DSA LAB - 2

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Question 1:

Code:

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

int main(){
    float amount, income_tax, state_tax, securtiy_tax, medicare_tax, pension_plan;
    cout << "\nEnter Gross payment amount : ";
    cin >> amount;
    //displays individual tax deductions
    cout << "\n----------------------------------------------------------------------------\n";
    cout << "Taxes\t\tDeduction amount\n" << endl;
    cout << "Income tax\t\t" << 0.10*amount << endl;
    cout << "State tax\t\t" << 0.03*amount << endl;
    cout << "Social securtiy tax\t" << 0.02*amount << endl;
    cout << "Medicare tax\t\t" << 0.0278*amount << endl;
    cout << "Pension plan\t\t" << 0.06*amount << endl;
    cout << "\n\nTotal amount deduced as tax : " << 0.10*amount+0.03*amount+0.02*amount+0.0278*amount+0.06*amount << endl;
    //calculate total payment amount after tax deductions;
    cout << "The total payment to the worker after following tax deductions : ";
    cout << amount - (0.10*amount) - (0.03*amount) - (0.02*amount) - (0.0278*amount) - (0.06*amount) << endl;
    cout << "----------------------------------------------------------------------------\n\n";
    return 0;
}
```

Code:

```
1   #include<iostream>
2   using namespace std;
3
4   int main(){
5       float amount, income_tax, state_tax, securtiy_tax, medicare_tax, pension_plan;
6       cout << "\nEnter Gross payment amount : ";
7       cin >> amount;
8       //displays individual tax deductions
9       cout << "\n----------------------------------------------------------------------------\n";
10      cout << "Taxes\t\tDeduction amount\n" << endl;
11      cout << "Income tax\t\t" << 0.10*amount << endl;
12      cout << "State tax\t\t" << 0.03*amount << endl;
13      cout << "Social securtiy tax\t" << 0.02*amount << endl;
14      cout << "Medicare tax\t\t" << 0.0278*amount << endl;
15      cout << "Pension plan\t\t" << 0.06*amount << endl;
16      cout << "\n\nTotal amount deduced as tax : " << 0.10*amount+0.03*amount+0.02*amount+0.0278*amount+0.06*amount << endl;
17      //calculate total payment amount after tax deductions;
18      cout << "The total payment to the worker after following tax deductions : ";
19      cout << amount - (0.10*amount) - (0.03*amount) - (0.02*amount) - (0.0278*amount) - (0.06*amount) << endl;
20      cout << "----------------------------------------------------------------------------\n\n";
21      return 0;
22  }
```

Input & Output:

```
PS C:\Users\DELL\OneDrive\Desktop\DSA LAB\LAB 2> cd "c:\Users\DELL\OneDrive\Desktop\DSA LAB\LAB 2\" ; if ($?) { g++ 1.cpp -o 1 } ; if ($?) { .\1 }

Enter Gross payment amount : 1000

----------------------------------------------------------------------
Taxes           Deduction amount

Income tax          100
State tax           30
Social securtiy tax 20
Medicare tax        27.8
Pension plan        60


Total amount deduced as tax : 237.8
The total payment to the worker after following tax deductions : 762.2
----------------------------------------------------------------------

PS C:\Users\DELL\OneDrive\Desktop\DSA LAB\LAB 2>
```

Question 2:

Code:

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

void cprint(int c){
    //prints C's in pattern
    for(int a = 0; a < c; a++)cout << "C";
}
void plusprint(int plus){
    //prints +'s in pattern
    for(int a = 0; a < plus; a++)cout << "+";
}
int main(){
    int c, plus;
    cout << "\n";
    for(int i = 1; i <= 6; i++){
        if(i==1 || i==6) c = 9, plus = 2;
        if(i==2 || i==5) c = 2, plus = 2;
        if(i==3 || i==4) c = 2, plus = 14;
        //C's printing function
        cprint(c);
        //prints identation or spacing
        if(i==2||i==5)      cout << "\t    ";
        else if(i==1 || i==6)  cout << "   ";
        else            cout << "\t";
        //+'s printing function
        plusprint(plus);
        //prints identation or spacing
        if(i==3 || i==4)    cout << "\t";
        else            cout << "\t    ";
        //+'s printitng function for second time
        plusprint(plus);
        cout << endl;
    }
    cout << "\n";
    return 0;
}
```

Code:

```cpp
1    #include<iostream>
2    using namespace std;
3
4    void cprint(int c){
5        //prints C's in pattern
6        for(int a = 0; a < c; a++)cout << "C";
7    }
8    void plusprint(int plus){
9        //prints +'s in pattern
10       for(int a = 0; a < plus; a++)cout << "+";
11   }
12   int main(){
13       int c, plus;
14       cout << "\n";
15       for(int i = 1; i <= 6; i++){
16           if(i==1 || i==6) c = 9, plus = 2;
17           if(i==2 || i==5) c = 2, plus = 2;
18           if(i==3 || i==4) c = 2, plus = 14;
19           //C's printing function
20           cprint(c);
21           //prints identation or spacing
22           if(i==2||i==5)           cout << "\t    ";
23           else if(i==1 || i==6)    cout << "   ";
24           else                     cout << "\t";
25           //+'s printing function
26           plusprint(plus);
27           //prints identation or spacing
28           if(i==3 || i==4)         cout << "\t";
29           else                     cout << "\t    ";
30           //+'s printitng function for second time
31           plusprint(plus);
32           cout << endl;
33       }
34       cout << "\n";
35       return 0;
36   }
```

Input & Output:

```
PS C:\Users\DELL\OneDrive\Desktop\DSA LAB\LAB 2> cd "c:\Users\DELL\OneDrive\Desktop\DSA LAB\LAB 2\" ; if ($?) { g++ 2.cpp -o 2 } ; if ($?) { .\2 }

CCCCCCCCC      ++                ++
CC             ++                ++
CC        +++++++++++++++  ++++++++++++++
CC        +++++++++++++++  ++++++++++++++
CC             ++                ++
CCCCCCCCC      ++                ++

PS C:\Users\DELL\OneDrive\Desktop\DSA LAB\LAB 2> █
```

Question 3:

Code:

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

int main(){
    float fahrenheit, celsius;
    cout << "\nEnter temperature in Fahrenheit : ";
    //Read fahrehheit temperature from user
    cin >> fahrenheit;
    //Converts fahrenheit into celsius
    celsius = (5.0 / 9.0) * (fahrenheit-32);
    //Displays temperature in celsius
    cout << "Temperature in Celsius : " << celsius << "\n\n";
    return 0;
}
```

Code:

```
1    #include<iostream>
2    using namespace std;
3
4    int main(){
5        float fahrenheit, celsius;
6        cout << "\nEnter temperature in Fahrenheit : ";
7        //Read fahrehheit temperature from user
8        cin >> fahrenheit;
9        //Converts fahrenheit into celsius
10       celsius = (5.0 / 9.0) * (fahrenheit-32);
11       //Displays temperature in celsius
12       cout << "Temperature in Celsius : " << celsius << "\n\n";
13       return 0;
14   }
```

Input & Output:

```
PS C:\Users\DELL\OneDrive\Desktop\DSA LAB\LAB 2> cd "c:\Users\DELL\OneDrive\Desktop\DSA LAB\LAB 2\" ; if ($?) { g++ 3.cpp -o 3 } ; if ($?) { .\3 }

Enter temperature in Fahrenheit : 98.6
Temperature in Celsius : 37

PS C:\Users\DELL\OneDrive\Desktop\DSA LAB\LAB 2> cd "c:\Users\DELL\OneDrive\Desktop\DSA LAB\LAB 2\" ; if ($?) { g++ 3.cpp -o 3 } ; if ($?) { .\3 }

Enter temperature in Fahrenheit : 100
Temperature in Celsius : 37.7778

PS C:\Users\DELL\OneDrive\Desktop\DSA LAB\LAB 2>
```