

Classes and Objects

OBJECT ORIENTED PROGRAMMING LAB



ASSIGNMENT # 02

Submitted By

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Submitted to

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Questions #1

Code:

```
Q1.cpp X
Q1.cpp > ...
1  #include<iostream>           // including header files
2  using namespace std;
3
4  class test                   // class with test name
5  {
6      private:                 // class member which are private
7
8      int TestCode;
9      string Description;
10     int NoCandidate;
11     int CenterReqd;
12
13     int CALCNTR() //(NoCandidates/100+1) // private function to calculate number of centers
14     {
15         return (NoCandidate/100+1);
16     }
17
18     public:                   // function prototype and are public
19
20     void SCHEDULE(int, string, int); //function to set data
21     void DISPTST();             // function to display data
22 };
23
24 // using function outside the class with the help of scope resolution operator
25 void test::SCHEDULE(int tc , string d , int n_cand )
26 {
27     //setting class members
28     TestCode = tc;
29     Description = d;
30     NoCandidate = n_cand;
31     CenterReqd = CALCNTR();
32 }
33
34
```

```
34
35 void test::DISPTTEST()           // displaying data
36 {
37     cout<<"Test Code: "<<TestCode<<endl;
38     cout<<"Description: "<<Description<<endl;
39     cout<<"No of Candidates: "<<NoCandidate<<endl;
40     cout<<"Center Required: "<<CenterReqd<<endl;
41 }
42
43 int main()
44 {
45     test t1;           //creating object
46
47     t1.SCHEDULE(1 , "I am the Best", 100);   // passing values
48     t1.DISPTTEST();
49 }
50
```

Output:

TERMINAL OUTPUT PROBLEMS DEBUG CONSOLE

Try the new cross-platform PowerShell <https://aka.ms/powershell>

PS D:\OOP_Lab_Assignment> cd "d:\OOP_Lab_Assignment"

PS D:\OOP_Lab_Assignment> & .\"Q1.exe"

Test Code: 1

Description: I am the Best

No of Candidates: 100

Center Required: 2

PS D:\OOP_Lab_Assignment> █

Questions #2

Code:

```
Q2.cpp x
Q2.cpp > ...
1  #include<iostream>           // including header files
2  using namespace std;
3
4  class travel                 // class with travel name
5  {
6      private:                 // class member which are private
7
8      int flight_num;
9      string destination;
10     float distance;
11     float fuel;
12
13     int calfuel()             // private function to calculate fuel
14     {
15         if (distance<=1000)
16         {
17             fuel = 500;
18         }
19         else if (distance>1000 && distance <=2000)
20         {
21             fuel = 1100;
22         }
23         else if (distance >2000)
24         {
25             fuel = 2200;
26         }
27     }
28
29     public:                   // function prototype and are public
30     void feedinfo(int , string , float ); //function to set data
31     void showinfo();          // function to display data
32 };
33
```

```
34 // using function outside the class with the help of scope resolution operator
35 void travel::feedinfo(int fn , string des , float dist)
36 {
37     //setting class members
38     flight_num = fn;
39     destination = des;
40     distance = dist;
41     calfuel();
42 }
43
44 void travel::showinfo()                // displaying data
45 {
46     cout<<"Flight number: "<<flight_num<<endl;
47     cout<<"Destination: "<<destination<<endl;
48     cout<<"Distance: "<<distance<<endl;
49     cout<<"Fuel: "<<fuel<<endl;
50 }
51
52 int main()
53 {
54     travel t;                          //creating object
55     t.feedinfo(1, "Jannat", 300);      // passing values
56     t.showinfo();
57
58     return 0;
59 }
60
```

Output:

```
TERMINAL  OUTPUT  PROBLEMS  DEBUG CONSOLE
Windows PowerShell
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS D:\OOP_Lab_Assignment> cd "d:\OOP_Lab_Assignment"
PS D:\OOP_Lab_Assignment> & .\"Q2.exe"
Flight number: 1
Destination: Jannat
Distance: 300
Fuel: 500
PS D:\OOP_Lab_Assignment> 
```

Question #3

Code:

```
Q3.cpp ×
Q3.cpp > ...
1  #include<iostream>           // including header files
2  using namespace std;
3
4  class book                   // class with book name
5  {
6      private:                 // class member which are private
7          int book_no;
8          char book_title[20];
9          float price;
10         int total_cost(int n) // private function to calculate total cost
11         {
12             return n*price;
13         }
14
15         public:               // function prototype and are public
16         void input(int , char[] , int); //function to get data
17         void purchase(int);
18         void showdata();      // function to display data
19
20     };
21
22     // using function outside the class with the help of scope resolution operator
23     void book::input(int bn , char bt[] , int p)
24     {
25         //setting class members
26         book_no = bn;
27
28         for (int i = 0; i < 20; i++)
29         {
30             book_title[i] = bt[i];
31         }
32
33         price = p;
34     }
35
```

```
36 void book::showdata()                // displaying data
37 {
38     cout<<"Book number: "<<book_no<<endl;
39     cout<<"Book Title: "<<book_title<<endl;
40     cout<<"Price of the book: "<<price<<endl;
41 }
42
43 void book::purchase(int c)            // calculating total cost
44 {
45     cout<<"Total cost: "<<total_cost(c)<<endl;
46 }
47
48 int main()
49 {
50     int n;
51     cout<<"Enter the number of copies: ";
52     cin>>n;                          // taking number of copies from the user
53     book b;                          //creating object
54     b.input(1234 , "Hello World" , 345); // passing values
55     b.showdata();
56     b.purchase(n);
57
58     return 0;
59 }
60
```

