encryption.
- 7.Compliance:** Assists in complying with regulatory and accreditation requirements by maintaining accurate and organized records for auditing purposes.

PROBLEM STATEMENT

In our current student data management system, student details are dispersed across various platforms like **Excel sheets and Google Drive**, leading to challenges including data disarray, interlinking issues, data redundancy, data access delays, and limited data manipulation. As our student population continues to grow, this decentralized approach will exacerbate issues in maintaining, updating, and efficiently retrieving information, making it imperative that we modernize our student data management system.

DATA STRUCTURES USED - ⁶

- 1. Structures*:** The code defines a structure named `STUDENT` to store information about students, including their age, roll number, marks, name, total marks, and average. Structures are a fundamental concept in DSA for organizing and grouping related data.
- 2. *Arrays*:** The code uses arrays to store character data like student names. Arrays are a basic data structure used in DSA.
- 3. *Search Algorithms*:** When searching for a specific student record or when deleting and modifying records, the program uses linear search to find the corresponding record. In DSA, searching is an essential algorithmic concept.
- 4 *Stack*:** The code uses stack to store the student data on updation on above the previous student data by using the stack operations.
- 5. *Dynamic Memory Allocation*:** The code dynamically allocates memory for student records in the binary file using `fwrite`.

LITERARY SURVEY

A. Toward a Student Information System for Sebha University

This paper [1] basically focuses on providing a simple interface for the easy collation and maintenance of all manner of student information. The creation and management of accurate, up-to-date information regarding students' academic careers is critical students and for the faculties and administration of Sebha University in Libya and for any other educational institution. A student information system deals with all kinds of data from enrollment to graduation, including program of study, payment of fees and examination results to name but a few. All these data need to be made available through an online interface



B. A Study of Student Information Management Software

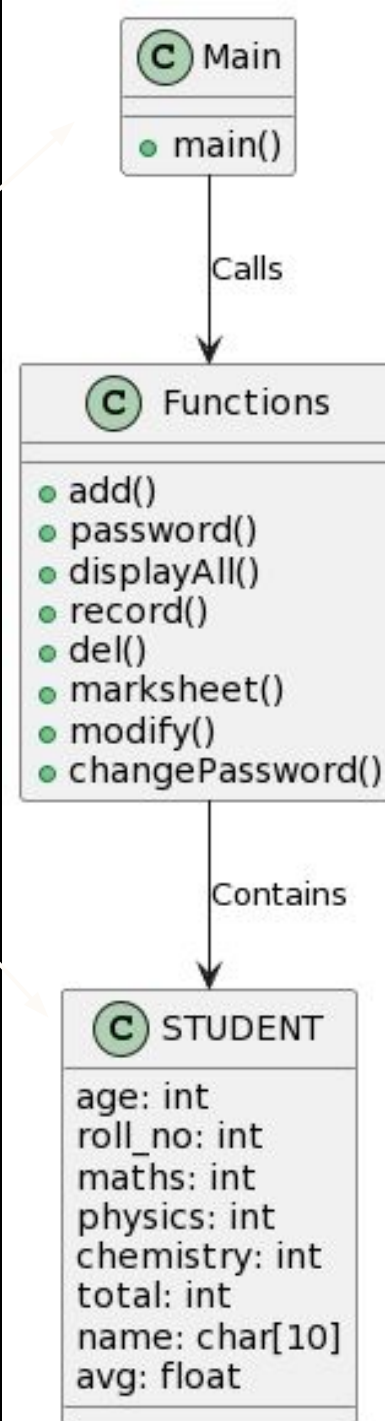
- This paper [2] focuses on providing information to support the operation, management and decision-making functions of enterprises or organizations. In the face of huge amount of information, it is required to possess the student information management system to improve the efficiency of student management. Through this system, the standardized management, scientific statistics and fast query of student information can be realized, and thus the workload of management can be reduced. In this paper, a typical student information management system will be established to realize the systematization, standardization and automation of student information relationship.

