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Python Programming - 2101CS405

Lab - 3

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for and while loop

01) WAP to print 1 to 10

In [1]:
```
for i in range(1,11):
    print(i)
i=1
while i<=10:
    print(i)
    i+=1
```

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

02) WAP to print 1 to n

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

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

```
Enter Number:5
1
2
3
4
5
```

03) WAP to print odd numbers between 1 to n

In [5]:
```
n = int(input("Enter Number:"))

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

```
Enter 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]:
```
a = int(input("Enter 1st Number:"))
b = int(input("Enter 2rd Number:"))

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

```
Enter 1st Number:1
Enter 2rd Number:15
2
4
8
10
14
```

05) WAP to print sum of 1 to n numbers

In [11]:
```
n = int(input("Enter Number:"))
# ans = (n*(n+1))/2
ans = 0
for i in range(1,n+1):
    ans+=i
print(ans)
```

```
Enter Number:4
10
```

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

In [3]:
```
n = int(input("Enter Number:"))
ans = 0;
for i in range(1,n+1):
    ans+=(i*i)
print(f"Ans:{ans}")
```

```
Enter Number:3
Ans:14
```

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

In [5]:
```
n = int(input("Enter Number:"))
ans = 0
for i in range(1,n+1):
    if(i%2==0):
        ans-=i
    else:
        ans+=i
print(ans)
```

```
Enter Number:5
3
```

08) WAP to print multiplication table of given number.

In [6]:
```
n = int(input("Enter Number:"))

for i in range(1,11):
    print(f"{n} x {i} = {n*i}")
```

```
Enter Number:2
2 x 1 = 2
2 x 2 = 4
2 x 3 = 6
2 x 4 = 8
2 x 5 = 10
2 x 6 = 12
2 x 7 = 14
2 x 8 = 16
2 x 9 = 18
2 x 10 = 20
```

09) WAP to find factorial of the given number

In [8]:
```
n = int(input("Enter Number:"))
ans = 1
for i in range(1,n+1):
    ans*=i
print(ans)
```

```
Enter Number:5
120
```

10) WAP to find factors of the given number

In [9]:
```
n = int(input("Enter Number:"))

for i in range(1,n+1):
    if(n%i==0):
        print(f"Factor:{i}")
```

```
Enter Number:6
Factor:1
Factor:2
Factor:3
Factor:6
```

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

In [17]:
```
import math;

n = int(input("Enter Number:"))
rng = (int)(math.sqrt(n)+1)
for i in range(2,rng):
    if(n%i==0):
        print("Not Prime")
        break;
else:
    print("Prime")
```

```
Enter Number:7
Prime
```

12) WAP to print sum of digits of given number

In [31]:
```
n = int(input("Enter Number:"))

rem = 0
ans = 0
while n>0:
    rem=n%10
    ans+=rem
    n//=10

print(ans)
```

```
Enter Number:122
5
```

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

In [35]:
```
n = int(input("Enter Number:"))
original = n
ans = 0
rem = 0
while n>0:
    rem=n%10
    ans = ans * 10 + rem
    n//=10

if original==ans:
    print("Palindrome")
else:
    print("Not Palindrome")
```

```
Enter Number:123546
Not Palindrome
```

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

In [14]:
```
import math

n = int(input("Enter Number:"))
original = n
lengthfind = n
ans = 0
length=0
# length = int(math.log10(n)+1)
while lengthfind>0:
    length+=1
    lengthfind//=10

while n>0:
    rem=n%10
    ans+=(rem**length)
    n//=10
if original==ans:
    print("Armstrong")
else:
    print("Not Armstrong")
```

```
Enter Number:8208
Armstrong
```

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

In [27]:
```
import math

num1 = int(input("Enter 1st Number:"))
num2 = int(input("Enter 2nd Number:"))
count = 0;

# First Method
# while num1<=num2:
#     count=0
#     rng =int(math.sqrt(num1)+1)
#     for i in range(2,rng):
#         if(num1%i==0):
#             count+=1
#             break;
#     if(count<=0):
#         print(f"Prime:{num1}")
#     num1+=1


# Second Method
while num1<=num2:
    rng = int((num1**(0.5))+1)
    for i in range(2,rng):
        if(num1%i==0):
            break;
    else:
        print(f"Prime:{num1}")
    num1+=1
```

```
Enter 1st Number:4
Enter 2nd Number:23
Prime:5
Prime:7
Prime:11
Prime:13
Prime:17
Prime:19
Prime:23
```

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

In [61]:
```
base = int(input("Enter Base:"))
power = int(input("Enter Power:"))
ans = 1;
for i in range(1,power+1):
   ans*=base
print(ans)
```

```
Enter Base:2
Enter Power:3
8
```

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

[Sum of factors including 1 excluding number itself]

In [11]:
```
n = int(input("Enter Number:"))
ans = 0
for i in range(1,n):
    if(n%i==0):
        ans+=i
if(ans==n):
    print(f"{n} is Perfect")
else:
     print(f"{n} is Not Perfect")
```

```
Enter Number:28
28 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 [63]:
```
n = int(input("Enter Number:"))
ans = 0
for i in range(1,n+1):
    for j in range(1,i+1):
        ans+=j
print(f"Answer:{ans}")
```

```
Enter Number:3
Answer:10
```

06) WAP to print Multiplication Table up to n

In [13]:
```
n1 = int(input("Enter 1st Number:"))
n2 = int(input("Enter 2nd Number:"))
while n1<=n2:
    print(f"Multipliaction Table Of {n1}")
    for i in range(1,11):
        print(f"{n1} x {i} = {n1*i}")
    n1+=1
```

```
Enter 1st Number:1
Enter 2nd Number:2
Multipliaction Table Of 1
1 x 1 = 1
1 x 2 = 2
1 x 3 = 3
1 x 4 = 4
1 x 5 = 5
1 x 6 = 6
1 x 7 = 7
1 x 8 = 8
1 x 9 = 9
1 x 10 = 10
Multipliaction Table Of 2
2 x 1 = 2
2 x 2 = 4
2 x 3 = 6
2 x 4 = 8
2 x 5 = 10
2 x 6 = 12
2 x 7 = 14
2 x 8 = 16
2 x 9 = 18
2 x 10 = 20
```

In [ ]: