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Python Programming - 2101CS405

Lab - 3

for and while loop

01) WAP to print 1 to 10

In [2]:
```
i = 1
while i <= 10:
    print(i)
    i += 1
```

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

02) WAP to print 1 to n

In [12]:
```
Number = int(input("Enter Any Number :"))
i = 1
while i <= Number:
    print(i)
    i += 1
```

```
1
2
3
4
5
```

03) WAP to print odd numbers between 1 to n

In [1]:
```
Num = int(input("Enter Any Number :"))
i = 1
while i <= Num:
    if i % 2 != 0:
        print(i)
    i += 1
```

```
Enter Any Number :20
1
3
5
7
9
11
13
15
17
19
```

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

In [5]:
```
n1= int(input("Enter A First Number : "))
n2= int(input("Enter A Second Number : "))

for i in range(n1+1,n2-1):
    if i % 2 == 0 and i % 3 != 0:
        print(i)
```

```
Enter A First Number : 30
Enter A Second Number : 40
32
34
38
```

05) WAP to print sum of 1 to n numbers

In [8]:
```
num = int(input("Enter Any Number : "))
sum = 0
for i in range(num+1):
    sum += i
print(sum)
```

```
Enter Any Number : 5
15
```

In [ ]:
```

```

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

In [10]:
```
num = int(input("Enter A Number : "))
sum = 0
mul = 0
for i in range(num+1):
     mul = i * i
     sum +=mul
print(f"Sum of series 1+4+9+...+n upto {n} is: {sum}")
```

```
Enter A Number : 5
55
```

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

In [12]:
```
n = int(input("Enter the value of n : "))
sum=0
for i in range(1,n+1):
    if(i%2==0):
        sum=sum-i
    else:
        sum=sum+i
print(f"Sum of series 1-2+3-4+5-...n upto {n} is : {sum}")
```

```
Enter the value of n : 10
Sum of series 1-2+3-4+5-...n upto 10 is : -5
```

08) WAP to print multiplication table of given number.

In [21]:
```
num = int(input("Enter A Number : "))
print(f"Multiplication Table of {n}:")
for i in range(1,11):
    print(f"{n} x {i} = {n*i}")
```

```
Enter A Number : 10
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 [25]:
```
n = int(input("Enter the value of n : "))
fact=1
for i in range(2,n+1):
    fact*=i
print(f"Factorial of {n} is :{fact}")
```

```
Enter the value of n : 5
Factorial of 5 is :120
```

10) WAP to find factors of the given number

In [33]:
```
n = int(input("Enter the value of n : "))
print(f"Factors of {n} are : ")
for i in range(1,n+1):
    if(n%i==0):
        print(i)
```

```
Enter the value of n : 12
Factors of 12 are :
1
2
3
4
6
12
```

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

In [34]:
```
n = int(input("Enter the value of n : "))
flag=0
for i in range(2,n):
    if(n%i==0):
        flag=1
        break
if(flag==0):
    print(f"{n} is a Prime Number")
else:
    print(f"{n} is not a Prime Number")
```

```
Enter the value of n : 20
20 is not a Prime Number
```

12) WAP to print sum of digits of given number

In [35]:
```
n = int(input("Enter the value of n : "))
sum=0
print(f"Sum of digits of {n} are:")
while (n != 0):
        sum = sum + (n % 10)
        n = n//10
print(sum)
```

```
Enter the value of n : 23
Sum of digits of 23 are:
5
```

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

In [39]:
```
n = int(input("Enter the value of n : "))
temp=n
rev=0
print(n)
while(n>0):
    dig=n%10
    rev=rev*10+dig
    n=n//10
if(temp==rev):
    print("The number is a palindrome number")
else:
    print("The number is not a palindrome number")
```

```
Enter the value of n : 101
101
The number is a palindrome number
```

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

In [40]:
```
n = int(input("Enter a number: "))
sum = 0
temp = n
while temp > 0:
   digit = temp % 10
   sum += digit ** 3
   temp //= 10
if n == sum:
   print(n,"is an Armstrong number")
else:
   print(n,"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 [41]:
```
n=int(input("Enter the 1st value:"))
m=int(input("Enter the 2nd value:"))
print(f"Prime numbers between {n} and {m} are:")
flag=0
for i in range(n+1,m):
    for j in range(2,i):
        if(i%j==0):
            flag=1
            break
    if(flag==0):
        print(i)
    else:
        flag=0
```

```
Enter the 1st value:10
Enter the 2nd value:20
Prime numbers between 10 and 20 are:
11
13
17
19
```

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

In [42]:
```
x = int(input("Enter the value of x : "))
y = int(input("Enter the value of y : "))
pow=x
for i in range(2,y+1):
    pow*=x
print(f"{x}^{y} equals : {pow}")
```

```
Enter the value of x : 2
Enter the value of y : 3
2^3 equals : 8
```

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

[Sum of factors including 1 excluding number itself]

In [44]:
```
#A perfect number is a number in which the sum of the divisors/factors of a number is equal to the number.
n=int(input("Enter the value of n:"))
sum=0
for i in range(1,n):
    if (n%i==0):
        sum=sum+i
if(sum==n):
    print(f"The entered number {n} is a perfect number")
else:
    print(f"The entered number {n} is not a perfect number")
```

```
Enter the value of n:6
The entered number 6 is a perfect number
```

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

In [45]:
```
n = int(input("Enter the value of n : "))
sum=0
for i in range(1,n+1):
    for i in range(1,i+1):
        sum+=i
print(f"sum of series 1 + (1+2) + (1+2+3) + (1+2+3+4) +...n upto {n} is : {sum}")
```

```
Enter the value of n : 10
sum of series 1 + (1+2) + (1+2+3) + (1+2+3+4) +...n upto 10 is : 220
```

06) WAP to print Multiplication Table up to n

In [47]:
```
n = int(input ("Enter the number to print the multiplication table of: "))
# print ("The Multiplication Table of: ", n)
for i in range(1, n+1):
    print ("The Multiplication Table of: ", i)
    for j in range(1,11):
         print(f"{i} x {j} = {i*j}")
```

```
9 x 3 = 27
9 x 4 = 36
9 x 5 = 45
9 x 6 = 54
9 x 7 = 63
9 x 8 = 72
9 x 9 = 81
9 x 10 = 90
The 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
```

In [ ]: