

# **OBJECT ORIENTED PROGRAMMING**

## **FINAL PROJECT REPORT**



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Class	Object Oriented Programming CSC241 ( <b>BCE-3B</b> )
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## **Final Project:    SCHOOL MANAGEMENT SYSTEM**

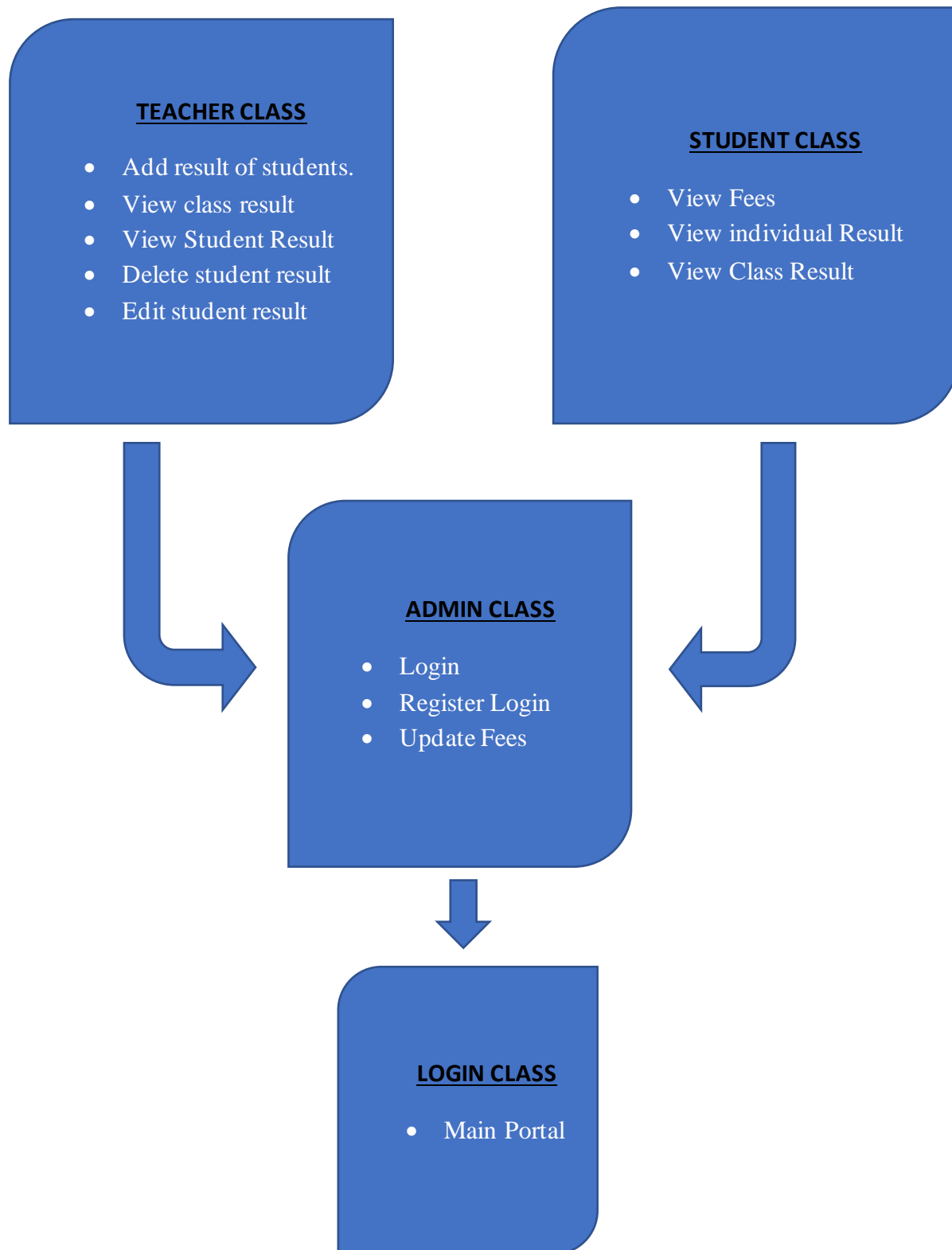
### **Purpose**

To bridge the gap between teachers, students and administration, by creating a software that enables all to access their required data at one place.

### **Project Description / Overview**

- The Project SMS (School Management System) is envisioned to have 3 main portal and 1 login portal, initially the User faces a login screen, on which he has to give his credentials.
- Given his credentials match with the credentials in the database(file) he is given access to his portal dashboard (student, admin or teacher).
- The Access depends upon which category the username and password are saved as, i.e. if the Username and Password are saved for admin, it will give access to admin dashboard and similarly for student and teachers access.
- In this System each type of user (admin, teacher, student) has specific actions that they can perform on their portal, which is explained in the Flow chart below.

## Project Flow Chart Diagram



**\*The arrow heads show inheritance**

## **Details about Code**

In this code I have used various concepts to reach my desired goal with maximum ease, though at the same time I have tried my best to include as many concepts possible and utilized those in one way or the other to add value to the project.

The Concepts used are namely as follows:

- Class/Function/Constructor
- Destructor
- Reference variable
- Information Hiding (Private access modifier)
- Operator Overloading
- Inheritance
- Protected Access Modifier
- Function Overloading
- Abstract Class
- Multiple Inheritance
- Composition
- Static and Dynamic Binding
- Pure Virtual Function (though has no use in the code, just added to cover the concept)
- Friend Function
- File Handling (Ifstream, Ofstream, fstream)
- Exception Handling

There may be a few concepts that I forgot to mention in the list above, and may be some concepts that I did not include at all as I that didn't sound logical.

## **Additional Features**

I have added some additional features in this code, which are not necessary for this project but helped me in covering some concepts.

i.e.

- I have created a hit counter or Login attempt counter on the portal login screen, that counts how many times the login has been attempted, for this concept I used unary Operator Overloading.
- Similarly, I have used a constructor to initially show loading screen as the portal opens.
- Also, I have used different System console colors for different screens.
- I have also added System warning beep on wrong credentials.

There may be some concepts that I forgot to mention here to due shortage of time, and it may be possible that I would have changed a few concepts when I will be finally presenting the project.

## **Limitations of Code**

As of date of submission, I have not found any run time error or limitation in my code, all exceptions are handled in the code, moreover this Project has 4 different text files that are being used as database namely,

- student.txt (This contain all the data of students)
- Counter.txt (This contains the total hits on the portal or total login attempts)
- Login.txt. (This contains the username, password and an integer index that differentiates between teacher, student and admin credentials)
- fees.txt (This file contains fees with roll numbers)

The problem may arise if the data in any of the files is corrupted, and that is the something I will call a limitation in this project.

**\*Working Program file is also inside the folder.**

**THE END**