Output:

```
TERMINAL  OUTPUT  PROBLEMS  DEBUG CONSOLE
Windows PowerShell
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS D:\OOP_Lab_Assignment> cd "d:\OOP_Lab_Assignment"
PS D:\OOP_Lab_Assignment> & .\Q3.exe
Enter the number of copies: 2
Book number: 1234
Book Title: Hello World
Price of the book: 345
Total cost: 690
PS D:\OOP_Lab_Assignment> █
```

Question #4

Code:

```
Q4.cpp X
Q4.cpp > ...
1  #include<iostream>           // including header files
2  using namespace std;
3
4  class report                 // class with report name
5  {
6      private:                 // class member which are private
7
8      int adno;
9      char name[20];
10     float marks[5];
11     float average;
12     float getavg()            // private function to calculate average
13     {
14         float sum = 0;
15         for (int i = 0; i < 5; i++)
16         {
17             sum +=marks[i];
18         }
19
20         return sum / 5;
21     }
22
23     public:                   // function prototype and are public
24
25     void readinfo(int , char[] , float[]);    //function to set data
26     void displayinfo();                       // function to display data
27
28 };
29
30
```



```

30
31 // using function outside the class with the help of scope resolution operator
32 void report::readinfo(int an , char n[] , float m[])
33 {
34     //setting class members
35     adno = an;
36
37     for( int i = 0 ; i < 20 ; i++ )
38     {
39         name[i] = n[i];
40     }
41
42     for (int j = 0 ; j < 5 ; j++)
43     {
44         marks[j] = m[j];
45     }
46
47     average = getavg();
48
49 }
50
51
52 void report::displayinfo() // displaying data
53 {
54     cout<<"Addmision number: "<<adno<<endl;
55     cout<<"Name: "<<name<<endl;
56     cout<<"Marks:";
57     for (int s = 0; s < 5; s++)
58     {
59         cout<<marks[s]<<" ";
60     }
61     cout<<endl;
62     cout<<"Average: "<<average<<endl;
63 }
64

```

```

65 int main()
66 {
67     report r; //creating object
68     float test[5];
69     cout<<"Enter the marks of 5 subjects"<<endl;
70     for (int i = 0; i < 5; i++) // taking marks from the user
71     {
72         cin>>test[i];
73     }
74
75     r.readinfo(12 , "Saad", test ); // passing values
76     r.displayinfo();
77 }

```

Output:

```
TERMINAL  OUTPUT  PROBLEMS  DEBUG CONSOLE
Windows PowerShell
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS D:\OOP_Lab_Assignment> cd "d:\OOP_Lab_Assignment"
PS D:\OOP_Lab_Assignment> & .\"Q4.exe"
Enter the marks of 5 subjects
35.4
45.3
44.7
50.0
38.9
Addmision number: 12
Name: Saad
Marks:35.4  45.3  44.7  50  38.9
Average: 42.86
PS D:\OOP_Lab_Assignment> |
```

Question #5

Code:

```
Q5.cpp ×
Q5.cpp > ...
1  #include<iostream>           // including header files
2  using namespace std;
3
4  class Time                   // class with time name
5  {
6      private:                 // class member which are private
7          int hour;
8          int minutes;
9
10     public:                   // function prototypes and are public
11         void settime(int , int); //function to set time
12         void showtime();         // function to display time
13         Time time_sum(Time);     // function to calculate sum of time
14 };
15
16 // using function outside the class with the help of scope resolution operator
17 void Time::settime(int h , int m)
18 {
19     //setting class members
20     hour = h;
21     minutes = m;
22 }
23
24 void Time::showtime()         // displaying data
25 {
26     cout<<hour<<":"<<minutes<<endl;
27 }
28
29 Time Time:: time_sum(Time t2) // calculating the sum of 2 times
30 {
31     Time t4;
32     t4.hour = hour + t2.hour;
33     t4.minutes = minutes + t2.minutes;
34
35     return t4;
36 }
37
```

```
38  int main()
39  {
40      Time t1 , t2 , t3;           //creating objects
41
42
43      // passing values
44      t1.settime(12 , 30);
45      t2.settime(01 , 20);
46      t1.showtime();
47      t2.showtime();
48
49      t3 = t1.time_sum(t2);
50      t3.showtime();
51
52  }
53
```

Output:

```
TERMINAL  OUTPUT  PROBLEMS  DEBUG CONSOLE
Windows PowerShell
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PS D:\OOP_Lab_Assignment> cd "d:\OOP_Lab_Assignment"
PS D:\OOP_Lab_Assignment> & .\"Q5.exe"
12:30
1:20
13:50
PS D:\OOP_Lab_Assignment> █
```