

Pre-Assignment (Day 2): Advanced Data Structures

1. Write a program in c++ using increment(Post and Pre) and decrement operators

Sol:

```
#include<iostream.h>
#include<conio.h>
void main()
{
    int i = 11; //Initializing value of i
    clrscr();
    cout<<"\nOriginal Value of 'i': "<<i; //display initial value of i
    cout<<"\n\nValue of '++i'(Pre-Increment): "<<++i; //current value of i is
incremented by 1 at current statement, i=12
    cout<<"\n\tCurrent Value of 'i': "<<i;
    cout<<"\n\nValue of '--i'(Pre-Decrement): "<<--i; //current value of i which
is 12 is decremented by 1 at current statement, i=11
    cout<<"\n\tCurrent Value of 'i': "<<i;
    cout<<"\n\nValue of 'i++'(Post-Increment): "<<i++; //current value of i
which is now 11 remains same at current statement and will increment at next
statement
    cout<<"\n\tCurrent Value of 'i': "<<i;
    cout<<"\n\nValue of 'i--'(Post-Decrement): "<<i--; //current value of i which
is now 12 remains same at current statement and will decrement at next statement
    cout<<"\n\tCurrent Value of 'i': "<<i;
    getch();
}
```

O/p:

```
DOS BOX  DOSBox 0.74, Cpu speed: max 100% cycles, Frameskip 0, Program: TC

Original Value of 'i': 11

Value of '++i' (Pre-Increment): 12
Current Value of 'i': 12

Value of '--i' (Pre-Decrement): 11
Current Value of 'i': 11

Value of 'i++' (Post-Increment): 11
Current Value of 'i': 12

Value of 'i--' (Post-Decrement): 12
Current Value of 'i': 11_
```

2. Write a program in c++ using all flow control statements (if, else, for , while and switch)

Sol:

```
#include<iostream.h>
#include<conio.h>
void main()
{
    int i;
    char ch;
    char* str = "1111";
    char* pwd = NULL;
    clrscr();
    do
    {
        cout<<"\nEnter Password: ";
        cin>>pwd;
        if(*pwd == *str)
        {
            int ch2;
            cout<<"Authentication Successful..";
            cout<<"\n1. Print 1-10 Numbers";
            cout<<"\n2. Print Even Numbers From 1 To 10";
            cout<<"\nEnter Choice: ";
            cin>>ch2;
            switch(ch2)
            {
                case 1:
                    for(i = 1; i <= 10; i++)
                        cout<<i<<" ";
                    break;
                case 2:
                    for(i = 1; i <=10 ; i++)
                    {
                        if(i%2 == 0)
                            cout<<i<<" ";
                    }
                    break;
                default:
                    cout<<"\nInvalid Choice...";
                    break;
            }
            cout<<"\nTry Again ??? (Press y/Y: YES or n/N: NO) ";
            cin>>ch;
        }
        else
        {
            cout<<"Authentication Failure...";
            cout<<"\nTry Again ??? (Press y/Y: YES or n/N: NO) ";
            cin>>ch;
        }
    }while(ch == 'y' || ch == 'Y');
}
```

O/p:

```
DOSBox 0.74, Cpu speed: max 100% cycles, Frameskip 0, Program: TC

Enter Password: 234
Authentication Failure...
Try Again ??? (Press y/Y: YES or n/N: NO) y

Enter Password: 1111
Authentication Successful..
1. Print 1-10 Numbers
2. Print Even Numbers From 1 To 10
Enter Choice: 1
1 2 3 4 5 6 7 8 9 10
Try Again ??? (Press y/Y: YES or n/N: NO) y

Enter Password: 1111
Authentication Successful..
1. Print 1-10 Numbers
2. Print Even Numbers From 1 To 10
Enter Choice: 2
2 4 6 8 10
Try Again ??? (Press y/Y: YES or n/N: NO) n_
```

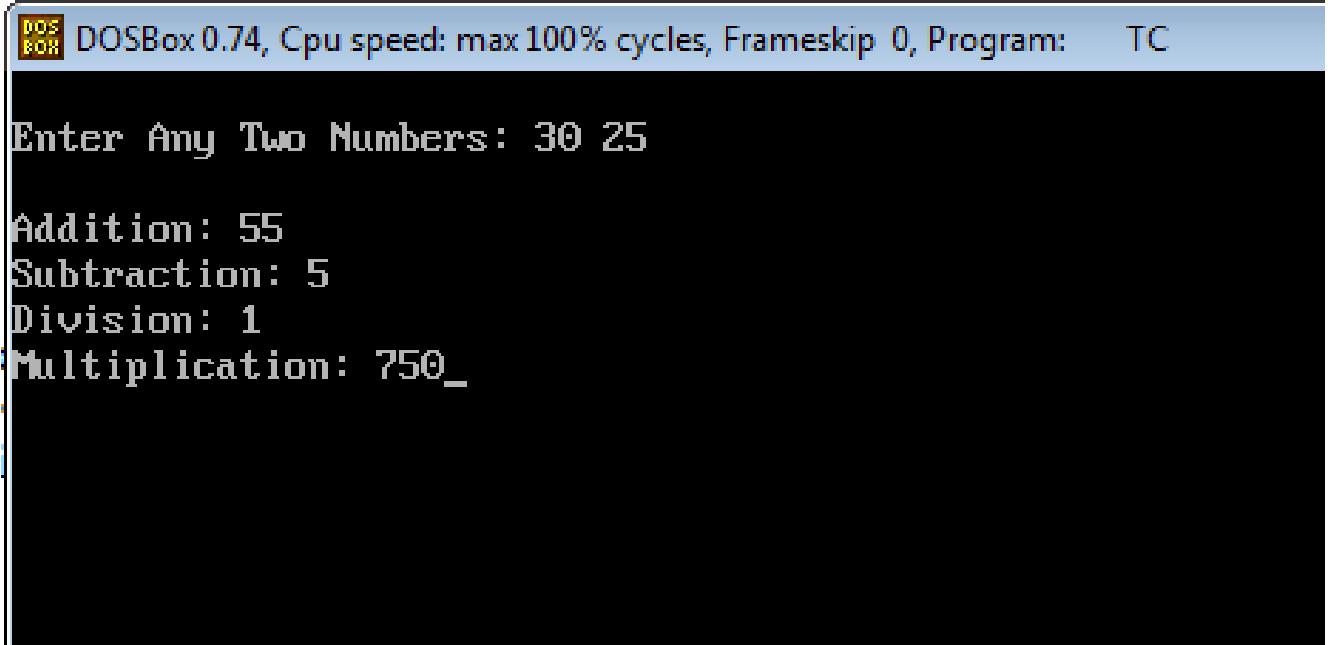
3. Write a program using functions which accept two integers as an argument and return its sum, sub, divide and multiply. Call all the functions from main()

Sol:

```
#include<iostream.h>
#include<conio.h>
int add(int a, int b)
{
    int c;
    c = a + b;
    return c;
}
int sub(int a, int b)
{
    int c;
    c = a - b;
    return c;
}
int div(int a, int b)
{
    int c;
    c = a / b;
    return c;
}
int mul(int a, int b)
{
    int c;
    c = a * b;
    return c;
}
void main()
{
    int a,b;
    clrscr();
    cout<<"\nEnter Any Two Numbers: ";
    cin>>a>>b;
    cout<<"\nAddition: "<<add(a,b);
    cout<<"\nSubtraction: "<<sub(a,b);
    cout<<"\nDivision: "<<div(a,b);
```

```
    cout<<"\nMultiplication: "<<mul(a,b);  
    getch();  
}
```

O/p:



DOSBox 0.74, Cpu speed: max 100% cycles, Frameskip 0, Program: TC

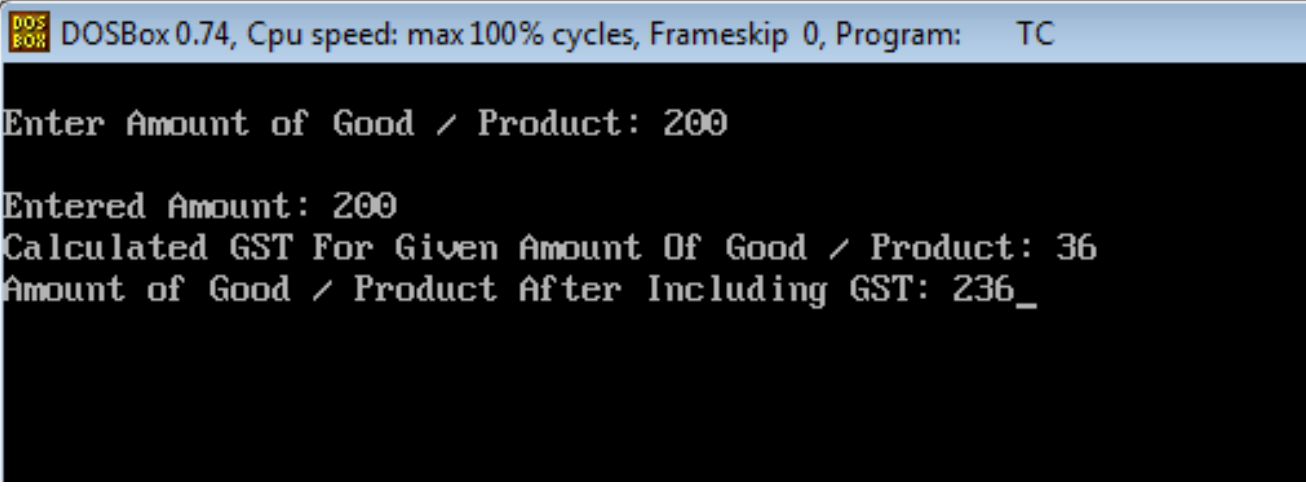
```
Enter Any Two Numbers: 30 25  
  
Addition: 55  
Subtraction: 5  
Division: 1  
Multiplication: 750_
```

4. Write a program which input value of good, rate(18%) from user and calculate Goods and Service Tax

Sol:

```
#include<iostream.h>
#include<conio.h>
void main()
{
    float amt,gst,final_amt;
    float rate = 18;
    clrscr();
    cout<<"\nEnter Amount of Good / Product: ";
    cin>>amt;
    gst = (amt * rate) / 100;
    cout<<"\nEntered Amount: "<<amt;
    cout<<"\nCalculated GST For Given Amount Of Good / Product: "<<gst;
    final_amt = amt + gst;
    cout<<"\nAmount of Good / Product After Including GST: "<<final_amt;
    getch();
}
```

O/p:



```
DOSBox 0.74, Cpu speed: max 100% cycles, Frameskip 0, Program: TC

Enter Amount of Good / Product: 200

Entered Amount: 200
Calculated GST For Given Amount Of Good / Product: 36
Amount of Good / Product After Including GST: 236_
```