Lab Assignment Week 12

CSC 3320 – System-level Programming

Week of April 1st, 2024

Introduction

Welcome to the 11th programming lab of CSC 3320! Today, we will be covering the following topics:

1. Structures

Lab Policies

- Attendance is mandatory.
- Labs must be completed **individually.**
- TAs are here to help you. Ask them for help!
- Lab assignments are due at midnight on the day of your lab.

Deliverables:

1. The C Code for your program. (.c file).
2. A screenshot of the output in the Terminal.

If you have any questions, please do not hesitate to ask your TA.

Program: Student Grade Management System

Develop a C program to manage student grades in a class. It should allow users to create a class roster, input grades for each student, and calculate and display various statistics.

Define a structure named `Student` with the following members:

- `char name[50]`: To store the student's name
- `int rollNo`: To store the student's unique roll number (within this class)
- `float marks[5]`: To store an array of grades for five different subjects

Program Functionality:

1. Class Size Determination:
    a. Prompt the user to enter the total number of students in the class.
        i. Up to a maximum of 50 students per class.
2. Student Data Input:
    a. Loop through the number of students.
    b. For each student, prompt the user to enter their name and roll number.
    c. Then, prompt the user to enter grades for each of the five subjects.
    d. Validate the grades to ensure they are within a reasonable range (e.g., 0 to 100).
3. Grade Calculations:
    a. For each student, calculate the total grade by summing up their individual subject grades.
    b. Calculate the average grade for the student by dividing the total grade by the number of subjects (5).
4. Output and Statistics:
    a. Display a formatted table showing student names, roll numbers, individual subject marks, total marks, and average marks.
    b. Calculate and display the class average (average of all students' average grade).
    c. Identify the student with the highest average grade and the lowest average grade.

Deliverables

For today's lab, you must upload the C program code for your grade management program and its output in the terminal on iCollege. Please name your C code and screenshot as follows:

- C Files
    - lastname_firstname_filename.c
    - For example: **hawamdeh_faris_grade_management.c**
- Screenshots
    - lastname_firstname_filename.png
    - For example: **hawamdeh_faris_ grade_management.png**