C. Web Based Student Information System

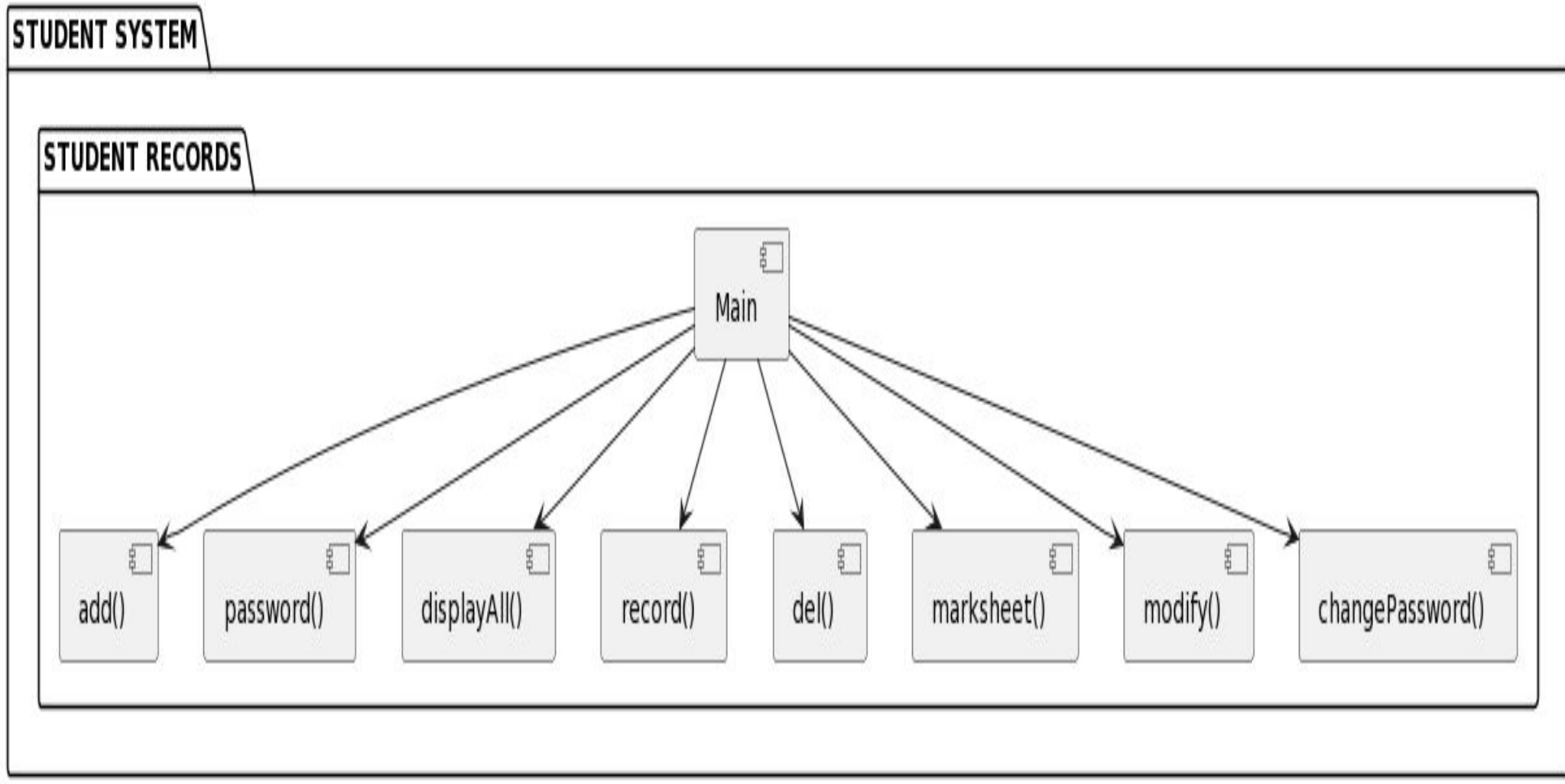
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- This paper [3] focuses on simple interface for maintenance of student information. The creation and management of accurate, up-to- date information regarding a student's academic career is critically important in the university as well as colleges. Student information system deals with all kind of student details, academic related reports, college details, course details, curriculum, batch details, placement details and other resource related details too. It tracks all the details of a student which can be used for all reporting purpose, tracking of progress in the course, completed semesters, years. Different reports and Queries can be generated based on vast options related to students, batch, course, faculty, exams, semesters, certification and even for the entire college.

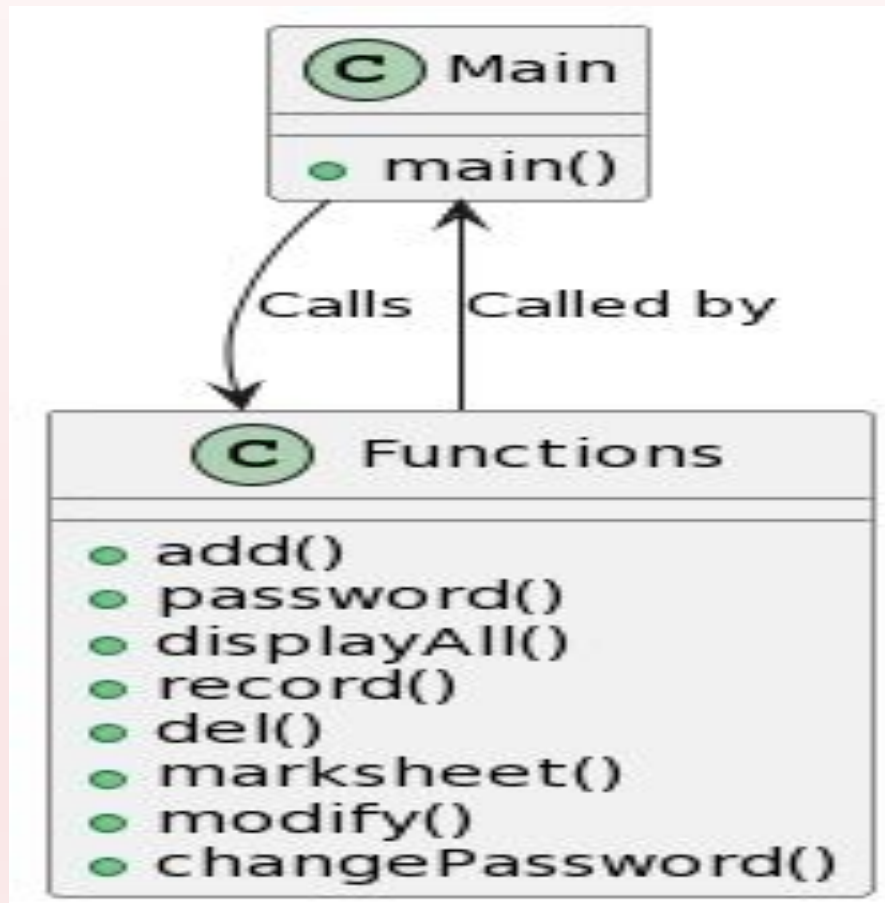
USECASE DIAGRAM



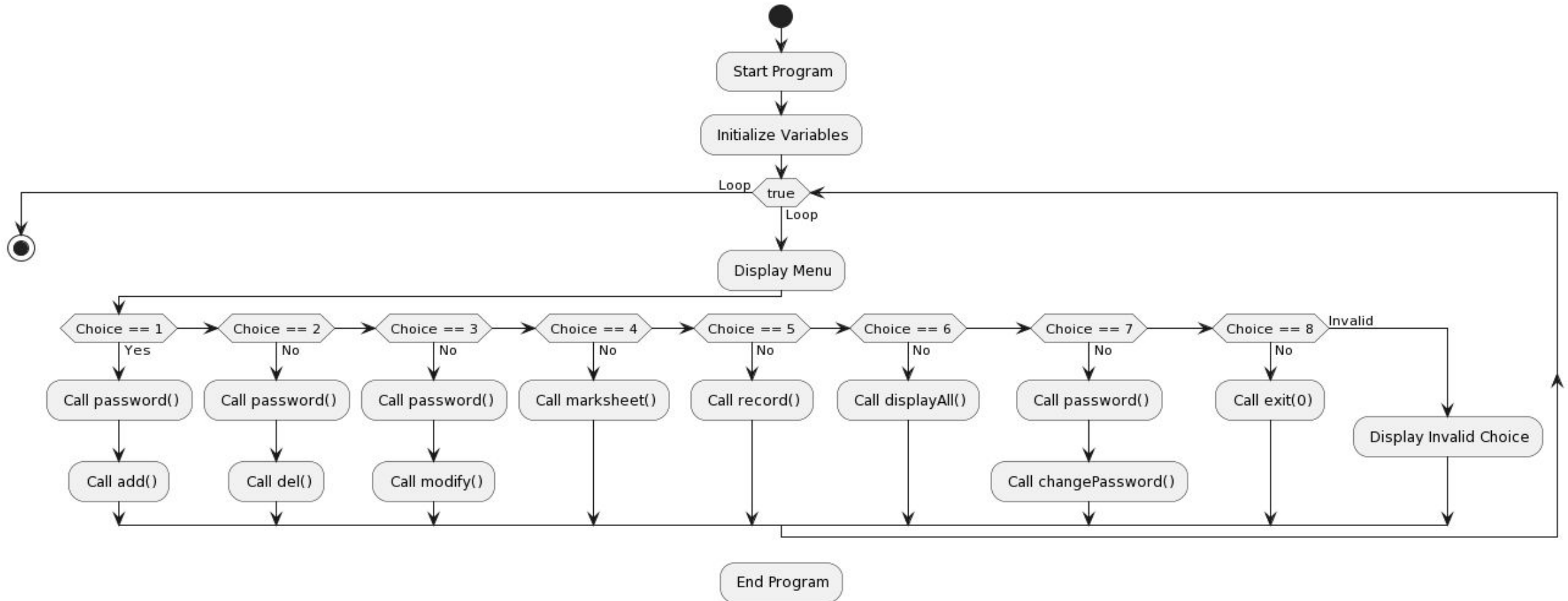
PACKAGE DIAGRAM



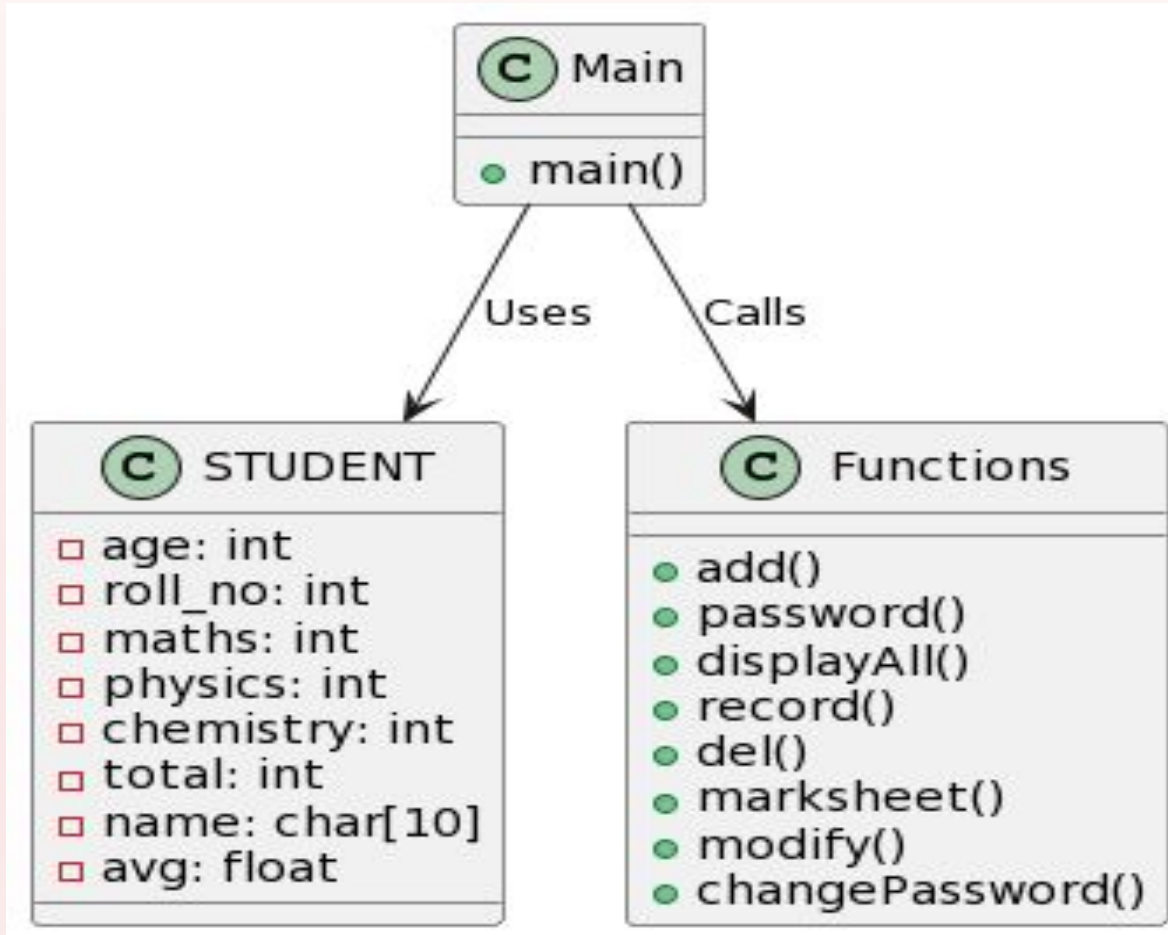
COMPONENT DIAGRAM



ACTIVITY DIAGRAM

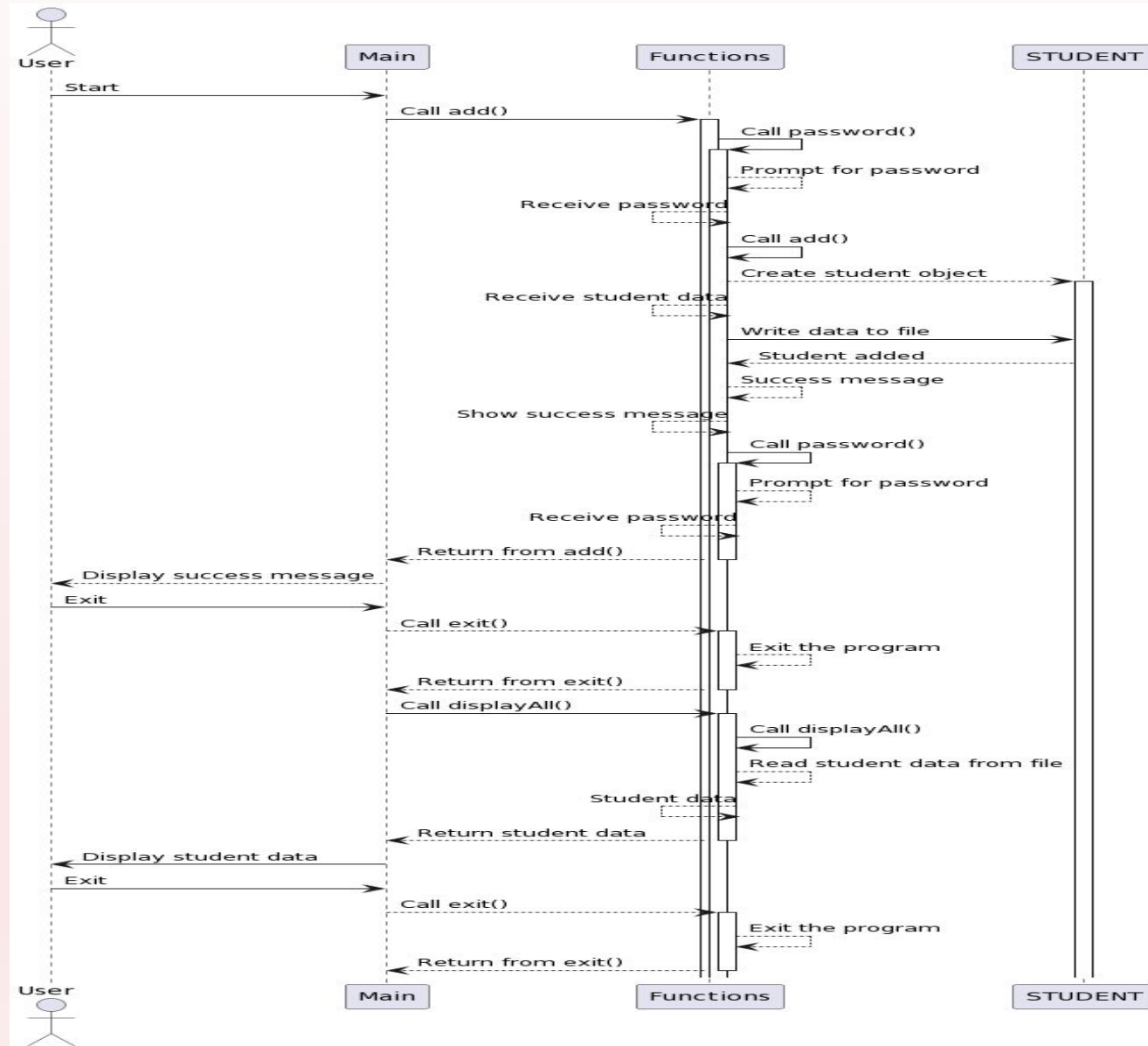


CLASS DIAGRAM



SEQUENCE DIAGRAM

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WORKFLOW

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The workflow of a Student Information System (SIS) involves various steps and processes to manage student information efficiently. Here's a general overview of the workflow for a typical SIS:

1.Data Entry and Management:

- 1.** Staff or administrators enter student information into the SIS, including personal details, contact information, and academic history.
- 2.This information is stored in a centralized database.

2.Academic Record Management:

- 2.** The SIS records and updates academic data, including grades.

Professors input grades . Students can view their academic records through the system.

3.Report Generation:

- 3.** The system generates reports for administrators, faculty, and students.
- 4.** Reports may include transcripts, class rosters, and academic performance reports.

4.User Access Control:

- 5.** The SIS has user access controls to ensure that only authorized personnel can access sensitive information.

5.Security and Data Protection:

- 1.Security measures are in place to protect student data, including encryption backups, and access controls.

CODE



```
1 include<stdio.h>
2 #include<conio.h>
3 static int n=0;
4 struct STUDENT
5 {
6     int age,roll_no,maths,physics,chemistry,total;
7     char name[10];
8     float avg;
9 };
10 int main()
11 {
12     void add();
13     void password();
14     void displayAll();
15     void record();
16     void del();
17     void marksheet();
18     void modify();
19     void changePassword();
20     int i,count=0,a,n=0,r,m,ms;
21     printf("\n\t\t\t\t\t=====\\n");
22     printf("\n\t\t\t\t\t\t\t\t\t [ ] STUDENT RECORDS\\n");
23     printf("\n\t\t\t\t\t\t\t\t\t=====\\n");
```

```
25 while(1)
26 {
27     printf("\n-----");
28     printf("\nchoose an option below");
29     printf("\n-----");
30     printf("\n1.add a record");
31     printf("\n2.delete a record");
32     printf("\n3.modify a record");
33     printf("\n4.generate marksheet");
34     printf("\n5.search a record");
35     printf("\n6.display all records");
36     printf("\n7.change password");
37     printf("\n8.exit");
38     printf("\n-----\n");
39     scanf("%d",&a);
40     switch (a)
41     {
42     case 1:
43     {
44         password();
45         add();
46         break;
47     }
48 }
```

```
51 case 2:
52 {
53 password();
54 del();
55 break;
56 }
57 case 3:
58 {
59 password();
60 modify();
61 break;
62 }
63 case 4:
64 {
65 marksheet();
66 break;
67 }
68 case 5:
69 {
70 record();
71 break;
72 }
73 case 6:
```

```
1  displayAll();
2  break;
3  }
4  case 7:
5  {
6  password();
7  changePassword();
8  break;
9  }
10 case 8:
11 {
12 exit(0);
13 }
14 }
15 void add()
16 {
17 int i;
18 struct STUDENT s;
19 int size;
20 FILE *fp;
21 size=sizeof(s);
22 fp=fopen("MINI_PROJECT_IN_C.DAT","ab");
23 printf("\nenter roll no for record\n");
24 scanf("%d",&s.roll_no);
```



```
printf("enter name\n");
scanf("%s",s.name);
printf("enter age\n");
scanf("%d",&s.age);
printf("enter maths marks\n");
scanf("%d",&s.maths);
printf("enter physics marks\n");
scanf("%d",&s.physics);
printf("enter chemistry marks\n");
scanf("%d",&s.chemistry);
s.total=s.maths+s.physics+s.chemistry;
s.avg=s.total/3;
fwrite(&s,sizeof(s),1,fp1);
}
else
{
