

Output Programs

<p>a.</p> <pre>n=3 for i in range(1, n+2): print(i*i)</pre> <p>Output:</p> <pre>1 4 9</pre>	<p>b.</p> <pre>n=19 for i in range(15, n+2): print(i%2)</pre> <p>Output:</p> <pre>1 0 1 0 1 0</pre>
<p>c.</p> <pre>n=30 for i in range(27, n+2): print(i+5, end='@')</pre> <p>Output:</p> <pre>32@33@34@35@36@</pre>	<p>d.</p> <pre>for x in range(10,20,3): print(x, end="#")</pre> <p>Output:</p> <pre>10#13#16#19#</pre>
<p>e.</p> <pre>for a in range(10, 50,11): if a%2==0: print(a+5) else: print(a-5)</pre> <p>Output:</p> <pre>15 16 37 38</pre>	<p>f.</p> <pre>for i in range(16,4,-4): if i % 3 ==0: print(i/2) else: print("--") print("Quitting")</pre> <p>Output:</p> <pre>-- 6.0 -- Quitting</pre>
<p>g.</p> <pre>num=258 while num>0: print(num%10) num=num//10</pre> <p>Output:</p> <pre>8 5 2</pre>	<p>h.</p> <pre>count=0 while count<6: print("Hello") count+=1</pre> <p>Output:</p> <pre>Hello Hello Hello Hello Hello Hello</pre>
<p>i.</p> <pre>x=10 y=0 while x>y: print(x,y) x=x-2 y=y+2</pre> <p>Output:</p>	<p>j.</p> <pre>i=10 while i<50: print("i=",i,i*2) i=i+10</pre> <p>Output:</p> <pre>i= 10 20</pre>

10 0	i= 20 40
8 2	i= 30 60
6 4	i= 40 80

Loop Programs

1. WAP to display a table of a given number input.

Solution:

```
# Input
num = int(input("Enter a number: "))

# Display the table
for i in range(1, 11):
    print("num x ", i, "=", num * i)
```

2. WAP to display the square of all numbers till n, where n is number input taken from the user.

Solution:

```
# Input
n = int(input("Enter a number (n): "))

# Display squares of numbers from 1 to n
for i in range(1, n + 1):
    print("The square of", i, "is", i**2)
```

3. WAP to print your name n times.

Solution:

```
# Input the name and the number of times to print
name = input("Enter your name: ")
```

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```
n = int(input("Enter the number of times to print your name: "))  
  
# Print the name 'n' times  
  
for count in range(n):  
    print(name)
```

4. WAP to display all numbers divisible by 7 in the given range. Take the starting and ending number of range from the user.

Solution:

```
# Input the starting and ending numbers  
start = int(input("Enter the starting number: "))  
end = int(input("Enter the ending number: "))  
  
# Display numbers divisible by 7 in the range  
print("Numbers divisible by 7 in the range are:")  
for num in range(start, end + 1):  
    if num % 7 == 0:  
        print(num)
```

5. WAP to find out the factorial of a given number.

Solution:

```
# Input the number  
num = int(input("Enter a number: "))  
  
# Initialize factorial to 1  
factorial = 1  
  
# Calculate factorial  
if num < 0:
```

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```
print("Factorial is not defined for negative numbers.")  
elif num == 0:  
    print("The factorial of 0 is 1")  
else:  
    for i in range(1, num + 1):  
        factorial *= i  
    print(f"The factorial of {num} is {factorial}")
```

6. WAP to print the following series:

a. 1 8 27 n (cube of all nos)

Solution:

```
# Input the number 'n'  
n = int(input("Enter a number: "))  
# Print the cube of all numbers from 1 to 'n'  
for i in range(1, n + 1):  
    print(i ** 3, end=" ")
```

b. 1 9 25 n (square of odd nos.)

Solution:

7. WAP to find out whether the given number is prime or not.

Solution:

```
# Input the number  
num = int(input("Enter a number: "))  
# Check if the number is prime  
if num <= 1:  
    print(f"{num} is not prime.")  
else:  
    is_prime = True  
    for i in range(2, int(num ** 0.5) + 1):
```

```
    if num % i == 0:
        is_prime = False
        break
    if is_prime:
        print(f"{num} is prime.")
    else:
        print(f"{num} is not prime.")
```

8. WAP to display sum of all odd numbers between 1 and 100.

Solution:

```
# Initialize sum
sum_of_odd = 0

# Calculate the sum of odd numbers between 1 and 100
for i in range(1, 101, 2):
    sum_of_odd += i

print(f"The sum of odd numbers between 1 and 100 is {sum_of_odd}.")
```

