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| C++ PROJECT |
| College Management System (CMS) |
| Object-Oriented Programming with C++ |

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| By : Surya Ammisetti  Resource (Book): Object-Oriented Programming with C++ by E Balagurusamy (7e)  IDE Used : Code Blocks 17.12 |

**Learning Objectives**

After going through project, you will be able to

* Develop menu-driven applications in C++
* Apply authentication in menu-driven projects
* Apply the file-handling concepts

**COLLEGE MANAGEMENT SYSTEM (CMS)**

CMS is a command-driven application that helps to maintain student and faculty records. It makes use of unique IDs and password to restrict the access and usage of different areas of the portal to its correct target audience. The faculty portal allows the faculty user to update faculty profile, including

allocation of subjects to be taught. Likewise, the student portal helps to maintain student profile information, including allocation and de-allocation of subjects to the students. The admin portal is used for administrative purpose. It helps to make the user entry for the first time.

The CMS application code makes use of a wide array of C++ programming features. These includes :

* Concept of inheritance for code reusability
* Concept of function overloading that enhances the code readability
* Handling of simple exceptions
* Application of file-handling concepts for performing operations, such as read, write, append, check for various I/O errors, etc
* Use of various I/O manipulators to display the output in a formatted manner.

Table A.1 lists the key coding elements of the CMS application :

**Table A.1**

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| --- | --- |
| Element | Description |
| Admin  getsdata()  login()  recover()  addsusub()  delstsub()  modstprofile()  getfadata()  stdisplay()  fadisplay() | It is used to maintain the faculty and student profiles. It provides a unique login to both profile users, and allows them to update their records further.  It is used to make the student data entry from the ADMIN portal  It authenticates the login of both profile users(students and faculties).  It helps both profile users to recover the password.  It allows the student to add a new subject in his profile.  It allows the student to delete a subject from his profile.  It allows the student to modify the personal profile details.  It allows the Admin to make a new entry of the faculty user.  It displays all the students records to the admin.  It displays all the faculty records to the admin. |

Table A.2 depicts the overall logics used by CMS application :

**Table A.2**

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| Stage | Logic |
| **1** | The Welcome Page of the CMS application is displayed at first. On hitting the Enter Key, the user enters the main Login Page. The user can login as Admin, Student or Faculty.   * The Admin Panel is used to create and maintain the databases of all the faculty and student users. * The Faculty Panel enables access to all the registered faculties in the database. * The Student Panel enables access to all the registered students in the database. |
| **2** | Next, the user is distinguished as Admin, Student or Faculty based on the choice selected by the user. Subsequently, the user is redirected to the respective Login page. |
| **3** | Each of the respective portals are menu-driven. It shown a menu of operations that the users (faculty, student, admin) can perform. |