ព្រះរាជាណាចក្រកម្ពុជា

ជាតិ សាសនា ព្រះមហាក្សត្រ

Institute of technology of Cambodia

Department of Information and communication Engineering

The lesson taking about using structure in c++

Class activity (from 24-02-2022)

TP: Algorithm and Programming ll

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Write a C program to keep records and perform statistical analysis for a class of 20 students. The information of each student contains ID, Name, Sex, quizzes score (20), mid-term score (40), and final score (40), and total score. The program prompts the user to choose the operation of records from a menu as shown below:

```
====================
      Menu
====================
1. Add 2 students
2. View all student records
3. Show student who gets the max total score
4. Display student by ID (search by an ID)
5. Find min, max, and average scores for this class.
-------------
Choose your option 1-5:
```

Start here | *class activity venthon.cpp

```cpp
#include<iostream>
using namespace std;
struct student{
    string name;
    int  ID;
    string sex;
    float quiz;
    float midterm;
    float finalexam;
    float totalscore;

};
student st[20];
void disaplaymenu(){
    cout<<"\n=========================\n";
    cout<<"\tMennu";
    cout<<"\n=========================\n";
    cout<<"1.Add 2 students\n";
    cout<<"2.Display information of all student\n";
    cout<<"3.Show student who get max total score\n";
    cout<<"4.Display Information student by Id\n";
    cout<<"5.Find min,max and average this classe\n";

};
```

```cpp
int currentindex=0;
void add2students(){
    for(int k=currentindex; k<currentindex+2; k++)
    {
       cout<<"\n\nEnter student name: ";cin>>st[k].name;
       cout<<"Enter student ID: ";cin>>st[k].ID;
       cout<<"Enter quiz score: ";cin>>st[k].quiz;
       cout<<"Enter midterm score: ";cin>>st[k].midterm;
       cout<<"Enter finalexam score: ";cin>>st[k].finalexam;
       st[k].totalscore=st[k].quiz+st[k].midterm+st[k].finalexam;

    }
    currentindex=currentindex+2;
}
void displayallstudents(){
    for(int k=0; k<currentindex; k++)
    {
        cout<<st[k].name<<"\t"<<st[k].ID<<"\t"<< st[k].quiz<<"\t"<<st[k].midterm<<"\t"<<st[k].finalexam<<endl;
    }
}
```

```cpp
void showstudentgotmaxscore(){
    float maxscore=st[0].totalscore;
    for(int k=0; k<currentindex; k++)
     {
     if(st[k].totalscore>maxscore)
     {
         maxscore=st[k].totalscore;
     }
    }
    for(int k=0; k<currentindex; k++)
    {
        if(st[k].totalscore==maxscore)
        {
          cout<<st[k].name<<"\t"<<st[k].ID<<"\t"<< st[k].quiz<<"\t"<<st[k].midterm<<"\t"<<st[k].finalexam<<endl;
        }
    }
}
void displystudentbyID(){
     string searchID;
     for(int k=0; k<currentindex; k++){
     if(st[k].ID=='searchID'){
        cout<<st[k].name<<"\t"<<st[k].ID<<"\t"<< st[k].quiz<<"\t"<<st[k].midterm<<"\t"<<st[k].finalexam<<endl;
     }
    }
}
```

t here ✕ *class activity venthon.cpp ✕

```cpp
void findmaxminavg(){
     float minscore=st[0].totalscore;
     float avg,sum=0;
     float maxscore=st[0].totalscore;
     for(int k=0; k<currentindex; k++)
     {
          if(st[k].totalscore>maxscore)
          {
              maxscore=st[k].totalscore;
          }
          if(st[k].totalscore<minscore)
          {
              minscore=st[k].totalscore;
          }
          sum=sum+st[k].totalscore;
     }
     avg=sum/currentindex;
     cout<<"Minimum of score"<<minscore<<endl;
     cout<<"Maximum of score"<<maxscore<<endl;
     cout<<"Average of score"<<avg<<endl;

}
```

```
rt here X  *class activity venthon.cpp X
 90
 91  }
 92  main()
 93  {
 94      int option;
 95      while(2>0){
 96          disaplaymenu();
 97          cout<<"\n\t Choose your option 1-5: ";
 98          cin>>option;
 99          if(option==1)
100          {
101             add2students();
102          }
103          else if(option==2)
104          {
105              displayallstudents();
106          }
107          else if(option==3)
108          {
109              showstudentgotmaxscore();
110          }
111          else if(option==4)
112          {
113              int ID;
114              cout<<"\nEnter student ID to searchID: ";
115              cin>>ID;
116              displystudentbyID();
117          }
118          else if(option==5)
119          {
120              findmaxminavg();
121          }
122      }
123  }
124
```

```
========================
        Mennu
========================
1.Add 2 students
2.Display information of all student
3.Show student who get max total score
4.Display Information student by Id
5.Find min,max and average this classe

         Choose your option 1-5: 1


Enter student name: Rathana
Enter student ID: 1234
Enter quiz score: 20
Enter midterm score: 20
Enter finalexam score: 20


Enter student name: Bopha
Enter student ID: 2345
Enter quiz score: 30
Enter midterm score: 30
Enter finalexam score: 30
```

```
========================
        Mennu
========================
1.Add 2 students
2.Display information of all student
3.Show student who get max total score
4.Display Information student by Id
5.Find min,max and average this classe

         Choose your option 1-5: 2
Rathana 1234    20      20      20
Bopha   2345    30      30      30

========================
        Mennu
========================
1.Add 2 students
2.Display information of all student
3.Show student who get max total score
4.Display Information student by Id
5.Find min,max and average this classe

         Choose your option 1-5: 3
Bopha   2345    30      30      30
```

```
========================
        Mennu
========================
1.Add 2 students
2.Display information of all student
3.Show student who get max total score
4.Display Information student by Id
5.Find min,max and average this classe

         Choose your option 1-5: 4

Enter student ID to searchID: 1234

========================
        Mennu
========================
1.Add 2 students
2.Display information of all student
3.Show student who get max total score
4.Display Information student by Id
5.Find min,max and average this classe

         Choose your option 1-5: 5
Minimum of score60
Maximum of score90
Average of score75
```