9. WAP to display fibonacci series upto n terms.

0 1 1 2 3 5 8 13...n

Solution:

```
# Input the number of terms 'n'
n = int(input("Enter the number of terms: "))

# Initialize the first two terms
a, b = 0, 1

# Display the Fibonacci series
```

```
print("Fibonacci Series:")  
for _ in range(n):  
    print(a, end=" ")  
    a, b = b, a + b
```

10. WAP to input 5 numbers and find out their sum and display.

Solution:

```
sum=0  
for i in range(5):  
    num=int(input(f"Enter Number{i+1}"))  
    sum+=num  
print("Sum=", sum)
```

11. WAP to find out the largest number out of entered numbers.

Solution:

```
max=0  
for i in range(5):  
    num=int(input(f"Enter Number{i+1}"))  
    if num>max:  
        max=num  
print("Max=", max)
```

12. WAP to display all prime numbers between 1..100.

Solution:

```
print("Prime numbers between 1 and 100:")
```

```
for num in range(2, 101):  
    is_prime = True
```

```
for divisor in range(2, num):
    if num % divisor == 0:
        is_prime = False
        break
if is_prime:
    print(num, end=' ')
print() # Print a newline for better formatting
```

13. Take 2 numbers (x,y) as input and find out x raised to the power of length of y.

Solution:

```
# Take two numbers as input
x = int(input("Enter the value of x: "))
y = input("Enter the value of y: ")

# Calculate the length of y using len()
length_of_y = len(y)

# Initialize the result to 1
result = 1

# Calculate x raised to the power of the length of y
for _ in range(length_of_y):
    result *= x

# Print the result
print(f"{x} raised to the power of {length_of_y} is: {result}")
```

14. WAP to input 2 numbers m and n. Then display the first m multiples of n.

Solution:

```
# Input 2 numbers
```

```
m = int(input("Enter the value of m: "))
n = int(input("Enter the value of n: "))

# Display the first m multiples of n
print(f"The first {m} multiples of {n} are:")
for i in range(1, m + 1):
    print(n * i, end=" ")
```

15.WAP to input 10 numbers. If the user enters a negative number, the loop should stop and display the sum and average of all numbers entered.

Solution:

```
# Initialize variables
total = 0
count = 0

# Input 10 numbers
for i in range(10):
    num = int(input("Enter a number: "))
    if num < 0:
        break
    total += num
    count += 1

# Calculate and display the sum and average
if count > 0:
    average = total / count
    print(f"Sum of the entered numbers: {total}")
    print(f"Average of the entered numbers: {average}")
else:
    print("No positive numbers were entered.")
```

16. WAP to find the sum of first n terms of the following series:

a. $x + x^2 + x^3 + x^4 + \dots + x^n$

Solution:

```
# Input the values of x and n
x = float(input("Enter the value of x: "))
n = int(input("Enter the value of n: "))
# Calculate the sum of the series
sum_of_series = 0
for i in range(1, n + 1):
    sum_of_series += x ** i
print(f"The sum of the series is {sum_of_series}.")
```

b. $x - x^2 + x^3 - x^4 + \dots + x^n$

Solution:

```
# Input the values of x and n
x = float(input("Enter the value of x: "))
n = int(input("Enter the value of n: "))
# Calculate the sum of the series
sum_of_series = 0
sign = 1
for i in range(1, n + 1):
    sum_of_series += sign * (x ** i)
    sign *= -1
print(f"The sum of the series is {sum_of_series}.")
```

17. Create a menu driven program with the following options:

- a. Compute Compound Interest
- b. Computer Simple Interest

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After each execution, the user should be prompted if he/she wants to continue. Loop should execute till the user enters 'N' or 'n' as an option.

Solution:

```
while True:
    print("Menu:")
    print("1. Compute Simple Interest")
    print("2. Compute Compound Interest")
    print("3. Exit")
    choice = input("Enter your choice (1/2/3): ")
    if choice == '1':
        principal = float(input("Enter the principal amount: "))
        rate = float(input("Enter the rate of interest: "))
        time = float(input("Enter the time period (in years): "))
        simple_interest = (principal * rate * time) / 100
        print("Simple Interest: ", simple_interest)
    elif choice == '2':
        principal = float(input("Enter the principal amount: "))
        rate = float(input("Enter the rate of interest: "))
        time = float(input("Enter the time period (in years): "))

        compound_interest = principal * ((1 + (rate / 100)) ** time - 1)
        print("Compound Interest: ", compound_interest)
    elif choice == '3' or choice.lower() == 'n':
        break
    else:
        print("Invalid choice. Please enter 1, 2, or 3.\n")
print("Thank you for using the interest calculator!")
```