**Ganpat University**

**Faculty of Engineering & Technology**

**Computer Science & Engineering**

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***Sem:- 2***

***Sub: - ESFP-II***

***Enrollment No.:- 23162121027***

***Prac:- 14***

**Practical 14**

***Definition:***

***Complete the code for the object assigned to you to satisfy the following***

specifications.

1. For the solving purpose of given topic practical, you need to create minimum

one class, rest as per your requirement.

2. Declare minimum seven function like addInfo (), displayInfo (), editInfo (),

searchInfo (), deleteInfo (), showDataInascOrder (), showDataIndscOrder ()

and exit () in class.

3. You can you file handling pre-defined class and their related function and

mode.

4. Store information in binary format and perform accordingly.

5. Minimum 1 constructor method should be available in the program, rest as per

your requirement.

6. You must use access specifier for data member and member function

declaration in program.

7. Show all record in ascending and descending order by their id or name.

8. Take minimum 5 data record from the user and display according to the choice

of user category wise. (Minimum seven different options should be there for

displaying information, and if you want to add more choice option as per your

program requirement, you can add it.)

***.Code:-***

#include <iostream>  
#include <fstream>  
#include <string>  
  
using namespace std**;**class Student  
**{**public:  
 string Name**;** int enroll\_no**;** string course**;** int sem**;**public:  
 void input**()  
 {** cout << "Enter name: "**;** cin >> Name**;** cout << "Enter enrollment number: "**;** cin >> enroll\_no**;** cout << "Enter course: "**;** cin >> course**;** cout << "Enter semester: "**;** cin >> sem**;  
 }** void display**()  
 {** cout << "Name: " << Name << endl**;** cout << "Enrollment Number: " << enroll\_no << endl**;** cout << "Course: " << course << endl**;** cout << "Semester: " << sem << endl**;  
 }** string getName**()  
 {** return Name**;  
 }** int getEnrollmentNumber**()  
 {** return enroll\_no**;  
 }** string getCourse**()  
 {** return course**;  
 }** int getSemester**()  
 {** return sem**;  
 }  
};**void addData**()  
{** Student stu**;** stu**.**input**();** ofstream file**(**"data.bin"**,** ios::app | ios::binary**);** if **(**file**.**is\_open**())  
 {** file << stu**.**getName**()** << " " << stu**.**getEnrollmentNumber**()** << " " << stu**.**getCourse**()** << " " << stu**.**getSemester**()** << endl**;** file**.**close**();** cout << "Data added successfully!" << endl**;  
 }** else  
 **{** cout << "Unable to open file." << endl**;  
 }  
}**void viewData**()  
{** ifstream file**(**"data.bin"**,** ios::binary**);** if **(**file**.**is\_open**())  
 {** string name**;** int enroll\_no**;** string course**;** int sem**;** while **(**file >> name >> enroll\_no >> course >> sem**)  
 {** cout << "Name: " << name << ", Enrollment Number: " << enroll\_no << ", Course: " << course << ", Semester: " << sem << endl**;  
 }** file**.**close**();  
 }** else  
 **{** cout << "Unable to open file." << endl**;  
 }  
}**void deleteData**()  
{** string name**;** cout << "Enter name to delete: "**;** cin >> name**;** ifstream file**(**"data.bin"**);** if **(**file**.**is\_open**())  
 {** ofstream temp**(**"temp.bin"**);** string n**;** int enroll\_no**;** string course**;** int sem**;** while **(**file >> n >> enroll\_no >> course >> sem**)  
 {** if **(**n != name**)  
 {** temp << n << " " << enroll\_no << " " << course << " " << sem << endl**;  
 }  
 }** file**.**close**();** temp**.**close**();** remove**(**"data.bin"**);** rename**(**"temp.bin"**,** "data.bin"**);** cout << "Data deleted successfully!" << endl**;  
 }** else  
 **{** cout << "Unable to open file." << endl**;  
 }  
}**void updateData**()  
{** string name**;** cout << "Enter name to update: "**;** cin >> name**;** ifstream file**(**"data.bin"**);** if **(**file**.**is\_open**())  
 {** ofstream temp**(**"temp.bin"**);** string n**;** int enroll\_no**;** string course**;** int sem**;** while **(**file >> n >> enroll\_no >> course >> sem**)  
 {** if **(**n != name**)  
 {** temp << n << " " << enroll\_no << " " << course << " " << sem << endl**;  
 }** else  
 **{** Student stu**;** stu**.**input**();** temp << stu**.**getName**()** << " " << stu**.**getEnrollmentNumber**()** << " " << stu**.**getCourse**()** << " " << stu**.**getSemester**()** << endl**;  
 }  
 }** file**.**close**();** temp**.**close**();** remove**(**"data.bin"**);** rename**(**"temp.bin"**,** "data.bin"**);** cout << "Data updated successfully!" << endl**;  
 }** else  
 **{** cout << "Unable to open file." << endl**;  
 }  
}**void searchData**()  
{** string name**;** cout << "Enter name to search: "**;** cin >> name**;** ifstream file**(**"data.bin"**);** if **(**file**.**is\_open**())  
 {** string n**;** int enroll\_no**;** string course**;** int sem**;** bool found = false**;** while **(**file >> n >> enroll\_no >> course >> sem**)  
 {** if **(**n == name**)  
 {** cout << "Name: " << n << ", Enrollment Number: " << enroll\_no << ", Course: " << course << ", Semester: " << sem << endl**;** found = true**;** break**;  
 }  
 }** file**.**close**();** if **(**!found**)  
 {** cout << "Data not found." << endl**;  
 }  
 }** else  
 **{** cout << "Unable to open file." << endl**;  
 }  
}**int main**() {** int choice**;** do  
 **{** cout << "1. Add data" << endl**;** cout << "2. View data" << endl**;** cout << "3. Delete data" << endl**;** cout << "4. Update data" << endl**;** cout << "5. Search data" << endl**;** cout << "6. Sort data" << endl**;** cout << "0. Exit" << endl**;** cout << "Enter your choice: "**;** cin >> choice**;** Student stu**[**10**];** *// Move the declaration and initialization here* switch **(**choice**)  
 {** case 1:  
 addData**();** break**;** case 2:  
 viewData**();** break**;** case 3:  
 deleteData**();** break**;** case 4:  
 updateData**();** break**;** case 5:  
 searchData**();** break**;** case 6:  
 **{** ifstream file**(**"data.bin"**);** if **(**file**.**is\_open**())  
 {** Student stu**[**10**];** int count = 0**;** *// Read data into array* while **(**count < 10 && file >> stu**[**count**].**Name >> stu**[**count**].**enroll\_no >> stu**[**count**].**course >> stu**[**count**].**sem**)  
 {** count++**;  
 }** file**.**close**();** *// Sort the array based on name* int input**;** cout << "1. Ascending." << endl**;** cout << "2. Descending." << endl**;** cout << "Enter choice: "**;** cin >> input**;** Student temp**;** for **(**int i = 0**;** i < count**;** i++**)  
 {** for **(**int j = i + 1**;** j < count**;** j++**)  
 {** string comp = stu**[**i**].**Name**;** string comp1 = stu**[**j**].**Name**;** if **((**comp**.**compare**(**comp1**)** > 0 && input == 1**)** || **(**comp**.**compare**(**comp1**)** < 0 && input == 2**))  
 {** temp = stu**[**i**];** stu**[**i**]** = stu**[**j**];** stu**[**j**]** = temp**;  
 }  
 }  
 }** *// Display the sorted array* for **(**int i = 0**;** i < count**;** i++**)  
 {** cout << "Name: " << stu**[**i**].**Name << ", Enrollment Number: " << stu**[**i**].**enroll\_no << ", Course: " << stu**[**i**].**course << ", Semester: " << stu**[**i**].**sem << endl**;  
 }  
 }** else  
 **{** cout << "Unable to open file." << endl**;  
 }** break**;  
 }** case 0:  
 cout <<"Exiting..." << endl**;** break**;** default:  
 cout << "Invalid choice. Please try again." << endl**;** break**;  
 }  
 }** while **(**choice != 0**);** return 0**;  
}**

***Output:-***

