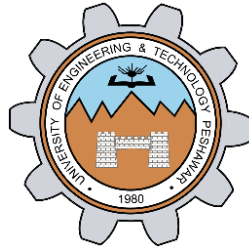


ASSIGNMENT 4



Fall 2022

Object Oriented Programming

Submitted by: **Ali Asghar**

Registration No. : **21PWCSE2059**

Class Section: **C**

“On my honor, as student of University of Engineering and Technology, I have neither given nor received unauthorized assistance on this academic work.”

Submitted to:

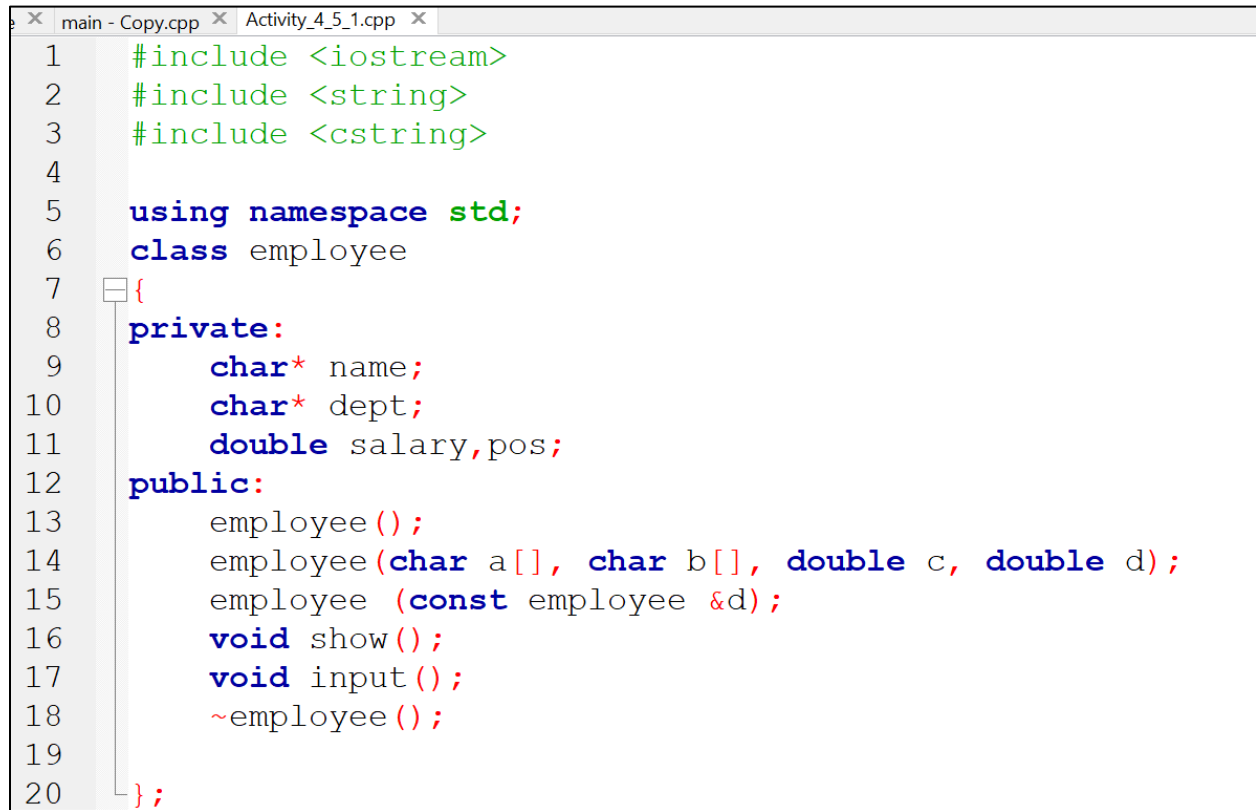
Dr. Nasruminallah

January 20, 2023

Department of Computer Systems Engineering
University of Engineering and Technology, Peshawar

