

Object Oriented Programming

Lab task #7

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Submitted to
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(Computer Instructor)

1. Create a structure called employee that contains two members: an employee number (type int) and the employee's compensation (in dollars; type float). Ask the user to fill in this data for three employees, store it in three variables of type struct employee, and then display the information for each employee.

Code:

```
Q1.cpp  X
Q1.cpp > ...
1  #include<iostream>
2  using namespace std;
3
4  struct employee
5  {
6      int employee_number;
7      float employee_compensation;
8  };
9
10
11 int main()
12 {
13     employee e1,e2,e3;
14     cout<<"Enter Number for Employee #1 "<<endl;
15     cin>>e1.employee_number;
16     cout<<"Enter Compensation in dollars for Employee #1 "<<endl;
17     cin>>e1.employee_compensation;
18     cout<<"Enter Number for Employee #2 "<<endl;
19     cin>>e2.employee_number;
20     cout<<"Enter Compensation in dollars for Employee #2 "<<endl;
21     cin>>e2.employee_compensation;
22     cout<<"Enter Number for Employee #3 "<<endl;
23     cin>>e3.employee_number;
24     cout<<"Enter Compensation in dollars for Employee #3 "<<endl;
25     cin>>e3.employee_compensation;
26
27     cout<<"-----"<<endl;
28     cout<<"First Employee's number is: "<<e1.employee_number<<"\n";
29     cout<<"And its Compensation is: "<<e1.employee_compensation<<endl;
30     cout<<"-----"<<endl;
31     cout<<"Second Employee's number is: "<<e2.employee_number<<"\n";
32     cout<<"And its Compensation is: "<<e2.employee_compensation<<endl;
33     cout<<"-----"<<endl;
34     cout<<"Third Employee's number is: "<<e3.employee_number<<"\n";
35     cout<<"And its Compensation is: "<<e3.employee_compensation<<endl;
36     cout<<"-----"<<endl;
37 }
```

Output:

```
TERMINAL  OUTPUT  PROBLEMS  DEBUG CONSOLE

Windows PowerShell
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PS C:\Users\saada\Desktop\New folder> cd "c:\Users\saada\Desktop\New folder"
PS C:\Users\saada\Desktop\New folder> & .\Q1.exe
Enter Number for Employee #1
123
Enter Compensation in dollars for Employee #1
105
Enter Number for Employee #2
456
Enter Compensation in dollars for Employee #2
115
Enter Number for Employee #3
789
Enter Compensation in dollars for Employee #3
125
-----
First Employee's number is: 123
And its Compensation is: 105
-----
Second Employee's number is: 456
And its Compensation is: 115
-----
Third Employee's number is: 789
And its Compensation is: 125
-----
PS C:\Users\saada\Desktop\New folder> █
```

2. Create a structure called time. Its three members, all type int, should be called hours, minutes, and seconds. Write a program that prompts the user to enter a time value in hours, minutes, and seconds. The program should then store the time in a variable of type struct time, and finally print out the total number of seconds.

Code:

```
Q2.cpp  X
Q2.cpp > ...
1  #include<iostream>
2  using namespace std;
3
4  struct time1
5  {
6      int hours;
7      int minutes;
8      int seconds;
9      int hours_in_seconds;
10     int minutes_in_seconds;
11     int t_seconds;
12
13 };
14
15
16 int main()
17 {
18     time1 h,m,s;
19
20     cout<<"Enter hours: "<<endl;
21     cin>>h.hours;
22     cout<<"Enter minutes: "<<endl;
23     cin>>m.minutes;
24     cout<<"Enter seconds: "<<endl;
25     cin>>s.seconds;
26
27     h.hours_in_seconds= h.hours*3600;
28     m.minutes_in_seconds = m.minutes*60;
29     s.t_seconds = h.hours_in_seconds + m.minutes_in_seconds + s.seconds;
30
31     cout<<"Total number of seconds are: "<<s.t_seconds<<"s"<<endl;
32
33 }
```

Output:

```
TERMINAL  OUTPUT  PROBLEMS  DEBUG CONSOLE
PS C:\Users\saada\Desktop\New folder> cd "c:\Users\saada\Desktop\New folder"
PS C:\Users\saada\Desktop\New folder> & .\"Q2.exe"
Enter hours:
12
Enter minutes:
30
Enter seconds:
45
Total number of seconds are: 45045s
PS C:\Users\saada\Desktop\New folder> █
```

3. Use the time structure from above question and write a program that obtains two time values from the user, stores them in struct time variables, converts each one to seconds (type int), adds these quantities, converts the result back to hours, minutes- seconds, stores the result in a time structure, and finally displays the result in 12:59:59 format

