

PROJECT REPORT

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with specialization in Data Science



SCHOOL OF COMPUTING
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BONAFIDE CERTIFICATE

Certified that this Project Report titled “**Students Report Card Management System**” is the bonafide work done by *Gerald Alan Raj(RA2211056010147)*, *Sai Suhaas(RA2211056010154)*, *Dheepak(RA2211056010159)*, *Mamtha Sri(RA2211056010161)* and *Pradeep Raj (RA2211031010165)* who completed the project under my supervision. Certified further, that to the best of my knowledge the work reported herein does not form part of any other work.

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Problem Statement:

The Student Marksheet Management System is a software application designed to manage and store the academic records of students. The primary objective of this system is to automate the process of managing the marks of the students and generating their marksheet.

The system will have a database of students and their personal information, including their names, roll numbers, contact information, and academic information, including the marks they scored in different subjects. The system will also have features to update and delete student records and generate mark sheets.

The system should provide the following functionalities:

Add new students to the system along with their personal information and academic records.

Update the information of existing students in the system.

Delete the records of students who have left the institution.

Display the records of all the students in the system.

Generate the marksheet of a particular student.

Calculate the total marks and percentage of a student.

Display the ranks of all the students in the system.

The system should be user-friendly and easy to use. It should have a graphical user interface (GUI) to make it easier for the user to navigate and perform different tasks. The programming language used to implement the system is C++.

Modules of the Project:

A Student Marksheet Management System typically includes several modules that work together to manage and maintain the student's academic records. Here are some common modules that you may find in such a system:

Student Information Management Module: This module is responsible for managing the personal information of students, including their names, addresses, contact details, etc.

Academic Information Management Module: This module is responsible for managing the academic information of students, including their marks, grades, and progress reports.

User Management Module: This module is responsible for managing user accounts and access levels for different users of the system, such as teachers, administrators, and students.

Marksheet Generation Module: This module is responsible for generating mark sheets and progress reports for students, based on the data stored in the system.

Reporting Module: This module is responsible for generating various reports related to student performance, such as class averages, subject-wise rankings, etc.

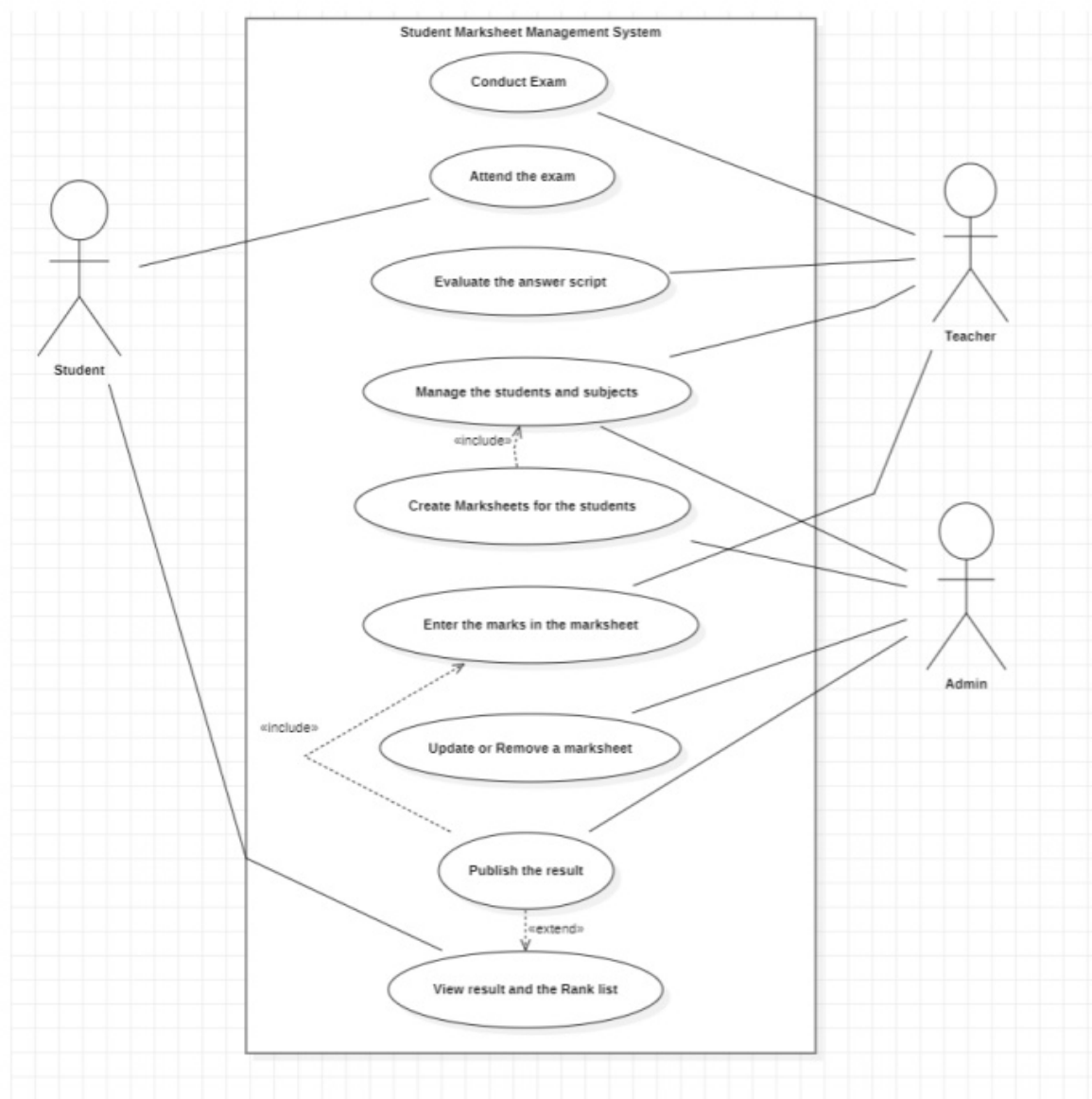
Communication Module: This module is responsible for facilitating communication between teachers, administrators, and students, such as sending notifications, messages, or alerts related to academic matters.

Backup and Recovery Module: This module is responsible for ensuring that the data in the system is backed up regularly and can be restored in case of any data loss or system failure.

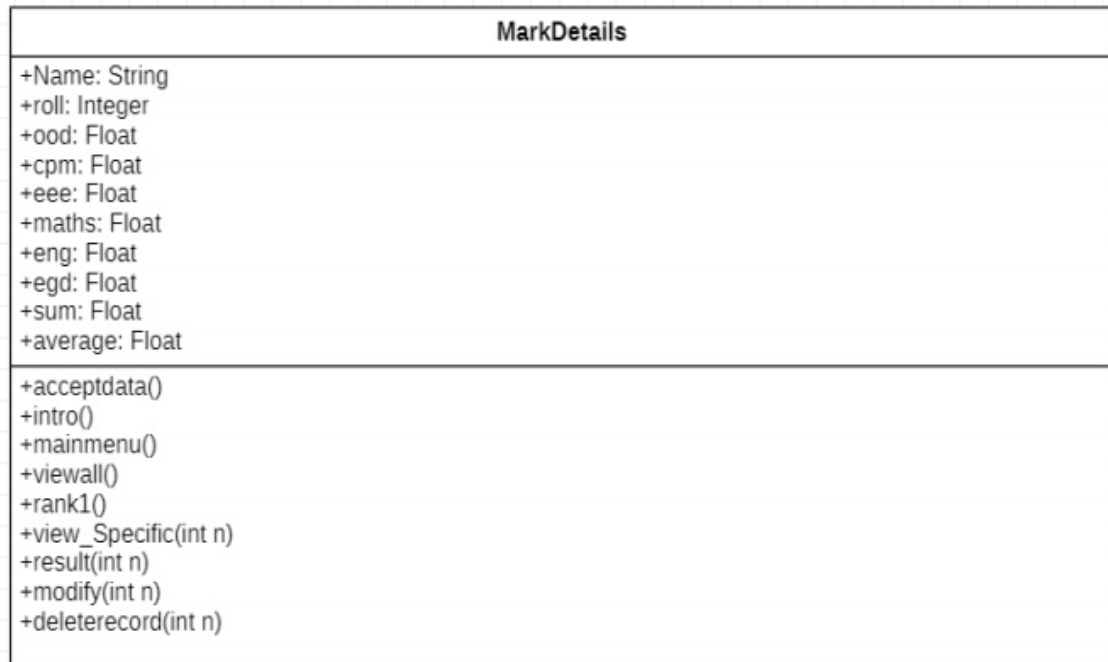
These are some of the common modules used in a Student Marksheet Management System. Depending on the specific requirements of your system, you may include additional modules or modify the existing ones to suit your needs.

Diagrams:

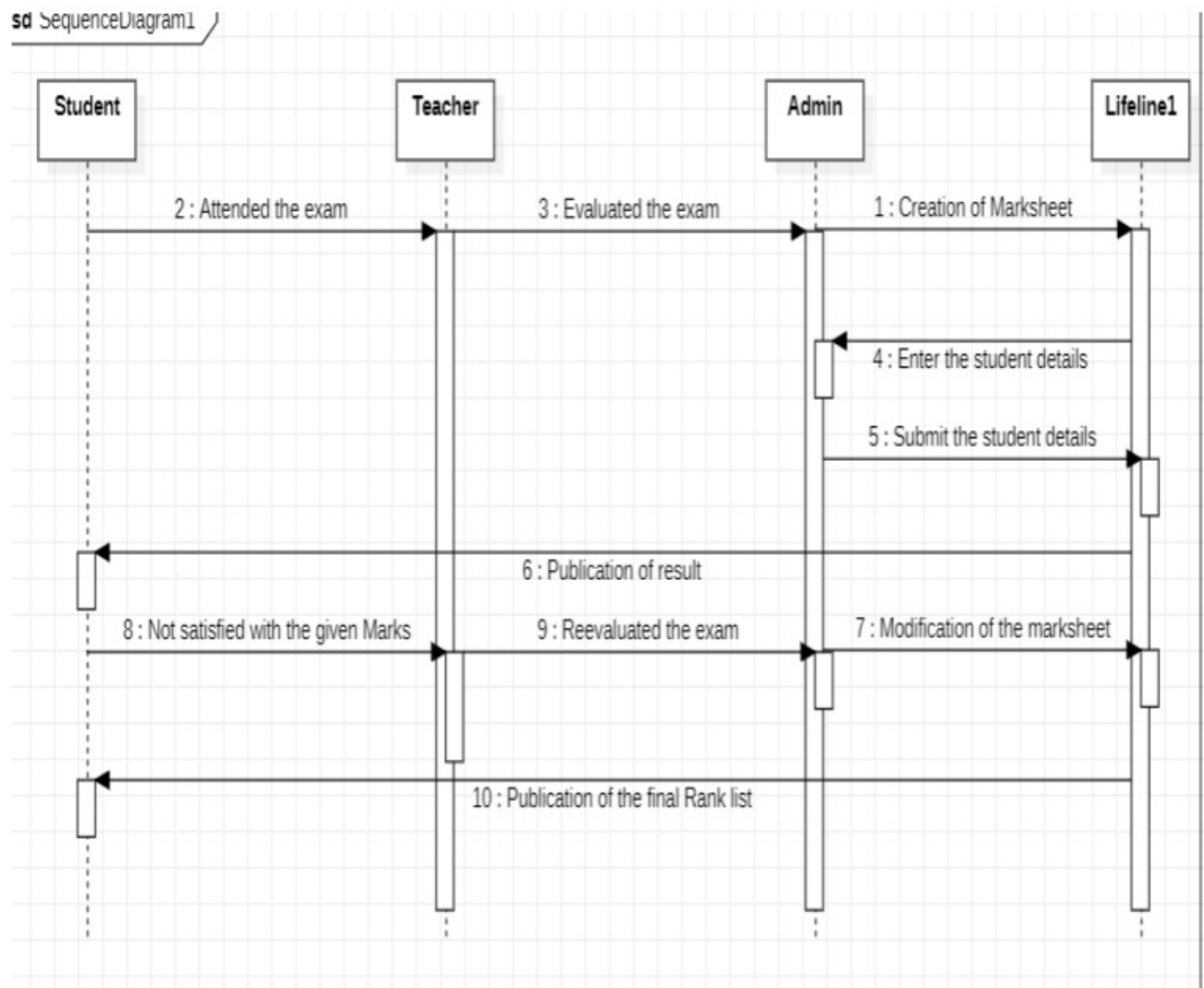
a. Use case Diagram:



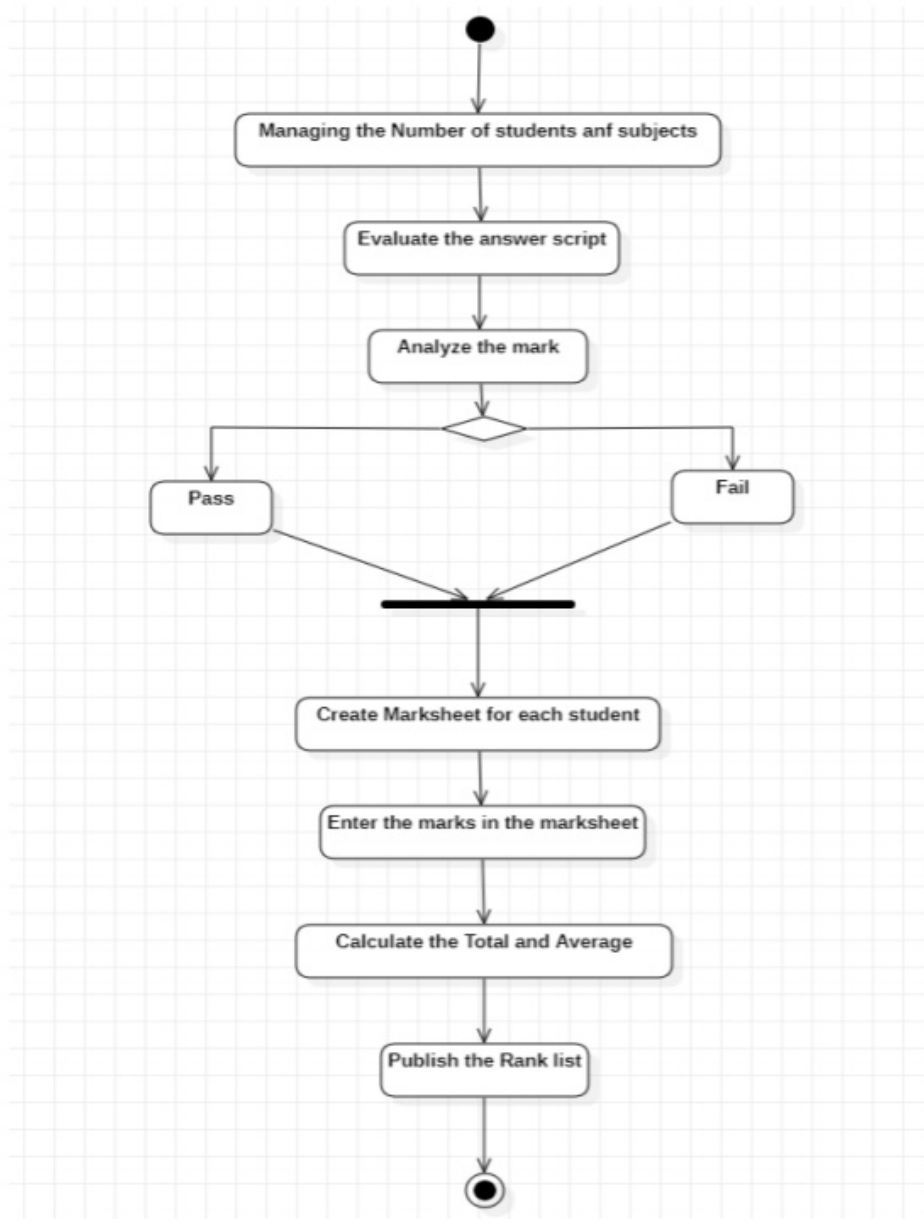
b. Class Diagram



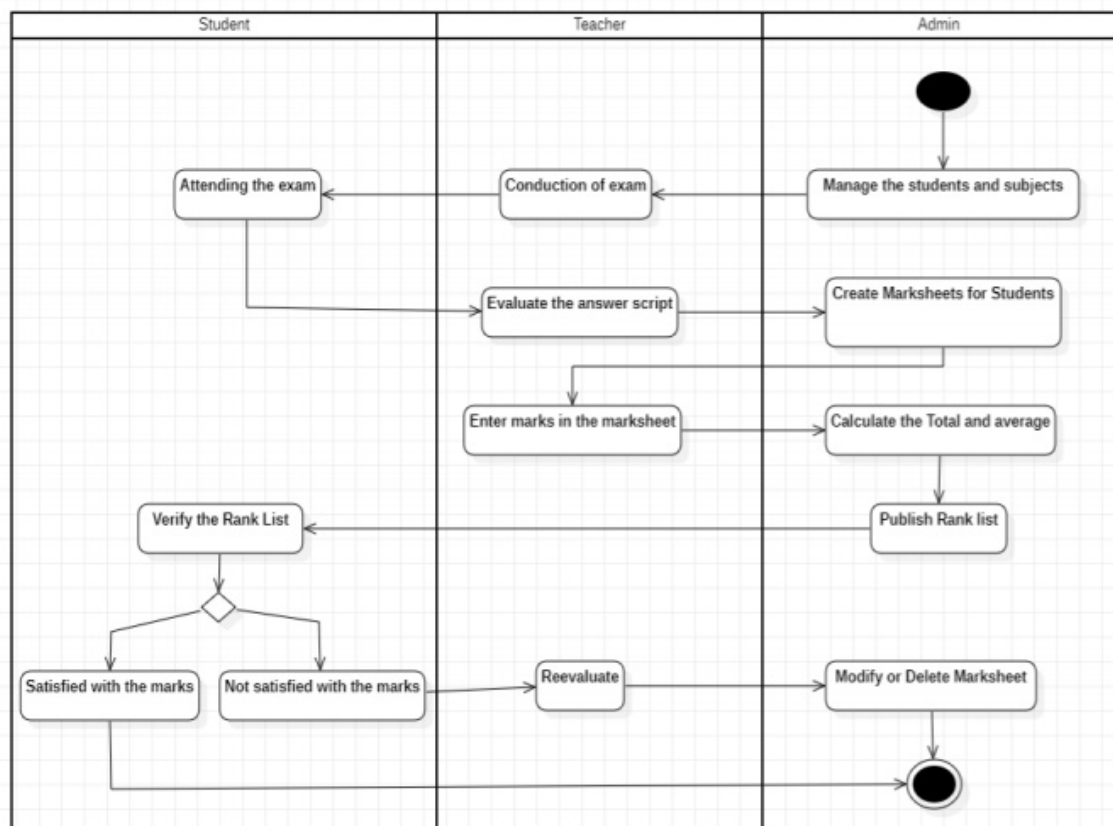
c. Sequence Diagram



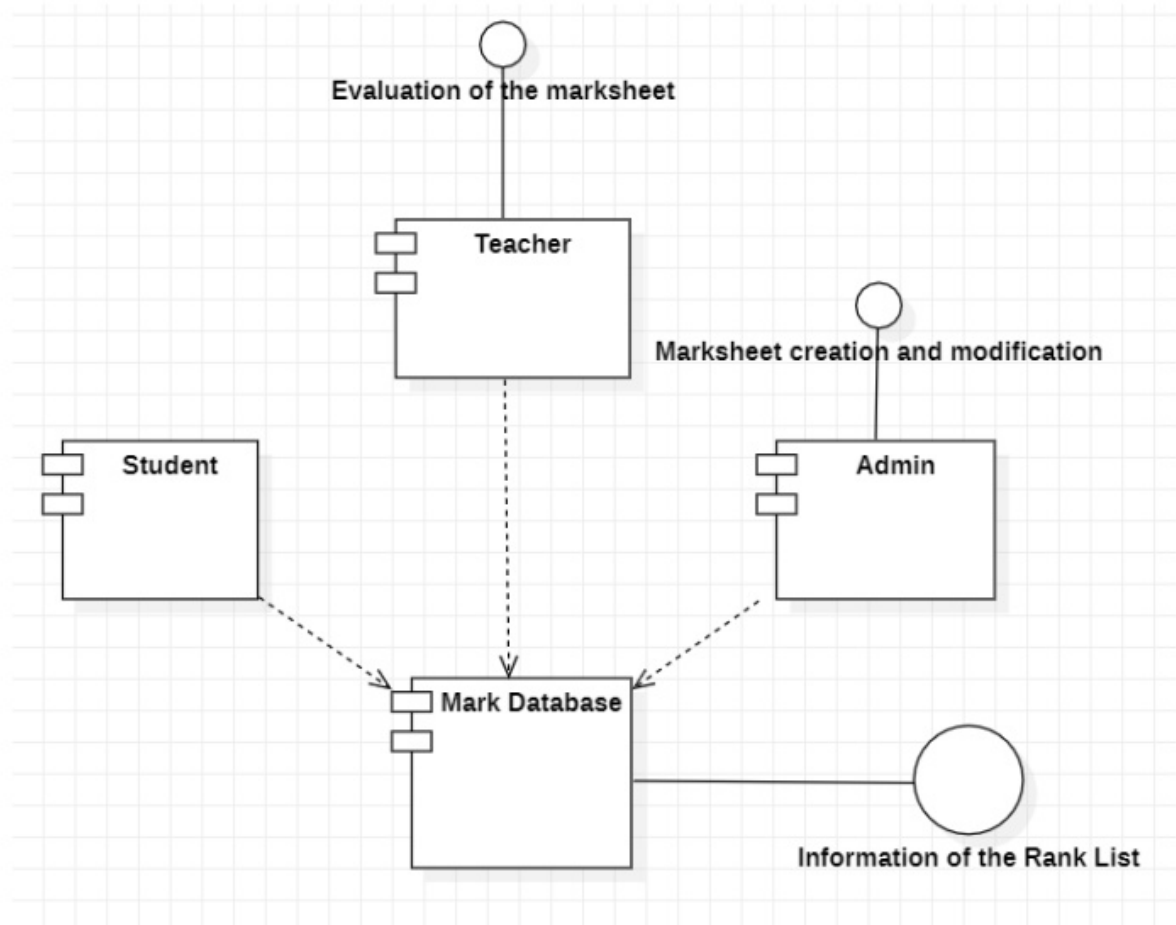
e. State Chart Diagram:



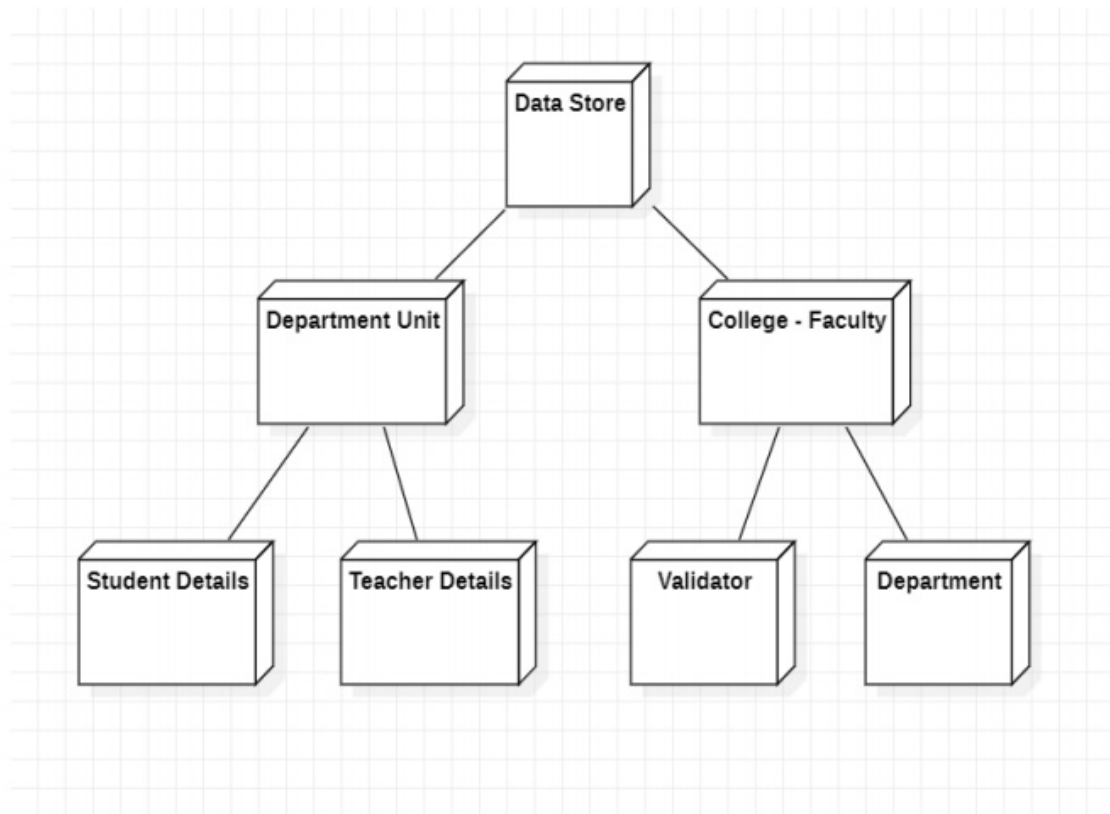
f. Activity Diagram



h. Component Diagram



i. Deployment Diagram



Code/Output Screenshots

```
#include <iostream>
#include<fstream>
#include<iomanip>
#include<windows.h>
using namespace std;
struct student
{
    char name[80];
    int roll;
    float ood, cpm, eee, maths, eng, egd, sum, average;
};

class MarkDetails
{
private:
    char name[80];
    int roll;
    float ood, cpm, eee, maths, eng, egd, sum, average;

public:
    void acceptdata()
    {
        system("cls");
        student s;
        ofstream outfile;
        outfile.open("Report.txt", ios::app | ios::binary);
        if (outfile.fail())
        {
            cout << "THE FILE COULD NOT BE OPEN...press enter key";
            cin.ignore();
            cin.get();
        }
    }
};
```



```

    cout << "\n\n\n";
    Sleep(300);
    cout << "\t\t\t * * * * * * * * * * * * * * * * " << endl;
    Sleep(300);
    cout << "\t\t\t * * * * * * * * * * * * * * * " << endl;
    Sleep(300);
    cout << "\t\t\t * * * * * * * * * * * * * * * " << endl;
    Sleep(300);
    cout << "\t\t\t * * * * * * * * * * * * * * * " << endl;
    Sleep(300);
    cout << "\t\t\t * * * * * * * * * * * * * * * " << endl;
    Sleep(300);
    cout << endl;
    cout << "\t\t\t ===== " <<
endl;
    Sleep(500);
    cout << "\t\t\t THIS IS THE STUDENT MARKSHEET MANAGEMENT SOFTWARE"
<< endl;
    Sleep(500);
    cout << "\t\t\t ===== " <<
endl;
    Sleep(500);
    cout << "press any key to continue...";
    cin.ignore();
    cin.get();
}

void mainmenu()

{
    system("color c");
    char cc;
    cout << "\t\t\t =====MAIN MENU===== \n\n" << endl;
    Sleep(300);

```

```

cout << "\t\t\t1. CREATE STUDENT REPORT CARD\n\n" << endl;
Sleep(300);
cout << "\t\t\t2. VIEW ALL STUDENTs REPORT CARD\n\n" << endl;
Sleep(300);
cout << "\t\t\t3. VIEW A SINGLE STUDENT REPORT CARD\n\n" << endl;
Sleep(300);
cout << "\t\t\t4. MODIFY REPORT CARD\n\n" << endl;
Sleep(300);
cout << "\t\t\t5. RESULT\n\n" << endl;
Sleep(300);
cout << "\t\t\t6. RANK LIST\n\n" << endl;
Sleep(300);
cout << "\t\t\t7. DELETE RECORD\n\n" << endl;
Sleep(300);
cout << "\t\t\tt===== " << endl;
Sleep(300);
cout << "\t\t\tENTER YOUR CHOICE...:) <1-6> :";
Sleep(300);
cin >> cc;
cout << endl;
switch (cc)
{
case '1':
{
    acceptdata();
    break;
}
case '2':
{
    viewall();
    break;
}
case '3':
{
    int n;

```



```

        cout << "ENTER YOUR ROLL NUMBER :";
        cin >> n;
        view_Specific(n);
        break;
    }
case '4':
{
    int n;
    cout << "ENTER YOUR ROLL NUMBER :";
    cin >> n;
    modify(n);
    break;
}

case '5':
{
    int n;
    cout << "ENTER YOUR ROLL NUMBER :";
    cin >> n;
    cout << endl;
    result(n);
    break;
}
case '6':
{
    int n;
    rank1();
    break;
}
case '7':
{
    int n;
    cout << "ENTER YOUR ROLL NUMBER :";
    cin >> n;
    cout << endl;

```



```

=====
===== " << endl;

    int n = 0;
    while (infile.read(reinterpret_cast<char*>(&s[n]), sizeof(student)))
    {
        n++;
    }
    infile.close();
    //sorting based on AVERAGE MARKS
    for (int a = 0; a < n; a++)
    {
        for (int b = a + 1; b < n; b++)

        {
            if (s[a].average < s[b].average)
            {
                student tmp;
                tmp = s[a];
                s[a] = s[b];
                s[b] = tmp;
            }
        }
    }

    cout << "\tRANK ";
    cout << "\tSTUDENT NAME";
    cout << "\tSTUDENT ROLL NUMBER";
    cout << "\tOOD MARK";
    cout << "\t COMPUTATIONAL PHYSICS MARK";
    cout << "\tEEE MARK";
    cout << "\tMATHS MARK";
    cout << "\tENGLISH MARK";
    cout << "\tEGD MARK";
    cout << "\tTOTAL ";
    cout << "\t\tAVERAGE " << endl;

```

```
cout << endl;
"=====
=====
=====
=====
" << endl;
for (int i = 0; i < n; i++)
{
    cout << "\t" << i + 1;
    cout << "\t" << setw(10) << s[i].name;
    cout << "\t\t" << s[i].roll;
    cout << "\t\t\t" << s[i].ood;
    cout << "\t\t\t" << s[i].cpm;
    cout << "\t\t" << s[i].eee;
    cout << "\t\t" << s[i].maths;
    cout << "\t\t" << s[i].eng;
    cout << "\t\t" << s[i].egd;
    cout << "\t\t" << s[i].sum;
    cout << "\t\t" << s[i].average << endl;
    cout << endl;
"=====
=====
=====
=====
" << endl;
    check = true;
}

if (check == false)
    cout << "\t\t\t\t\tNO RECORD FOUND..." << endl << endl;
    cout << "press any key to continue....";
    cin.ignore();
    cin.get();
}

void view_Specific(int n)
{
    system("cls");
```



```

    cout << "press any key to continue...";
    cin.ignore();
    cin.get();
}

void result(int n)
{
    system("cls");
    student s;
    ifstream infile;
    infile.open("Report.txt", ios::app | ios::binary);
    if (infile.fail())
    {
        cout << "THE FILE COULD NOT BE OPENED..." << endl;
        cin.ignore();
        cin.get();
    }
    bool eq = false;
    cout << "\t\t\t\t\t=====VIEW A SINGLE STUDENT RESULT=====\\n\\n";
    while (infile.read(reinterpret_cast<char*>(&s), sizeof(student)))
    {
        if (s.roll == n)
        {
            cout << "\t\t\t\tSTUDENT NAME :" << s.name << endl;
            cout << "\t\t\t\tSTUDENT ROLL NUMBER :" << s.roll << endl;
            cout << "\t\t\t\tOOD MARK :" << s.ood << endl;
            cout << "\t\t\t\tCOMPUTATIONAL PHYSICS MARK :" << s.cpm << endl;
            cout << "\t\t\t\tEEE MARK :" << s.eee << endl;
            cout << "\t\t\t\tMATHS MARK :" << s.maths << endl;
            cout << "\t\t\t\tENGLISH MARK :" << s.eng << endl;
            cout << "\t\t\t\tEGD MARK :" << s.egd << endl;
            cout << "\t\t\t\tTOTAL :" << s.sum << endl << endl;
            cout << "\t\t\t\tAVERAGE :" << s.average << endl << endl;
            cout
            <<
            "\t\t\t\t\t=====\\n" << endl;

```

```

        eq = true;
    }
}
infile.close();
if (eq == false)
    cout << "\t\t\tRECORD NOT FOUND..." << endl;
cout << endl;
cout << "press any key to continue...";
cin.ignore();
cin.get();
}

void modify(int n)
{
    system("cls");
    student s;
    fstream infile;
    infile.open("Report.txt", ios::binary | ios::in | ios::out);
    if (infile.fail())
    {
        cout << "THE FILE COULD NOT BE OPENED..." << endl;
        cin.ignore();
        cin.get();
    }
    bool checker = false;
    cout << "\t\t\t\t\t=====MODIFY A REPORT CARD=====\\n\\n";
    while (!infile.eof() && checker == false)
    {
        infile.read(reinterpret_cast<char*>(&s), sizeof(student));
        {
            if (s.roll == n)
            {
                cout << "\t\t\tSTUDENT NAME :" << s.name << endl;
                cout << "\t\t\tSTUDENT ROLL NUMBER :" << s.roll << endl;
                cout << "\t\t\tOOD MARK :" << s.ood << endl;
            }
        }
    }
}