QUESTION # 1:**CODE SCREENSHOTS:**

Here are the screenshots of the code.



```
1  #include <iostream>
2  #include <string>
3  #include <cstring>
4
5  using namespace std;
6  class employee
7  {
8  private:
9      char* name;
10     char* dept;
11     double salary,pos;
12 public:
13     employee();
14     employee(char a[], char b[], double c, double d);
15     employee (const employee &d);
16     void show();
17     void input();
18     ~employee();
19
20 };;
```

```
e x main - Copy.cpp x Activity_4_5_1.cpp x
20     };
21     void employee::show()
22     {
23         cout<<"Name: "<<name<<endl;
24         cout<<"Department: "<<dept<<endl;
25         cout<<"Salary: "<<salary<<endl;
26         cout<<"Period Of Service: "<<pos<<endl<<endl;
27     }
28
29     employee::employee()
30     {
31         name = "Ali Asghar";
32         dept = "DCSE";
33         salary = 100000;
34         pos = 4;
35     }
36
37     employee::employee(char a[], char b[], double c, double d)
38     {
```

```
x main - Copy.cpp x Activity_4_5_1.cpp x
38     {
39         name = a;
40         dept = b;
41         salary = c;
42         pos = d;
43     }
44
45     employee::employee(const employee &d)
46     {
47         int len=strlen(d.name);
48         name= new char[len+1];
49         int len2=strlen(d.dept);
50         dept= new char[len2+1];
51         strcpy(name,d.name);
52         strcpy(dept,d.dept);
53         salary=d.salary;
54         pos=d.pos;
55     }
56
57     void employee::input()
```

```
re x main - Copy.cpp x Activity_4_5_1.cpp x
57 void employee::input()
58 {
59     char n[100],d[100];
60     cout<<"Enter Name: ";
61     cin.getline(n,100);
62     int l1=strlen(n);
63     name = new char[l1];
64     strcpy(name,n);
65     cout<<"Enter Department: ";
66     cin.getline(d,100);
67     int l2=strlen(d);
68     dept= new char[l2];
69     strcpy(dept,d);
70     cout<<"Enter Salary: ";
71     cin>>salary;
72     cout<<"Enter Period of service: ";
73     cin>>pos;
74 }
75
76 employee::~employee()
```

```
main - Copy.cpp x *Activity_4_5_1.cpp x
75
76     employee::~~employee()
77 {
78     delete[] name;
79     delete[] dept;
80 }
81
82 int main()
83 {
84     employee e1;
85     employee e2("Ali Asghar", "CSE", 30000, 4);
86     employee e4;
87     e1.show();
88     e2.show();
89     employee e3(e2);
90     e3.show();
91     e3.input();
92     e3.show();
93     return 0;
94 }
```

OUTPUT (COMPILATION, DEBUGGING & TESTING):

Here is the screenshot of the output of above code.

```
"D:\UN\OOP\Theory\OOP Thoery Assignment 4\Activity_4_5_1.exe"
Name: Ali Asghar
Department: DCSE
Salary: 100000
Period Of Service: 4

Name: Ali Asghar
Department: CSE
Salary: 30000
Period Of Service: 4

Name: Ali Asghar
Department: CSE
Salary: 30000
Period Of Service: 4

Enter Name: Ali Asghar
Enter Department: DCSE
Enter Salary: 34243
Enter Period of service: 2
Name: Ali Asghar
Department: DCSE
Salary: 34243
Period Of Service: 2

Process returned -1073740940 (0xC0000374)   execution time : 13.473 s
Press any key to continue.
```

IMPLEMENTATION STRATEGY:

This code defines a class "employee" which represents an employee with private member variables:

- "name" which is a character pointer and stores the name of the employee.
- "dept" which is a character pointer and stores the department of the employee.
- "salary" which is a double and stores the salary of the employee.
- "pos" which is a double and stores the period of service of the employee.

The class has several member functions:

- The default constructor "employee()" which assigns default values to the private member variables.
- The constructor "employee(char a[], char b[], double c, double d)" takes four parameters and assigns them to the private member variables, respectively.
- The copy constructor "employee (const employee &d)" creates a new employee object that is a copy of the passed employee object. It uses the "strcpy" function to copy the name and department strings, and copies the salary and period of service values. The "input()" function prompts the user to enter the name, department, salary and period of service of an employee and assigns the values to the corresponding private member variables.
- The "show()" function displays the values of the private member variables of the employee object.
- The destructor "~employee()" deallocates the memory that was dynamically allocated for the name and department character pointers.

The main function demonstrates the use of all these member functions by creating three employee objects, one with the default constructor, one with the constructor that takes four parameters, and one with the copy constructor. It then calls the "show()" function to display the values of the private member variables of each object, calls the "input()" function for the third object, and calls the "show()" function again to display the updated values of the private member variables.