Code:

```
Q3.cpp X
Q3.cpp > time1
1  #include<iostream>
2  using namespace std;
3
4  struct time1
5  {
6      int hours;
7      int minutes;
8      int sec;
9      int hours_s;
10     int minutes_s;
11     int t_sec;
12 };
13
14
15 int main()
16 {
17     time1 t1,t2,t3;
18     cout<<"-----"<<endl;
19     cout<<"Enter hours of first time: ";
20     cin>>t1.hours;
21     cout<<"Enter minutes of first time: ";
22     cin>>t1.minutes;
23     cout<<"Enter seconds of first time: ";
24     cin>>t1.sec;
25     cout<<"-----"<<endl;
26     cout<<"Enter hours of second time: ";
27     cin>>t2.hours;
28     cout<<"Enter minutes of second time: ";
29     cin>>t2.minutes;
30     cout<<"Enter seconds of second time: ";
31     cin>>t2.sec;
32
33     t1.hours_s= t1.hours*3600;
34     t1.minutes_s = t1.minutes*60;
35     t1.t_sec = t1.hours_s + t1.minutes_s + t1.sec;
36
```

```

32
33     t1.hours_s= t1.hours*3600;
34     t1.minutes_s = t1.minutes*60;
35     t1.t_sec = t1.hours_s + t1.minutes_s + t1.sec;
36
37     t2.hours_s= t2.hours*3600;
38     t2.minutes_s = t2.minutes*60;
39     t2.t_sec = t2.hours_s + t2.minutes_s + t2.sec;
40
41     t3.t_sec = t1.t_sec + t2.t_sec;
42
43     t3.minutes = t3.t_sec/60;
44     t3.hours = t3.minutes/60;
45
46     cout<< int(t3.hours)<<"h:"<<int(t3.minutes%60) <<"m:"<<int(t3.t_sec%60)<<"s"<<endl;
47     cout<<"-----"<<endl;
48 }

```

Output:

```

TERMINAL  OUTPUT  PROBLEMS  DEBUG CONSOLE

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PS C:\Users\saada\Desktop\New folder> cd "c:\Users\saada\Desktop\New folder"
PS C:\Users\saada\Desktop\New folder> & .\"Q3.exe"
-----
Enter hours of first time: 1
Enter minutes of first time: 0
Enter seconds of first time: 0
-----
Enter hours of second time: 1
Enter minutes of second time: 0
Enter seconds of second time: 0
2h:0m:0s
-----
PS C:\Users\saada\Desktop\New folder> 

```

4. Create a structure called Volume that uses three variables of type Distance to model the volume of a room. Initialize a variable of type Volume to specific dimensions, and then calculate the volume it represents, and print out the result. To calculate the volume, convert each dimension from a Distance variable to a variable of type float representing feet and fractions of a foot, and then multiply the resulting three numbers.

Answer: This question is skipped on Instructor's desire.

5. A phone number, such as (212) 767-8900, can be thought of as having three parts: the area code (212), the exchange (767), and the number (8900). Write a program that uses a structure to store these three parts of a phone number separately. Call the structure phone. Create two structure variables of type phone. Initialize one, and have the user input a number for the other one. Then display both numbers.

Code:

```
Q5.cpp X
Q5.cpp > ...
1  #include<iostream>
2  using namespace std;
3
4  struct phone
5  {
6      int area_code;
7      int exchange;
8      int number;
9  };
10
11
12  int main()
13  {
14      phone p1,p2;
15
16      cout<<"Enter your area code, exchange, and number: ";
17      cin >> p2.area_code >> p2.exchange >> p2.number;
18
19      p1.area_code = 212;
20      p1.exchange = 767;
21      p1.number = 8900;
22
23      cout<<"My number is ("<<p1.area_code<<") "<<p1.exchange<<"- "<<p1.number<<endl;
24      cout<<"Your number is ("<<p2.area_code<<") "<<p2.exchange<<"- "<<p2.number<<endl;
25
26  }
```

Output:

```
TERMINAL  OUTPUT  PROBLEMS  DEBUG CONSOLE

Windows PowerShell
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PS C:\Users\saada\Desktop\New folder> cd "c:\Users\saada\Desktop\New folder"
PS C:\Users\saada\Desktop\New folder> & .\Q5.exe
Enter your area code, exchange, and number: 435
123 5869
My number is (212) 767-8900
Your number is (435) 123-5869
PS C:\Users\saada\Desktop\New folder> █
```