```



```

cout << "\t\t\t\t\tCOMPUTATIONAL PHYSICS MARK : " << s.cpm << endl;
cout << "\t\t\t\t\tEEE MARK : " << s.eee << endl;
cout << "\t\t\t\t\tMATHS MARK : " << s.maths << endl;
cout << "\t\t\t\t\tENGLISH MARK : " << s.eng << endl;
cout << "\t\t\t\t\tEGD MARK : " << s.egd << endl;
cout << "===== " << endl;
cout << "\t\t\t\t\tENTER THE NEW INFORMATION" << endl;
cout << "===== " << endl;
cout << "ENTER YOUR FULL NAME :";
cin.ignore();
cin.getline(s.name, 80);
cout << "ENTER YOUR ROLL NUMBER :";
cin >> s.roll;
cout << "ENTER YOUR OOD MARK :";
cin >> s.ood;
cout << "ENTER YOUR COMPUTATIONAL PHYSICS MARK :";
cin >> s.cpm;
cout << "ENTER YOUR EEE MARK :";
cin >> s.eee;
cout << "ENTER YOUR MATHS MARK :";
cin >> s.maths;
cout << "ENTER YOUR ENGLISH MARK :";
cin >> s.eng;
cout << "ENTER YOUR EGD MARK :";
cin >> s.egd;
s.sum = s.ood + s.cpm + s.eee + s.maths + s.eng + s.egd;
s.average = (s.sum / 6);
int pos = (-1) * static_cast<int>(sizeof(student));
infile.seekp(pos, ios::cur);
infile.write(reinterpret_cast<char*> (&s), sizeof(student));
cout << endl;
cout << "\t\t\t\t\tTHE FILE IS SUCCESSFULLY updated" << endl;
checker = true;
}
}

```

```

    }
    infile.close();
    if (checker == false)
        cout << "\t\t\t\t\tRECORD NOT FOUND" << endl;
    cout << endl;
    cout << "press any key to continue...";
    cin.ignore();
    cin.get();
}

void deleterecord(int n)
{
    system("cls");
    student s;
    ifstream infile;
    infile.open("Report.txt", ios::binary);
    if (!infile)
    {
        cout << "THE FILE COULD NOT BE OPENED..." << endl;
        cin.ignore();
        cin.get();
    }
    ofstream outfile;
    outfile.open("Record2.txt", ios::binary);
    infile.seekg(0, ios::beg);
    cout << "\t\t\t\t\t=====DELETE A REPORT CARD=====\\n\\n";
    while (infile.read(reinterpret_cast<char*>(&s), sizeof(student)))
    {
        if (s.roll != n)
        {
            outfile.write(reinterpret_cast<char*>(&s), sizeof(student));
        }
    }
    infile.close();
    outfile.close();
}

```

```

        remove("Report.txt");
        rename("Record2.txt", "Report.txt");
        cout << endl;
        cout << "\t\t\t\t\tRECORD SUCCESSFULLY DELETED" << endl;
        cout << "press any key to continue...";
        cin.ignore();
        cin.get();
    }
};

int main()
{
    system("color a");
    char c;
    MarkDetails m;
    system("cls");
    m.intro();

    do {
        system("cls");
        system("color e");
        cout << "\n\n";
        cout << "\t===== STUDENT MARKSHEET MANEGEMENT
SYSTEM OF SECTION AB2 =====" << endl;
        cout << endl;
        cout << "\t===== DR.SIVAKUMAR , ASSISTANT PROFESSOR,
DEPARTMENT OF DSBS =====" << endl;
        cout << endl;
        cout << "\t\t\t\t\t1. MAIN MENU\n\n";
        cout << "\t\t\t\t\t2. EXIT\n\n";
        cout << "ENTER YOUR CHOICE :";
        cin >> c;
        system("cls");
        switch (c)
        {

```

```

case '1':
{
    m.mainmenu();
    break;
}
case '2':
{
    cout << "\t\t THANK YOU FOR USING THE SOFTWARE" << endl;
    cout << "\n\n";
    cout << "\t GROUP MEMBERS(DEVELOPERS)";
    cout << "\n\n";
    cout << "\t 1. GERALD ALAN RAJ\n\n";
    cout << "\t 2. SAI SUHAAS \n\n";
    cout << "\t 3. DHEEPAK\n\n";
    cout << "\t 4. MAMTHA SRI\n\n";
    cout << "\t 5. PRADEEP RAJ\n\n";
    cout << "\n\n";
}
}
} while (c != '2');
return 0;
}

```

```
C:\Users\HP\Desktop\Alan OOD - Student Marksheet Management System\Student Marksheet Management System Alan\exe
      x x x  x x x x  x  x x x  x x x  x x x
      x x x  x  x  x  x  x x x x x
      x x x x x x x x  x  x  x x x x x x x x
      x x x x x  x  x  x  x x x x x x
      x x x  x x x x x x x  x x x  x x x  x x x

=====
THIS IS THE STUDENT MARKSHEET MANAGEMENT SOFTWARE
=====
press any key to continue...
```

```
C:\Users\HP\Desktop\Alan OOD - Student Marksheet Management System\Student Marksheet Management System Alan\exe
===== STUDENT MARKSHEET MANAGEMENT SYSTEM OF SECTION AB2 =====
===== DR. SIVAKUPPA , ASSISTANT PROFESSOR, DEPARTMENT OF DSMS =====
      1. RAZEN REMI
      2. EXIT
ENTER YOUR CHOICE :
```

```
C:\Users\HP\Desktop\Alan OOO - Student Marksheet Management System\Student Marksheet Management System Alanusee
=====MENU=====
1. CREATE STUDENT REPORT CARD
2. VIEW ALL STUDENTs REPORT CARD
3. VIEW A SINGLE STUDENT REPORT CARD
4. MODIFY REPORT CARD
5. RESULT
6. RANK LIST
7. DELETE RECORD
=====
ENTER YOUR CHOICE...:} <1-0> _
```

```
C:\Users\HP\Desktop\Alan OOO - Student Marksheet Management System\Student Marksheet Management System Alanusee
=====CREATE A REPORT CARD=====
ENTER YOUR FULL NAME :Pauline
ENTER YOUR ROLL NUMBER :947
ENTER YOUR OOD MARK :100
ENTER YOUR COMPUTATIONAL PHYSICS MARK :100
ENTER YOUR EEE MARK :100
ENTER YOUR MATHS MARK :100
ENTER YOUR ENGLISH MARK :99
ENTER YOUR EGD MARK :99

THE FILE IS SUCCESSFULLY SAVED

press any key to continue...
```

```
C:\Users\HP\Desktop\Alan DOD - Student Marksheet Management System\Student Marksheet Management System Alanusee

=====
ALL STUDENTS REPORT CARDS
=====
STUDENT NAME :Gerald Alan Raj
STUDENT ROLL NUMBER :147
ODD MARK :100
COMPUTATIONAL PHYSICS MARK :100
EEE MARK :99
PATHS MARK :100
ENGLISH MARK :99
EGD MARK :99
SUP :107
AVERAGE :99.5
=====
STUDENT NAME :Dheepak
STUDENT ROLL NUMBER :159
ODD MARK :99
COMPUTATIONAL PHYSICS MARK :99
EEE MARK :99
PATHS MARK :99
ENGLISH MARK :99
EGD MARK :99
SUP :104
AVERAGE :99
=====
STUDENT NAME :Arinash
STUDENT ROLL NUMBER :106
ODD MARK :99
COMPUTATIONAL PHYSICS MARK :99
EEE MARK :99
PATHS MARK :99
ENGLISH MARK :99
EGD MARK :99
SUP :100
AVERAGE :97.6667
=====
STUDENT NAME :Ruhith
STUDENT ROLL NUMBER :170
ODD MARK :99
COMPUTATIONAL PHYSICS MARK :99
EEE MARK :99
PATHS MARK :99
```

```
C:\Users\HP\Desktop\Alan DOD - Student Marksheet Management System\Student Marksheet Management System Alanusee

=====VIEW A SINGLE STUDENT REPORT=====

STUDENT NAME :Gerald Alan Raj
STUDENT ROLL NUMBER :147
ODD MARK :100
COMPUTATIONAL PHYSICS MARK :100
EEE MARK :99
PATHS MARK :100
ENGLISH MARK :99
EGD MARK :99
TOTAL :107
AVERAGE :99.5
=====
press any key to continue...
```

```
C:\Users\HP\Desktop\Alan OOO - Student Marksheet Management System\Student Marksheet Management System Alanusee
=====REDEFY A REPORT CARD=====
STUDENT NAME :Gerald Alan Rej
STUDENT ROLL NUMBER :147
ODD MARK :100
COMPUTATIONAL PHYSICS MARK :100
EES MARK :99
MATHS MARK :100
ENGLISH MARK :99
SSD MARK :99
=====
ENTER THE NEW INFORMATION
=====
ENTER YOUR FULL NAME :Gerald Alan Rej
ENTER YOUR ROLL NUMBER :147
ENTER YOUR ODD MARK :100
ENTER YOUR COMPUTATIONAL PHYSICS MARK :100
ENTER YOUR EES MARK :100
ENTER YOUR MATHS MARK :100
ENTER YOUR ENGLISH MARK :100
ENTER YOUR SSD MARK :100

THE FILE IS SUCCESSFULLY updated
press any key to continue..
```

```
C:\Users\HP\Desktop\Alan OOO - Student Marksheet Management System\Student Marksheet Management System Alanusee
=====VIEW A SINGLE STUDENT RESULT=====
STUDENT NAME :Gerald Alan Rej
STUDENT ROLL NUMBER :147
ODD MARK :100
COMPUTATIONAL PHYSICS MARK :100
EES MARK :100
MATHS MARK :100
ENGLISH MARK :100
SSD MARK :100
TOTAL :600
AVERAGE :100
=====
press any key to continue..
```


C:\Users\HP\Desktop\Alan OOD - Student Marksheet Management System(Student Marksheet Management System) Alanusew

MARK LIST OF STUDENTS										
RANK	STUDENT NAME	STUDENT ROLL NUMBER	OOD MARK	COMPUTATIONAL PHYSICS MARK	EEE MARK	MATHS MARK	ENGLISH MARK	EGD MARK	TOTAL	AVERAGE
1	Gerald Alan Raj	147	100	100	100	100	100	100	600	100
2	Pauline	47	100	100	100	100	99	99	598	99.6667
3	Ohmpek	159	99	99	99	99	99	99	594	99
4	Avinash	106	98	98	98	96	98	98	586	97.6667
5	Naetha Sri	181	98	98	94	96	99	96	581	96.8333
6	Pradeep Raj	185	97	96	98	93	99	97	580	96.6667
7	Achuth	128	96	96	99	96	96	95	578	96.3333
8	Sal Subhas	154	98	98	94	93	98	96	569	94.8333

press any key to continue....

C:\Users\HP\Desktop\Alan OOD - Student Marksheet Management System(Student Marksheet Management System) Alanusew

*****DELETE A REPORT CARD*****

RECORD SUCCESSFULLY DELETED

press any key to continue....

Conclusion and Result:

The Student Marksheet Management System is an efficient and user-friendly software application designed to manage and store the academic records of students. The primary objective of this system is to automate the process of managing the marks of the students and generating their marksheet. The system provides several functionalities such as managing student information, academic records, mark sheet generation. The system is implemented in C++ programming language, which makes it easily maintainable and extensible.

The implementation of the Student Marksheet Management System has successfully met the objectives and requirements of the project. The system provides a simple and effective way of managing and maintaining student records. It enables the users to store and retrieve the student's academic data accurately and efficiently. The system generates mark sheets and progress reports for the students, based on the data stored in the system.

The system also provides several reporting functionalities, such as class averages, student's rankings, etc. that help the teachers and administrators in analyzing the academic performance of students.

Overall, the Student Marksheet Management System is a reliable and robust solution for managing the academic records of students. It reduces the manual workload of teachers and administrators, making the entire process more efficient and error-free.

References:

<https://www.geeksforgeeks.org/c-plus-plus/>

<https://docs.staruml.io/>

