

CS-311: Data Structures & Algorithms
Mini Project 1: Student Records Database
Due Date: 09/09/2020

Problem:

Part 1: The Student Class

Using C++ implement a student class for creating student objects. The class must contain the following member attributes:

Name : *string*

ID Number: *string*

Age: *int*

Student Year (1-4): *int*

GPA: *float*

Part II: The Student Database

Create a student records database by using a C++ vector to store objects of the student class. Implement the following menu for accessing the student database:

Database Main Menu:

1. Add New Student
2. Remove Student
3. Search Student Record
4. List All Students
5. Save Student Records to File
6. Exit

Enter Choice: █

The main menu

The menu is displayed repeatedly until the user selects the option (#6) to exit or quit from the program.

Option #1: Add New Student

This option is used for adding new student records to the database. On selecting option 1 the user is prompted to enter a new student's information. The data entered by the user is used to create a student object which is added to the vector of student objects. After a new student object is created the user is prompted to select either *Yes* or *No* (Y/N). Additional new student objects are created repeatedly by selecting *Yes* ("Y") and added to the database, until the user selects *No* ("N"). Input terminates and the program returns to the main menu.

Option #2: Remove Student

When this option is selected, the user is prompted to enter the student's ID number. The database is searched using the student ID number. If the student ID number is found, the student object is removed from the database. However, if the student ID number is not found a message is displayed and the prompt returns to the main menu.

Option #3: Search Student

This option is similar to option #2. The user is prompted to enter the student's ID number. If the ID number is found, the student's detailed record is displayed on the screen. Next the prompt is returned to the main menu.

Option #4: List All Student

This display all the students' records on the screen. The prompt then returns to the main menu.

Option #5: Save Student Records to File

When this option is selected the user is prompted to enter a file name. All student information in the database is written to the file specified by the user, and the prompt returns to the main menu.

Option #6: Exit Program

This option is used to exit or terminate the program.

Instructions:

1. Options 1-5 should be implemented as functions.
2. No global variables are allowed.

Turn in the following:

1. Your C++ source code for the program.

Grading Criteria:

1. Comments in your source code describing the logic in program. **(5% maximum)**
2. Source code. **(55 % maximum)**
3. Program output **(40% maximum)**

Turn in your Solution on Canvas

Good Luck!