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## Python Programming - 2101CS405

### Lab - 3

#### for and while loop

##### 01) WAP to print 1 to 10

```
In [1]: for i in range(1,11):  
        print(i)
```

```
1  
2  
3  
4  
5  
6  
7  
8  
9  
10
```

```
In [2]: i=1  
        while(i<11):  
            print(i)  
            i+=1
```

```
1  
2  
3  
4  
5  
6  
7  
8  
9  
10
```

## 02) WAP to print 1 to n

```
In [3]: n=int(input('Enter a number: '))
        for i in range(1,n+1):
            print(i)
```

Enter a number: 5

1  
2  
3  
4  
5

```
In [4]: n=int(input('Enter a number: '))
        i=1
        while(i<=n):
            print(i)
            i+=1
```

Enter a number: 5

1  
2  
3  
4  
5

## 03) WAP to print odd numbers between 1 to n

```
In [5]: n=int(input('Enter a number: '))
        i=1
        while(i<=n):
            if(i%2!=0):
                print(i)
            i+=1
```

Enter a number: 5

1  
3  
5

#### 04) WAP to print numbers between two given numbers which is divisible by 2 but not divisible by 3

```
In [6]: m=int(input('Enter starting number: '))
n=int(input('Enter ending number: '))
i=m
while(i<=n):
    if(i%2==0 and i%3!=0):
        print(i)
    i+=1
```

```
Enter starting number: 2
Enter ending number: 15
2
4
6
8
10
12
14
```

#### 05) WAP to print sum of 1 to n numbers

```
In [7]: n=int(input('Enter a number: '))
i=1
sum=0
while(i<=n):
    sum+=i
    i+=1
print(sum)
```

```
Enter a number: 5
15
```

#### 06) WAP to print sum of series 1 + 4 + 9 + 16 + 25 + 36 + ...n

```
In [8]: n=int(input('Enter a number: '))
i=1
sum=0
while(i<=n):
    sum+=i**2
    i+=1
print(sum)
```

```
Enter a number: 6
91
```

## 07) WAP to print sum of series $1 - 2 + 3 - 4 + 5 - 6 + 7 \dots n$

```
In [9]: n=int(input('Enter a number: '))
i=1
sum=0
while(i<=n):
    if(i%2!=0):
        sum+=i
    else:
        sum-=i
    i+=1
print(sum)
```

Enter a number: 10  
-5

## 08) WAP to print multiplication table of given number.

```
In [10]: num = int(input("Display multiplication table of? "))
for i in range(1, 11):
    print(num, 'x', i, '=', num*i)
```

Display multiplication table of? 10  
10 x 1 = 10  
10 x 2 = 20  
10 x 3 = 30  
10 x 4 = 40  
10 x 5 = 50  
10 x 6 = 60  
10 x 7 = 70  
10 x 8 = 80  
10 x 9 = 90  
10 x 10 = 100

## 09) WAP to find factorial of the given number

```
In [11]: num = int(input("Enter a number: "))
factorial = 1
if num < 0:
    print(" Factorial does not exist for negative numbers")
elif num == 0:
    print("The factorial of 0 is 1")
else:
    for i in range(1,num + 1):
        factorial = factorial*i
    print("The factorial of",num,"is",factorial)
```

Enter a number: 5  
The factorial of 5 is 120

## 10) WAP to find factors of the given number

```
In [12]: x=int(input('Enter a number: '))
print("The factors of",x,"are:")
for i in range(1, x + 1):
    if x % i == 0:
        print(i)
```

```
Enter a number: 15
The factors of 15 are:
1
3
5
15
```

## 11) WAP to find whether the given number is prime or not.

```
In [14]: num = int(input("Enter a number: "))
flag = False
if num == 1:
    print(num, "is not a prime number")
elif num > 1:
    for i in range(2, num):
        if (num % i) == 0:
            flag = True
            break
if flag:
    print(num, "is not a prime number")
else:
    print(num, "is a prime number")
```

```
Enter a number: 29
29 is a prime number
```

## 12) WAP to print sum of digits of given number

```
In [15]: n = input('Enter a number: ')
sum = 0
for digit in str(n):
    sum += int(digit)
print(sum)
```

```
Enter a number: 145
10
```

### 13) WAP to check whether the given number is palindrome or not

```
In [16]: n=int(input("Enter number:"))
temp=n
rev=0
while(n>0):
    dig=n%10
    rev=rev*10+dig
    n=n//10
if(temp==rev):
    print("The number is a palindrome!")
else:
    print("The number isn't a palindrome!")
```

Enter number:121  
The number is a palindrome!

### ### 01) WAP to check whether the given number is Armstrong or not.

```
In [17]: num = int(input("Enter a number: "))
sum = 0
temp = num
while temp > 0:
    digit = temp % 10
    sum += digit ** 3
    temp //= 10
if num == sum:
    print(num,"is an Armstrong number")
else:
    print(num,"is not an Armstrong number")
```

Enter a number: 153  
153 is an Armstrong number

## 02) WAP to find out prime numbers between given two numbers.

```
In [18]: lower_value = int(input ("Please, Enter the Lowest Range Value: "))
upper_value = int(input ("Please, Enter the Upper Range Value: "))

print ("The Prime Numbers in the range are: ")
for number in range (lower_value, upper_value + 1):
    if number > 1:
        for i in range (2, number):
            if (number % i) == 0:
                break
        else:
            print (number)
```

```
Please, Enter the Lowest Range Value: 1
Please, Enter the Upper Range Value: 10
The Prime Numbers in the range are:
2
3
5
7
```

## 03) WAP to calculate $x^y$ without using any function.

```
In [19]: base = int(input('Enter a base: '))
exponent = int(input('Enter an exponent: '))

result = 1

while exponent != 0:
    result *= base
    exponent -= 1

print("Answer = " + str(result))
```

```
Enter a base: 5
Enter an exponent: 3
Answer = 125
```

## 04) WAP to check whether the given number is perfect or not.

[Sum of factors including 1 excluding number itself]

```
In [20]: num=int(input("Enter the number: "))
sum_v=0
for i in range(1,num):
    if (num%i==0):
        sum_v=sum_v+i
if(sum_v==num):
    print("The entered number is a perfect number")
else:
    print("The entered number is not a perfect number")
```

Enter the number: 28

The entered number is a perfect number

### 05) WAP to find the sum of $1 + (1+2) + (1+2+3) + (1+2+3+4) + \dots + (1+2+3+4+\dots+n)$

```
In [23]: n = int(input("Enter value of n: "))

sum = sum([i*(i+1)/2 for i in range(1, n+1)])
print(sum)
```

Enter value of n: 5

35.0

### 06) WAP to print Multiplication Table up to n

```
In [26]: number = int(input ("Enter the number of which the user wants to print the mul
n = int(input('Enter a number upto which you want a multiplication of the give
print ("The Multiplication Table of: ", number)
for count in range(1, n+1):
    print (number, 'x', count, '=', number * count)
```

Enter the number of which the user wants to print the multiplication table: 13

Enter a number upto which you want a multiplication of the given number above: 5

The Multiplication Table of: 13

13 x 1 = 13

13 x 2 = 26

13 x 3 = 39

13 x 4 = 52

13 x 5 = 65

In [ ]: