Programming Fundamentals
Project

Faculty of Information Technology

UCP Lahore Pakistan

Note:

- *This is an individual Project.*
- *100 % marks will be given on the basis of No Memory leakage, No dangling pointers, and No extra space should be wasted. Also make use of helper functions where ever required.*
- *String data type not allowed instead use CString with null termination else you will get 0.*
- *File Handling is must*
- *Submission will be on portal in Lab under folder named Project_Submissions.*

Project 3: A University has a Computer Science department in which a Student can enroll himself/herself in different number of courses. There are total of 5 courses with minimum 3 credit hours and maximum 4 credit hours. The Department decided to keep the records of student enrollment in a course along with the section. A student can enroll himself in multiple courses and in multiple section but he/she can't study the same course with multiple section.

There is a file containing information related to course code and the credit hours of that course separated with a space.
There are total of 5 sections Name as A, B C, D, E

A portion of this is shown as a sample diagram:

Courses.txt

- *CSCP1011   4 // Programming Fundamentals*
- *CSHU2833   3// Logical Thinking*
- *CSCS2533   3// Digital Logic Design*
- *CSHU1893   3//Pakistan Studies*
- *CSSS1713   3//Calculus 1*

Define the necessary data types or representing this diagram. The software you design should support the following functions:

1. Enroll a student by asking student id and display a list of subjects with credit hours offered and ask him to choose the course, and the section and save the student id, course code, credit hours and Section name in an array if the student is not already enrolled in that particular course in any of the section else display error message. (Note A single row of an array should be containing just single course information, if user has enrolled in multiple courses then multiple rows will be occupied).
2. A student may drop a specified course. The particular record should be deleted from the array

3. List all the courses in which a particular student is enrolled.
4. Update the Course section in which a student is already enrolled.
5. Display total number of students enrolling in a specified course
6. Display the course which is not enrolled by any of the student
7. Search the student with minimum number of courses registered.

Sample Input/Output:

********** **Menu** **********

- Press 1 for **Enrollment of the Student in a Course.**
- Press 2 for **drop a Specified Course.**
- Press 3 for **Display Students Enrolled courses.**
- Press 4 for **Update Section of Student for enrolled Course.**
- Press 5 for **Display Total number of Students enrolled in particular course.**
- Press 6 for **Display course not enrolled by any student.**
- Press 7 for **Display the Student with minimum number of registered course.**

- *Enter Choice: 1*
  Enter Student ID: Bscs0025

Choose a course from following course

- CSCP1011   4 // Programming Fundamentals
- CSHU2833   3// Logical Thinking
- CSCS2533   3// Digital Logic Design
- CSHU1893   3//Pakistan Studies
- CSSS1713   3//Calculus 1

  Enter the Section: B
  Student Enrolled Successfully!

- *Enter Choice: 1*
  Enter Student ID: Bscs0178

Choose a course from following course

- CSCP1011   4 // Programming Fundamentals
- CSHU2833   3// Logical Thinking
- CSCS2533   3// Digital Logic Design
- CSHU1893   3//Pakistan Studies
- CSSS1713   3//Calculus 1

  Enter the Section: C
  Student cannot enroll a course in multiple sections!

- *Enter Choice: 2*
  Enter Student ID: Bscs0025
  Enter Course Code: CSHU2833
  Course dropped successfully!

- *Enter Choice: 2*
  Enter Student ID: Bscs1225
  Enter Course Code: CSHU2833
  Student is not registered in this course!

- *Enter Choice: 3*
  Enter Student ID: Bscs1225

Course Code	Credit hours	Section
CSCP1011	4	Section A
CSHU2833	3	Section A
CSCS2533	3	Section C
CSHU1893	3	Section B
CSSS1713	3	Section D

- *Enter Choice: 4*
  Enter Student ID: Bscs0447
  Enter Course Code: CSHU2833
  Enter the New Section: D
  Section is Updated Successfully!

- *Enter Choice: 4*
  Enter Student ID: Bscs0347
  Enter Course Code: CSHU2833
  Enter the New Section: C
  Student is not enrolled in this course!

- *Enter Choice: 5*
  Enter Course Code: CSHU2833
  Total enrolled students for this course are: 32

- *Enter Choice: 6*
  CSHU2833 is not enrolled by any student

- *Enter Choice: 6*
  No course found

- *Enter Choice: 7*
  BSCS0245 has registered only 2 courses