



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 a C++ IDE with a project named 'Developer'. The Explorer panel on the left shows a file tree with 'Problem1.cpp' selected. The main editor displays the code for 'Problem1.cpp', which defines a 'Post' class and a 'RegisteredPost' class. The 'Post' class has attributes 'Name', 'To', and 'StampCost', and methods 'Post()', 'Read()', 'Print()', and 'TotalCost()'. The 'RegisteredPost' class inherits from 'Post' and adds attributes 'Weight' and 'RegistrationCost', along with a 'RegisteredPost()' method. The 'main' function in 'Problem1.cpp' calls 'Read()' and 'Print()' methods. The Output panel at the bottom shows the execution results, including the input values and the calculated total cost of \$14.

```
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 };
43
44 int main() {
45     Post p;
46     p.Read();
47     p.Print();
48     float totalCost = p.TotalCost();
49     cout << "Total Cost: $" << totalCost << endl;
50     return 0;
51 }
```

Output:

```
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 %
```

The screenshot shows a terminal window with the following output:

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
● alinawaz@Alis-MacBook-Air Week-08 % cd "/Users/alinawaz/Developer
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
```

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:

```
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() {
```

```
● alinawaz@Alis-MacBook-Air Week-08 % cd "/Users/alinawaz/Developer/
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 %
```