fwrite(&s,sizeof(s),1,fp1);
}
}
fclose(fp);
fclose(fp1);

if(found==0)
{
printf("Sorry No Record Found\n\n");
}
else
{
fp=fopen("MINI_PROJECT_IN_C.DAT","wb");
fp1=fopen("temp.dat","rb");

while(1)
{
fread(&s,sizeof(s),1,fp1);

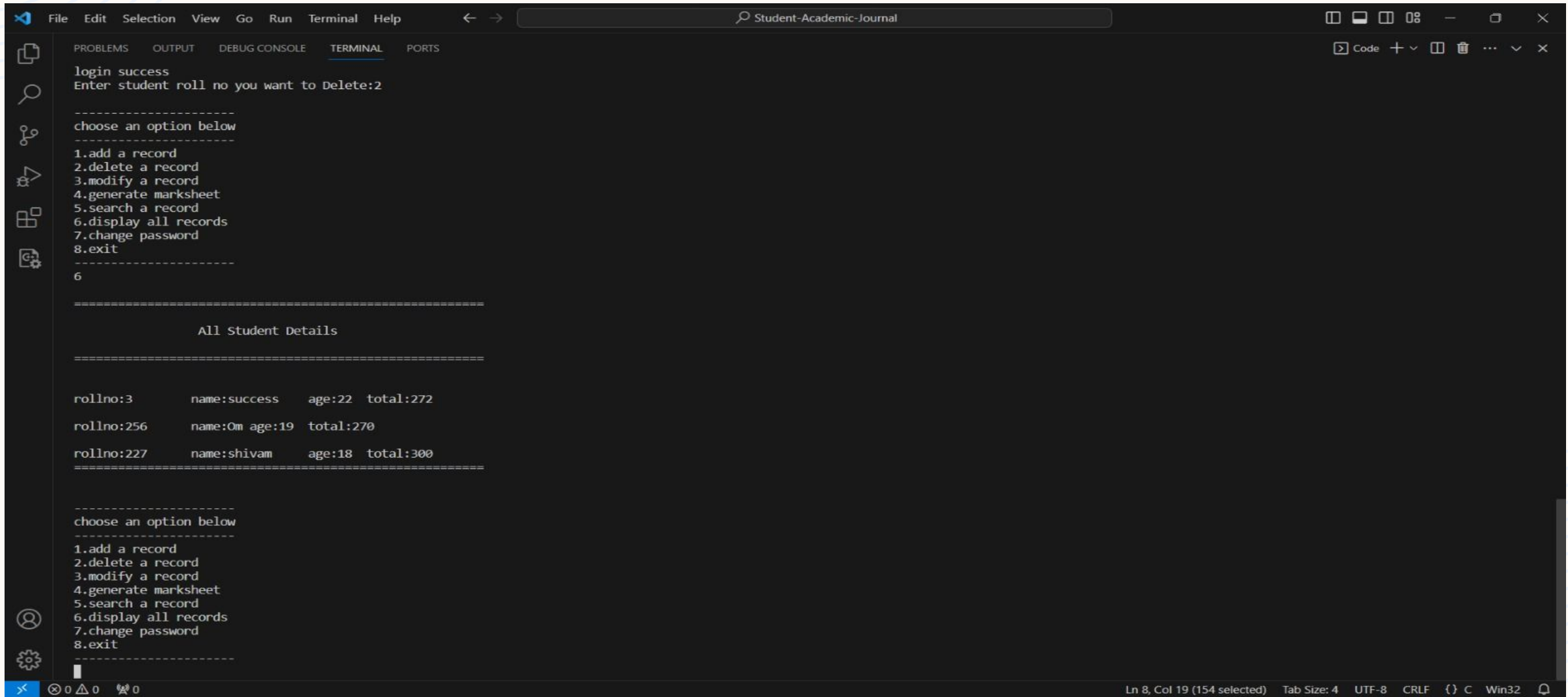
if(feof(fp1))
{
break;
}
fwrite(&s,sizeof(s),1,fp);
}

}
fclose(fp);
fclose(fp1);
```

```
1  }
2  }
   CodiumAI: Test this function
3  void changePassword(){
4  FILE *fp;
5  int i;
6  char ch[6],c[6],count=0;
7  fp=fopen("password.txt","w");
8  printf("\nenter new passowrd with 6 character");
9  scanf("%s",ch);
10 printf("\nre-enter password");
11 scanf("%s",c);
12 for(i=0;i<6;i++)
13 if(count==6)
14 {
15 fprintf(fp,"%s",ch);
16 printf("\npassword successfully changed");
17 }
18 else
19 {
20 printf("\nnot matching");
21 changePassword();
22 }
23 fclose(fp);
24 }
```

Output

24



```
File Edit Selection View Go Run Terminal Help
Student-Academic-Journal

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
login success
Enter student roll no you want to Delete:2

-----
choose an option below
-----
1.add a record
2.delete a record
3.modify a record
4.generate marksheet
5.search a record
6.display all records
7.change password
8.exit
-----
6

=====

All Student Details

=====

rollno:3      name:succes  age:22  total:272
rollno:256    name:Om    age:19  total:270
rollno:227    name:shivam age:18  total:300
=====

-----
choose an option below
-----
1.add a record
2.delete a record
3.modify a record
4.generate marksheet
5.search a record
6.display all records
7.change password
8.exit
-----
```

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CONCLUSION

It is always prudent to opt for a student information system that is designed using modern system architecture to cope with changing requirements. This system should encompass very solid information coding and distinctly outlined business applications. The overview of system elaborates the ease of information delivery at the tip of your fingers with precise data and increases the retention rate of student and teaches them how to manage their time efficiently.



THANK YOU