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*Lab3*
*Subject - OOP lab*
*Class - B14*
*Branch - CSE*
*Date- 12/08/2021*

## *Question1: WAP to display from 10 to 1 using for loop.*

```
#include <iostream>
using namespace std;
class display
{
public:
   void dis()
   {
      for (int i = 10; i >= 1; --i)
      {
         cout << i << endl;
      }
   }
};

int main()
{
   display d;
   d.dis();
}
```

```
PS D:\KIIT_NOTES\2nd year sem_3\OOP_lab\12_8_2021> ./display
10
9
8
7
6
5
4
3
2
1
PS D:\KIIT_NOTES\2nd year sem_3\OOP_lab\12_8_2021>
```

## *Question 2: WAP to calculate factorial.*

```
#include <iostream>
using namespace std;
class factorial
{
   public:
   factorial(int n)
      : a(n)
   {
   }
   int fact(int a);

private:
   int a;
};

int factorial::fact( int a){
   if(a==1 || a==0){
      return 1;
      }
      else
      return (a*fact(a-1));

}

int main()
{
   int n;
   cout << "Enter the number to calculate factorial " << endl;
   cin >> n;
   factorial num(n);
   cout<<"Result = "<<num.fact(n)<<endl;
}
```

```
PS D:\KIIT_NOTES\2nd year sem_3\OOP_lab\12_8_2021> ./factorial
Enter the number to calculate factorial
5
Result = 120
PS D:\KIIT_NOTES\2nd year sem_3\OOP_lab\12_8_2021>
```

## *Qusetion 3: WAP to display even numbers between 1 to 150.*

```
#include <iostream>
using namespace std;
class displayEven
{
public:
   void dis()
   {
      for (int i = 1; i <= 150; ++i)
      {
         if (i % 2 == 0)
         {
            cout << i <<"\t";
            count++;
         }
         if (count % 6 == 0)
         {
            cout << endl;
         }
      }
   }

private:
   int count = 0;
};

int main()
{
   displayEven d;
   cout << "Even numbers between 1 to 150 :" << endl;
   d.dis();
}
```

```
Even numbers between 1 to 150 :
2       4       6       8       10      12
14      16      18      20      22      24
26      28      30      32      34      36
38      40      42      44      46      48
50      52      54      56      58      60
62      64      66      68      70      72
74      76      78      80      82      84
86      88      90      92      94      96
98      100     102     104     106     108
110     112     114     116     118     120
122     124     126     128     130     132
134     136     138     140     142     144
146     148     150
```

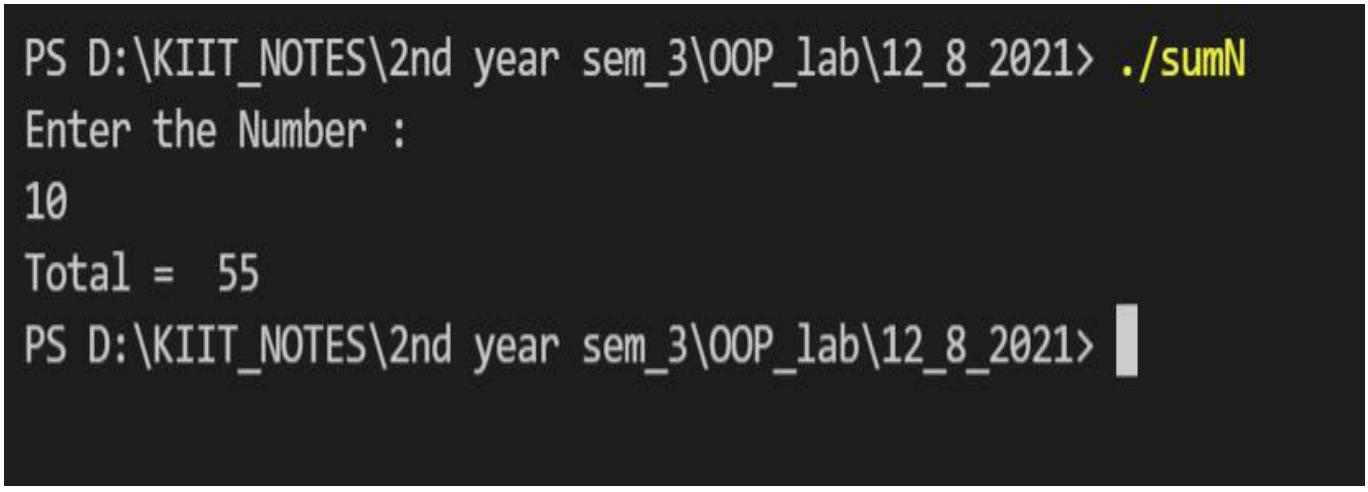
## *Question 4: WAP to calculate the sum of numbers between 1 to N.The user should input N.*

```
#include <iostream>
using namespace std;
class sum
{
public:
   sum()
      : total(0)
   {
   }
   void input()
   {
      cout << "Enter the Number : " << endl;
      cin >> num;
   }
   void calculate();

private:
   int num;
   int total;
};

void sum::calculate()
{
   for (int i = 1; i <= num; ++i)
   {
      total += i;
   }
   cout<<"Total =  "<<total<<endl;
}

int main()
{
   sum obj;
   obj.input();
   obj.calculate();
   return 0;
}
```



***Question5: WAP to overload area function to calculate area of a triangle , area of a rectangle , area of a circle , area of a cylinder.***

```
#include <iostream>

using namespace std;

class A
{
public:
   float area(int height, int base); //area of triangle
   float area(float l, float b);     //area of rectangle
   float area(int h, float r);       //area of cylinder
   float area(int r);                //area of circle
   void output()
   {
      cout << "Result : " << res << endl;
   }

private:
   float res;
};
float A::area(int height, int base)
{
   res = 0.5 * base * height;
}
float A::area(float l, float b)
{
   res = l * b;
}
float A::area(int h, float r)
{
   res = (2 * 3.14 * r * h) + (2 * 3.14 * r * r);
}
float A::area(int r)
{
   res = 3.14 * r * r;
}

int main()
{
   cout << "1: Area of triangle \n2: Area of Rectangle \n3:Area of cylinder \n4: Area of
circle " << endl;
   int ch;
   cin >> ch;
   A obj;
   int height, base, radius ;
   float l ,b ,r;
   switch (ch)
```

```
    {
    case 1:
        cout << "Enter the (int)height and (int)base" << endl;
        cin >> height >> base;
        obj.area(height, base);
        obj.output();
        break;
    case 2:
        cout << "Enter the (float)length and (float)width" << endl;
        cin >> l >> b;
        obj.area(l, b);
        obj.output();
        break;
    case 3:
        cout << "Enter the (int)height and (float)radius" << endl;
        cin >> height >> r;
        obj.area(height, r);
        obj.output();
        break;
    case 4:
        cout << "Enter the (int)radius" << endl;
        cin >> radius;
        obj.area(radius);
        obj.output();
        break;
    default:
        cout << "Invalid choice" << endl;
    }
    return 0;
}
```

```
PS D:\KIIT_NOTES\2nd year sem_3\OOP_lab\12_8_2021> ./area
1: Area of triangle
2: Area of Rectangle
3:Area of cylinder
4: Area of circle
1
6 4
Result : 12
PS D:\KIIT_NOTES\2nd year sem_3\OOP_lab\12_8_2021> ./area
1: Area of triangle
2: Area of Rectangle
3:Area of cylinder
4: Area of circle
2
Enter the (float)length and (float)width
2.0 4.0
Result : 8
```

```
PS D:\KIIT_NOTES\2nd year sem_3\OOP_lab\12_8_2021> ./area
1: Area of triangle
2: Area of Rectangle
3:Area of cylinder
4: Area of circle
3
Enter the (int)height and (float)radius
10
2.1
Result : 159.575
PS D:\KIIT_NOTES\2nd year sem_3\OOP_lab\12_8_2021>
```

```
PS D:\KIIT_NOTES\2nd year sem_3\OOP_lab\12_8_2021> ./area
1: Area of triangle
2: Area of Rectangle
3:Area of cylinder
4: Area of circle
4
Enter the (int)radius
4
Result : 50.24
PS D:\KIIT_NOTES\2nd year sem_3\OOP_lab\12_8_2021>
```