OOP Project {All sections}

Anyone found in copying the project from any other group from any section, both the groups will get F grade in Course as well as in the Lab.

For your information projects of all sections will be evaluated by only one panel committee including Course + Lab instructors to check the quality of code and plagiarism.

Note: Carefully read the following instructions.

- **2 students are allowed per group. No cross-section is allowed.**
- **Submit your roll number in each submission.**
- **Using all concepts of OOP(CP) is mandatory. And concepts should be used correctly.**
- **Read the documentation and discuss it with your groupmate on zoom auto record and submit link of the video in the first submission**
- **Your code should be clear and add exceptions where required [to avoid system to crash or accept incorrect data/options]**
- **Naming Conventions should clarify the purpose of variables and functions being used.**
  - **Names of Classes should start with a Capital Letter.**
  - **Names of Variables should start from a Small Letter.**
  - **Identifiers should be named using camelCase.**
- **Project is to be submitted as a zip file.**
- **Use 3 file structure for implementation**
- **It is mandatory to keep data in files as mentioned in each section of project**
- **Each student must submit his own work done in the project in first and second submission, in the third part you have to submit the whole project by one member of the group**
- **The project submission will be in three different evaluation by one of project group member**
  - **Project 1 in end of first week [21th-May-2020]**

  - Project 2 in end of second week [1st-June-2020]
  - Final project completed and integrated with all files at end of third week [10th-June-2020], files should have data to check and evaluate each module
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- Submission information
  - Submission will be through google/teams classroom. Lab teachers will make portals for submission.
  - In the first part, you must submit code that you have completed in the first week [submit link of meeting what you discuss in zoom meeting with groupmate].
  - In the second part, you must submit your updated code.
  - In the third part, you need to submit the final project code [write roll numbers of group mates in a comment at top] txt files and readme file contain the information about modules completed and the sequence to run the program.

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Final Project statement

Your task is to implement a complete School Management System (SMS). SMS are centralized systems used by educators and administrators to collect information needed to manage education delivery, improve student achievement, and ensure accountability. Mostly, SMS contains functionalities of three major entities i.e. (Administrators, Students and Teachers).

Major entities along with their functionalities are described below:

Divide the modules in start with your group member and everyone is responsible to submit his own completed modules. Make sure you combine the project from time to time to avoid any integration issues later.

You need to design the hierarchy of classes to be defined in the system first. All the components should be implemented in OOP concepts. [constructers, Inheritance, virtual function, friend-class/functions, static data members, polymorphism, operator overloading, three files structures etc]

1) Administrator Module:

The main job responsibility of an administrator is to ensure the efficient performance of all departments in an organization. In SMS, administrators served as a connecting link between Students, Teacher.

Here are features (functionalities) of administrator that your project should contains:

- **Sign in to system**

  Show signin page to each type of user and ask for username and password.
  The username and password should be unique for each type of member.
  User name and password admin/admin.

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- **Add new student**

  To add a new student, your program should ask some credentials from the user to register a student. Credentials you must ask includes:

  Roll number should be in proper format as string to use in future modules [All the info shoukd be taken in same order]

  - First Name
  - Last Name
  - Class (First to matric as 01,02 to 10 number)
  - Roll No (should be auto generated by the system in increasing order) [format should be Class+std_number e.g. 03123 for third class and 123 number student and 10203 for student of class 10 and 203 student number]
  - Registration Date
  - Gender
  - Contact No
  - Father Name
  - Father’s Profession

  - Parents’ Contact No
  - **Fee submitted**
  - Blood Group
  - Address

After this, you have to record all of the above-mentioned data save data within a file named as **“Student.txt”** present in the same directory.

