In [ ]:
```
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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
```

02) WAP to print 1 to n

In [3]:
```
n = int(input('Enter n : '))

for i in range(1,n+1):
    print(i)
```

```
Enter n : 10
1
2
3
4
5
6
7
8
9
10
```

03) WAP to print odd numbers between 1 to n

In [2]:
```
n = int(input('Enter n : '))

for i in range(1,n+1):
    if i % 2 != 0:
        print(i)
```

```
Enter n : 10
1
3
5
7
9
```

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

In [4]:
```
a = int(input('Enter first no : '))
b = int(input('Enter second no : '))

for i in range(a,b+1):
    if i % 2 == 0 and i % 3 != 0:
        print(i)
```

```
Enter first no : 1
Enter second no : 20
2
4
8
10
14
16
20
```

05) WAP to print sum of 1 to n numbers

In [5]:
```
n = int(input('Enter n : '))
sum = 0

for i in range(1,n+1):
    sum += i;

print('sum = ',sum)
```

```
Enter n : 15
sum =  120
```

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

In [6]:
```
n = int(input('Enter n : '))
sum = 0

for i in range(1,n+1):
    sum += i * i;

print('sum of square = ',sum)
```

```
Enter n : 10
sum of square =  385
```

07) WAP to print sum of series 1 – 2 + 3 – 4 + 5 – 6 + 7 ... n

In [7]:
```
n = int(input('Enter n : '))
sum = 0

for i in range(1,n+1):
    if i % 2 == 0:
        sum += (-i)
    else:
        sum += i

print('sum = ',sum)
```

```
Enter n : 20
sum =  -10
```

08) WAP to print multiplication table of given number.

In [8]:
```
n = int(input('Enter n : '))

for i in range(1,11):
    print(n,' * ',i,' = ',n*i)
```

```
Enter n : 3
3  *  1  =  3
3  *  2  =  6
3  *  3  =  9
3  *  4  =  12
3  *  5  =  15
3  *  6  =  18
3  *  7  =  21
3  *  8  =  24
3  *  9  =  27
3  *  10  =  30
```

09) WAP to find factorial of the given number

In [9]:
```
n = int(input('Enter n : '))
fact = 1

for i in range(1,n+1):
    fact *= i;

print('factorial of ',n,' = ',fact)
```

```
Enter n : 5
factorial of  5  =  120
```

10) WAP to find factors of the given number

In [10]:
```
n = int(input('Enter n : '))
print('Factors of ',n,' are : ')
for i in range(1,n+1):
    if n % i == 0:
        print(i)
```

```
Enter n : 6
Factors of  6  are :
1
2
3
6
```

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

In [11]:
```
n = int(input('Enter n : '))
flag = 0
for i in range(2,n):
    if n % i == 0:
        flag = 1
        break

if flag == 0:
    print('Given number is prime')
else:
    print('Given number is non-prime')
```

```
Enter n : 7
Given number is prime
```

12) WAP to print sum of digits of given number

In [12]:
```
n= int(input('Enter n : '))
sum = 0

while n != 0:
    x = n % 10
    n = int(n / 10)
    sum += x

print('sum of digit = ',sum)
```

```
Enter n : 965
sum of digit =  20
```

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

In [13]:
```
n= int(input('Enter n : '))
a = n
rev = 0

while n != 0:
    x = n % 10
    n = int(n / 10)
    rev = (rev * 10) + x

if rev == a:
    print('Given number is palindrome')
else:
    print('Given number is non-palindrome')
```

```
Enter n : 55
Given number is palindrome
```

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

In [14]:
```
import math
n= int(input('Enter n : '))
a = n
b = len(str(n))
sum = 0

while n!= 0:
    x = n % 10
    n = int(n / 10)
    sum = sum + math.pow(x,b)

if sum == a:
    print('Given number is armstrong')
else:
    print('Given number is non-armstrong')
```

```
Enter n : 153
Given number is armstrong
```

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

In [4]:
```
a = int(input('Enter a : '))
b = int(input('Enter b : '))

for num in range(a,b+1):
    if num > 1:
        for i in range(2,num):
            if num % i == 0:
                break
        else:
            print(num)
```

```
Enter a : 1
Enter b : 15
2
3
5
7
11
13
```

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

In [15]:
```
x = int(input('Enter x : '))
y = int(input('Enter y : '))

pow = x ** y

print('Ans = ',pow)
```

```
Enter x : 5
Enter y : 3
Ans =  125
```

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

[Sum of factors including 1 excluding number itself]

In [16]:
```
n = int(input('Enter no : '))
sum = 0

for i in range(1,n):
    if n % i == 0:
        sum += i

if sum == n:
    print('Given number is perfect')
else:
    print('Given number is not perfect')
```

```
Enter no : 6
Given number is perfect
```

05) WAP to find the sum of 1 + (1+2) + (1+2+3) + (1+2+3+4)+...+(1+2+3+4+....+n)

In [17]:
```
n = int(input('Enter n : '))
sum = 0

for i in range(1,n+1):
    for j in range(1,i+1):
        sum += j;

print('sum = ',sum)
```

```
Enter n : 5
sum =  35
```

06) WAP to print Multiplication Table up to n

In [19]:
```
x = int(input('Enter x : '))
n = int(input('Enter n : '))

for i in range(1,n+1):
        print(x,' * ',i,' = ',x*i)
```

```
Enter x : 6
Enter n : 20
6  *  1  =  6
6  *  2  =  12
6  *  3  =  18
6  *  4  =  24
6  *  5  =  30
6  *  6  =  36
6  *  7  =  42
6  *  8  =  48
6  *  9  =  54
6  *  10  =  60
6  *  11  =  66
6  *  12  =  72
6  *  13  =  78
6  *  14  =  84
6  *  15  =  90
6  *  16  =  96
6  *  17  =  102
6  *  18  =  108
6  *  19  =  114
6  *  20  =  120
```

In [ ]: