International Institute of Information Technology, Bangalore

CS-513 System Software – Mini Project

Title: Design and Development of Course Registration Portal (Academia).

Description: The project aims to develop a Academia Portal that is user-friendly and multifunctional.

The project should have the following functionalities:

- All **Student** and **Faculty** details and **Course** information are stored in files.

- Account holders have to pass through a login system to enter their accounts, and all these User accounts will be managed by the Administrator.

- Roles to implement: Faculty, Student, Admin.

- The application should possess password-protected administrative access, thus preventing the whole management system from unauthorized access.

- Once the **Admin** connects to the server, He/She should get a login and password prompt.
  After successful login, He/She should get menu for example:
  Do you want to:
    - Add Student
    - Add Faculty
    - Activate/Deactivate Student
    - Update Student/Faculty details
    - Exit

- Once the **Student** connects to the server, He/She should get a login and password prompt.
  After successful login, He/She should get menu for example:
  Do you want to:
    - Enroll to new Courses
    - Unenroll from already enrolled Courses
    - View enrolled Courses
    - Password Change
    - Exit

- Once the **Faculty** connects to the server, He/She should get a login and password prompt.
  After successful login, He/She should get menu for example:
  Do you want to:
    - Add new Course
    - Remove offered Course
    - View enrollments in Courses
    - Password Change
    - Exit
  (Assumption: Course will have a limited number of seats.)

- If you want to view the Course details then read lock is to be set else if you want to Enroll or Unenroll then write lock should be used to protect the critical data section.

- Use socket programming – Server maintains the database and serves multiple clients concurrently. Clients can connect to the server and access their specific academic details.

- Use System calls instead of Library functions wherever it is possible in the project: Process Management, File Management, File Locking, Semaphores, Multithreading and Inter Process Communication Mechanisms.

Example screenshots:

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....................Welcome Back to Academia :: Course Registration......................
Login Type
Enter Your Choice { 1.Admin , 2.Professor, 3. Student } : █
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```
........ Welcome to Admin Menu ........
1. Add Student
2. View Student Details
3. Add Faculty
4. View Faculty Details
5. Activate Student
6. Block Student
7. Modify Student Details
8. Modify Faculty Details
9. Logout and Exit
Enter Your Choice: █
```

```
........ Welcome to Faculty Menu ........
1. View Offering Courses
2. Add New Course
3. Remove Course from Catalog
4. Update Course Details
5. Change Password
6. Logout and Exit
Enter Your Choice: █
```

```
........ Welcome to Student Menu ........
1. View All Courses
2. Enroll (pick) New Course
3. Drop Course
4. View Enrolled Course Details
5. Change Password
6. Logout and Exit
Enter Your Choice: █
```