

Assignment : 2

Subject : ADVANCED DATA STRUCTURE

Bordekar Jayesh A.
M. Tech (ACDS)
PRN : 170847980008

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Pre -Assignment:

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

Program :**INCREMENT OPERATORS :~**

```
#include <iostream>
using std::cout;
using std::endl;

int main()
{
    int b;

    //Postincrement
    b = 5;
    cout << "Value of b : " << b << endl;
    cout << "Postincrement : " << b++ << endl;
    cout << "After Postincrement Value of b : " << b << endl;

    cout << endl;

    //Preincrement
    b = 5;
    cout << "Value of b : " << b << endl;
    cout << "Preincrement : " << ++b << endl;
    cout << "After Preincrement Value of b : " << b << endl;
    return 0;
}
```

Output :~**Result...**

CPU Time: 0.00 sec(s), Memory: 1764 kilobyte(s)

compiled and executed in 1.662 sec(s)

```
Value of b : 5
Postincrement : 5
After Postincrement Value of b : 6

Value of b : 5
Preincrement : 6
After Preincrement Value of b : 6
```

DECREMENT OPERATORS :**Program :**

```
#include <iostream>
using std::cout;
using std::endl;

int main()
{
    int b;

    // Postdecrement
    b = 5;
    cout << "Value of b : " << b << endl;
    cout << "Postdecrement : " << b-- << endl;
    cout << "After Postdecrement Value of b : " << b << endl;

    cout << endl;
```

// *Predecrement*

b = 5;

cout << "Value of b : " << b << endl;

cout << "Predecrement : " << --b << endl;

cout << "After Predecrement Value of b : " << b << endl;

return 0;

}

Output :

Result...

CPU Time: 0.00 sec(s), Memory: 1808 kilobyte(s)

compiled and executed in 1.074 sec(s)

```
Value of b : 5
Postdecrement : 5
After Postdecrement Value of b : 4

Value of b : 5
Predecrement : 4
After Predecrement Value of b : 4|
```

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

Program :

```
#include <iostream>
```

```
using namespace std;
```

```
int main()
```

```
{
```

```
    int num,dow;
```

```
    cout<<"Enter Any Number for control Flow Operations :";
```

```
    cin>>num;
```

```
    cout<<"\n ***** IF ELSE CONTROL FLOW *****\n";
```

```
    if(num>0)
```

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{

```
cout<<"\n [IF] Entered Number is "<<num;

}

else

{

    cout<<"\n [ELSE] Entered number is below 0 is"<<num;

}


cout<<"\n\n ***** FOR CONTROL FLOW ***** \n";

for(int i=1;i<=num;i++)

{

    cout<<"\n\t"<<i;

}


cout<<"\n\n ***** WHILE CONTROL FLOW ***** \n";

while(num>0)

{

    cout<<"\n\n number is greater than 0 which is : "<<num<<"\n\n";

    break;

}


cout<<"\n ***** SWITCH CONTROL FLOW ***** \n\n";

int ch;
```

```
cout<<"Enter Number of Week's Day (1-7): ";  
  
cin>>dow;  
  
switch(dow)  
{  
  
    case 1 : cout<<"\nSunday";  
        break;  
  
    case 2 : cout<<"\nMonday";  
        break;  
  
    case 3 : cout<<"\nTuesday";  
        break;  
  
    case 4 : cout<<"\nWednesday";  
        break;  
  
    case 5 : cout<<"\nThursday";  
        break;  
  
    case 6 : cout<<"\nFriday";  
        break;  
  
    case 7 : cout<<"\nSaturday";  
        break;  
  
    default : cout<<"\nWrong number of day";  
        break;  
  
}  
  
return 0;  
  
}
```


Output :~**Result...***compiled and executed in 8.262 sec(s)*

```
Enter Any Number for control Flow Operations : 4

***** IF ELSE CONTROL FLOW *****

[IF] Entered Number is 4

***** FOR CONTROL FLOW *****

1
2
3
4

***** WHILE CONTROL FLOW *****

number is greater than 0 which is : 4

***** SWITCH CONTROL FLOW *****

Enter Number of Week's Day (1-7): 5

Thursday|
```

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()

Program :

```
#include<iostream>

using namespace std;

int main()

{

    int x,y,z,mul(int,int);

    cout<<"\n Enter the value of x,y : ";

    cin>>x>>y;
```

```
z=mul(x,y);

cout<<"\n Multiplied value is : "<<z;

return 0;

}

int mul(int p,int q)
{

    int s,a,add(int,int);

    s=p*q;

    a=add(p,q);

    cout<<"\n Addition is : "<<a;

    return(s);

}

int add(int l, int m)
{

    int b,c,sub(int,int);

    b=l+m;

    c=sub(l,m);

    cout<<"\n Subtraction is : "<<c;

    return(b);

}

int sub(int e, int f)
{

    int d;

    d=e-f;
```

```
    return(d);  
}
```

Output :

Result...

compiled and executed in 8.696 sec(s)

```
Enter the value of x,y :  
20  
10  
  
Subtraction is : 10  
  
Addition is : 30  
  
Multiplied value is : 200|
```

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

Program :

```
#include<iostream>
```

```
using namespace std;
```

```
int main()
```

```
{
```

```
    float amount,GST,rate;
```

```
    cout<<"\n Enter the Amount of Goods : \n";
```

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cin>>amount;

```
        cout<<"\n Enter the Rate : \n";

        cin>>rate;

        GST=(amount*rate)/100;

        cout<<"\n GST is :: "<<GST <<"\n";


        return 0;

    }
```

Output :

Result...

compiled and executed in 18.093 sec(s)

```
Enter the Amount of Goods : 625
```

```
Enter the Rate : 18
```

```
GST is :: 112.5|
```