



Institute of Geographical Information Systems

CS-212 - Object Oriented Programming LAB

Semester: Fall 2025

Class: SCEE-IGIS - 2024

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LAB 08: Inheritance

Task # 1:

Develop a class **Post** that has following attributes

- **Name:** a string
- **To:** a string that holds the receiver's address
- **StampCost:** a float that holds the value of postal stamp required

The class should include following:

- A constructor that initializes StampCost to 1\$ and To to empty address
- **Read():** a method that reads data member's values from user
- **Print():** a method that displays data member's values on screen
- **TotalCost():** a method that returns stampCost value

Develop another class RegisteredPost that inherits from Post class and has following additional attributes:

- **Weight:** a float that holds the weight of post
- **RegistrationCost:** a float that holds registration charges

Also include following in the class.

- A constructor that initializes weight to 20 gms and RegistrationCost to 10\$
- **Read():** a method that reads data member's values from user
- **Print():** a method that displays data member's values on screen
- **TotalCost():** a method that returns stampCost+RegistrationCost.

Screenshot:

The screenshot shows the Visual Studio Code interface. The Explorer sidebar on the left lists projects and files under 'DEVELOPER'. The 'PROBLEMS' tab is active in the bottom navigation bar. The main editor area displays the code for 'Problem1.cpp'. The terminal at the bottom shows the execution of the program and its output.

```
1 #include <iostream>
2 #include <string>
3 using namespace std;
4
5 class Post {
6 protected:
7     string Name;
8     string To;
9     float StampCost;
10 public:
11     Post() {
12         StampCost = 1;
13         To = "";
14     }
15     void Read() {
16         cout << "Enter Name: ";
17         getline(cin, Name);
18         cout << "Enter Receiver's Address: ";
19         getline(cin, To);
20         cout << "Enter Stamp Cost: ";
21         cin >> StampCost;
22     }
23     void Print() {
24         cout << "Name: " << Name << endl;
25         cout << "Receiver's Address: " << To << endl;
26         cout << "Stamp Cost: $" << StampCost << endl;
27     }
28     float TotalCost() {
29         return StampCost;
30     }
31 };
32
33 class RegisteredPost : public Post {
34 protected:
35     float Weight;
36     float RegistrationCost;
37 public:
38     RegisteredPost() {
39         Weight = 20;
40         RegistrationCost = 10;
41     }
42 }
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
● alinawaz@Alis-MacBook-Air Week-08 % cd "/Users/alinawaz/Developer/OOP/Week-08/" && g++ Problem1.cpp -o Problem1 && "/Users/alinawaz/Developer/OOP/Week-08/\"Problem1
Enter Name: Ali Nawaz
Enter Receiver's Address: Islamabad
Enter Stamp Cost: 2
Enter Weight (in grams): 50
Enter Registration Cost: 12
Name: Ali Nawaz
Receiver's Address: Islamabad
Stamp Cost: $2
Weight: 50 g
Registration Cost: $12
Total Cost: $14
○ alinawaz@Alis-MacBook-Air Week-08 %
```

Ln 17, Col 26 Spaces: 4 UTF-8 ⓘ C++ ⓘ Go Live ⓘ Mac ⓘ

The screenshot shows the terminal output from the previous screenshot. It displays the command to change directory, compile the program, and run it. The output shows the program prompting for user input and then printing the total cost based on the entered values.

```
● alinawaz@Alis-MacBook-Air Week-08 % cd "/Users/alinawaz/Developer/OOP/Week-08/" && g++ Problem1.cpp -o Problem1 && "/Users/alinawaz/Developer/OOP/Week-08/\"Problem1
Enter Name: Ali Nawaz
Enter Receiver's Address: Islamabad
Enter Stamp Cost: 2
Enter Weight (in grams): 50
Enter Registration Cost: 12
Name: Ali Nawaz
Receiver's Address: Islamabad
Stamp Cost: $2
Weight: 50 g
Registration Cost: $12
Total Cost: $14
○ alinawaz@Alis-MacBook-Air Week-08 %
```

Task # 2:

Develop a class **InsuredRegisteredPost** that inherits from **RegisteredPost** class and has additional attribute **AmtInsured** to hold the insured value of post. The class should include following:

- A constructor that initializes **AmtInsured** to 20\$
- **Read()**: a method that reads data member's values from user
- **Print()**: a method that displays data member's values on screen
- **TotalCost()**: a method that returns **StampCost+RegistrationCost+AmtInsured**.

Screenshot:

```
#include <iostream>
#include <string>
using namespace std;

class Post {
protected:
    string Name;
    string To;
    float StampCost;
public:
    Post() {
        StampCost = 1;
        To = "";
    }
    void Read() {
        cout << "Enter Name: ";
        getline(cin, Name);
        cout << "Enter Receiver's Address: ";
        getline(cin, To);
        cout << "Enter Stamp Cost: ";
        cin >> StampCost;
    }
    void Print() {
        cout << "Name: " << Name << endl;
        cout << "Receiver's Address: " << To << endl;
        cout << "Stamp Cost: $" << StampCost << endl;
    }
    float TotalCost() {
        return StampCost;
    }
};

class RegisteredPost : public Post {
protected:
    float Weight;
    float RegistrationCost;
public:
    RegisteredPost() {
        Weight = 0;
        RegistrationCost = 0;
    }
};

int main() {
    RegisteredPost obj;
    obj.Read();
    obj.Print();
    cout << "Total Cost: $" << obj.TotalCost();
}
```

```
alinawaz@Alis-MacBook-Air Week-08 % cd "/Users/alinawaz/Developer/OOP/Week-08" && g++ Problem2.cpp -o Problem2 && "/Users/alinawaz/Developer/OOP/Week-08/Problem2
Enter Name: Ali Nawaz
Enter Receiver's Address: Islamabad
Enter Stamp Cost: 3
Enter Weight (in grams): 60
Enter Registration Cost: 15
Enter Amount Insured: 25
Name: Ali Nawaz
Receiver's Address: Islamabad
Stamp Cost: $3
Weight: 60 g
Registration Cost: $15
Amount Insured: $25
Total Cost: $43
alinawaz@Alis-MacBook-Air Week-08 %
```