DSA Lab 3 - (53457) M. Abdullah

Problem:

Part 1: Create the Student Class.

Create a C++ class named Student with the following private member variables:

Name (string): to store the student's name.

RollNumber (int): to store the student's roll number.

UniversityName (string): to store the university's name.

ClassName (string): to store the class name.

Implement the following constructors within the Student class:

Default Constructor: This constructor should initialize all member variables with default values (e.g., empty strings for names and zero for roll number).

Parametrized Constructor: This constructor should accept values for all four member variables and initialize them accordingly.

Copy Constructor: Implement a copy constructor to create a copy of an existing Student object. This should also display a message indicating that the copy constructor was called.

Create a member function DisplayInfo that displays the student's information (name, roll number, university name, and class name).

Part 2: Main Program

In the main program, create two instances of the Student class:

One using the default constructor.

Another using the parametrized constructor with sample values.

Create a third instance by copying the second instance using the copy constructor.

Display the information for all three instances using the DisplayInfo function.

Ensure that you demonstrate the use of constructors, proper object initialization, and copying an object with the copy constructor.

Problem Solving

Dived right into the code.

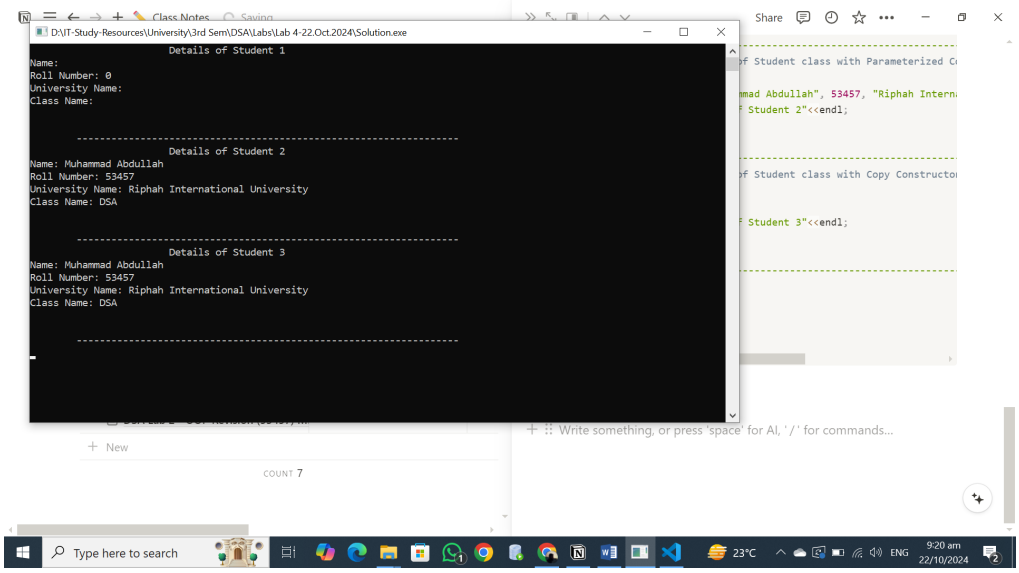
Code

```
#include<iostream>
#include<string>
#include<conio.h>
using namespace std;

// Creating a class
class Student {
    private:
    string name,uniName,className;
    int rollNum;
    public:
    // Default Constructor
    Student(): name (""),rollNum(0),uniName(""),className("") {
    // Parameterized Constructor
    Student(string n, int r, string u, string c): name(n),rollNu
    //Copy Constructor
    Student(Student &s): name(s.name),rollNum(s.rollNum),uniName
    // Display Function of All Details
    void displayDetails() {
        cout << "Name: " << name << endl;
        cout << "Roll Number: " << rollNum << endl;
        cout << "University Name: " << uniName << endl;
        cout << "Class Name: " << className << endl;
    }
};
```

```
int main() {
    // Creating an object of Student class with default Construc
    Student s1;
    cout<<"\t\t\tDetails of Student 1"<<endl;
    s1.displayDetails();
    cout<<"\n\n";
    cout<<"\t-------------------------------------------------
    // Creating an object of Student class with Parameterized Co
    Student* s2;
    s2 = new Student("Muhammad Abdullah", 53457, "Riphah Interna
    cout<<"\t\t\tDetails of Student 2"<<endl;
    s2->displayDetails();
    cout<<"\n\n";
    cout<<"\t-------------------------------------------------
    // Creating an object of Student class with Copy Constructor
    Student* s3;
    s3 = new Student(*s2);
    cout<<"\t\t\tDetails of Student 3"<<endl;
    s3->displayDetails();
    cout<<"\n\n";
    cout<<"\t-------------------------------------------------
    getch();
    return 0;
}
```

Output


D:\IT-Study-Resources\University\3rd Sem\DSA\Labs\Lab 4-22.Oct.2024\Solution.exe
Details of Student 1
Name:
Roll Number: 0
University Name:
Class Name:
Details of Student 2
Name: Muhammad Abdullah
Roll Number: 53457
University Name: Riphah International University
Class Name: DSA
Details of Student 3
Name: Muhammad Abdullah
Roll Number: 53457
University Name: Riphah International University
Class Name: DSA
Share
Write something, or press 'space' for AI, '/' for commands...
New
COUNT 7
Type here to search
23°C
ENG
9:20 am
22/10/2024