**Zambeel**

**Problem description:**

The task is to create a university portal (Zambeel) which allows two types of users, i.e instructors and students, to first create their accounts and then manage actions related to their accounts by signing in. The management system should give its users (students and instructors) options like adding and dropping a course, enrollment options, course capacity etc. The system is to take credentials from the user first registers (the user) and then allows the respective user to make changes according to his or her requirements. All information is saved upon the exiting of the program, so that it can be accessed later on.

**Problem handling:**

We used vectors of custom datatypes (which we created using struct) to handle information (which included names, passwords, departments, etc.) related to instructors and students. We also created a vector to contain information related to the courses on offer, such as instructor’s name, course capacity and number students enrolled. We also used File IO to read and write vector data to files, so that when the program exits, the information is saved and can be accessed later on.

When the program is run, it asks the user to either register or sign in. If the user opts to register, then they are asked whether they are signing up as an instructor or a student, and then their credentials are obtained in an ordered way using cin, and saved to the corresponding vector using the .push\_back function. The user is then returned to the main screen. When the user opts to sign in, the user is asked to input his/her username and password, and then this information checked against the corresponding vector, and if the login credentials are correct, the user is signed in. Both instructors and students, when logged in, can perform a variety of actions.

**Future Improvements:**

* Add graphical user interface to make the program more userfriendly.
* Management of financials.
* Create an admin account which has the ability to change passwords and delete user accounts. The admin can also turn the add/drop feature on or off for students.
* Instructors can assign grades to students, and student GPAs is calculated on the basis of the grades obtained.
* The student can also view their timetable, which is made considering the time for classes of courses.

**Note:** A file named ‘Login Credentials’ is provided so that existing user accounts of instructors and students can be logged into and managed.