- **Add new teacher**

Similarly, to add a new student, your program should ask some credentials from the user to register a teacher. Credentials you must ask includes:

  - First Name
  - Last Name
  - Email
  - Joining Date
  - Password
  - Confirm Password
  - CNIC
  - Gender
  - Qualification (Computer, Mechanical, Mathematics, Commerce)
  - Contact No
  - Date of birth
  - Address
  - Salary

After this, you have to record all of the above-mentioned data save data with in a file named as **“Teacher.txt”** present in the same directory.

- **Add new course**

Similarly, to add a new course, your program should ask some credentials from the user to register a course. Credentials you must ask includes:

  - Course Name
  - Course Code
  - Select Class (Pre-nursery to matric)
  - Parent Course (selected from general courses)

Parent Course means a general name of the selected course. For Example, **English** is the parent course of **English Grammar** and **English Composition**. Once you have the record of all above mentioned credentials, save it in the file named as **“Courses.txt**”.

- **Assign Course**

In this feature admin will assign courses to teachers by asking information from the display list containing following attributes:

- Select Teacher
- Select course to assign

Edit student details

Your program should be capable of editing the student's basic details. The details that administrator can edit includes:

- First Name
- Last Name
- **Fee**
- Address
- Contact No

The system should display a student list and then admin enter/select student roll number to edit and then update the above fields for that specific student. Once the user updates the student record, your program should update this information against the roll no you have selected in file “**Student.txt**”.

Edit teacher details

Your program should be capable of editing the teacher's basic details. The details that administrator can edit includes:

- Address
- Contact No
- Qualification
- Salary

Same as students updating records.

View all students

There should be an option of “View all students” in your admin module, once the user selects this, your program should display all registered students from your record. The record of your student, you should display includes:

- Roll No
- Name (First & Last Combine)
- Class
- Email ID

- Other information is a table form

You have also the option to display all students of one class or specifically only one student by searching roll number.

- **View all teachers**

  There should be an option of “View all teachers” in your admin module, once the user selects this, your program should display all registered teachers from your record. The record of your teacher, you should display includes:

  - Name (First & Last combine)
  - Gender
  - Degree
  - Contact No
  - Email ID

- **View all courses**

  There should be an option of “View all courses” in your admin module, once a user selects this, your program should display all courses from your record. The record of your courses, you should display includes:

  - Course Name
  - Course Code
  - Parent Course

- **Update student marks**

  In this feature, there should be two options available. First contains a list of all classes, once a user selects a class. Your program should ask the student to update the marks [initially all zeroes]:

  - Roll No
  - Course Name
  - Marks
  - Total Marks

- **View student marks**

  In this feature, there should be two options available. First contains a list of all classes, once a user selects a class. Your program should display the following attributes:

  - Roll No
  - Course Name
  - Marks
  - Total Marks

- **View fee status**

  There should be an option of “View fee status” in your admin module, once the user selects this, your program should display the fee status of all students registered from your record. The attributes for fee status, you should display includes:

  - Name (First & Last combine)
  - Roll No
  - Status (Either Present or Absent)

Student Module:

- **Sign in to system**

  Show signin page to each type of user and ask for username and password.
  The username and password should be unique for each type of member.
  Submit username and passwords of each students in readme file which should be attached to project submissions.

- **View assessment marks**

  This feature view their academic reports (marks) of different courses.

- **View fee status**

  This feature view the fee status of the student.

Teacher Module:-

Teacher module is to implement operations regarding teachers which are discussed below.

- **Sign in to system**

Show signin page to each type of user and ask for username and password.
The username and password should be unique for each type of member.
Submit username and passwords of each students in readme file which should be attached to project submissions.

- **Teacher Courses**

There should be an option of “View my Courses”. when teacher clicks on it.it must display all the courses assigned by admin to a particular teacher logged in into the system including:-

- Course name
- Class and section
- Total registered students in course

(Hint)You can make a file of “**Teacher_course.txt**” updated by admin which contains all the details of teachers and assigned courses.

- **Marks**

In this feature teacher can add marks of students. It will display a list of students and ask for marks of each student in his course.

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