PYTHON SIMPLE PROGRAMS – PART 2

Quick Notes • Programs

Today's Collection
Five beginner-friendly programs covering factorial, loops, accumulators, squares, range(), and even-number sequences.

Programs Included

No.	Program
1	Compute Factorial of N
2	Sum of First Five Natural Numbers
3	Sum of Integers from 1 to 100
4	Sum of Squares of N Natural Numbers
5	Sum of All Even Numbers up to N

11. Compute Factorial of N

→ A beginner-friendly Python program demonstrating loops and simple problem-solving.

Python Code

```
# Program to compute factorial of N
n = int(input("Enter value of N: "))
factorial = 1
for i in range(1, n + 1):
    factorial = factorial * i
print("Factorial of N is:", factorial)
```

Key Concept
Uses a for loop to multiply the numbers from 1 to N. factorial acts as an accumulator.

Example
5! = 5 × 4 × 3 × 2 × 1 = 120

▶ Sample Output

```
Enter value of N: 5
Factorial of N is: 120
```

12. Sum of First Five Natural Numbers

→ A beginner-friendly Python program demonstrating loops and simple problem-solving.

Python Code

```
# Program to find the sum of first five natural numbers
sum = 0
for count in range(1, 6):
    sum = sum + count
print("Sum of 1st 5 numbers is:", sum)
```

Key Concept
sum starts at 0 and keeps a running total. range(1, 6) generates 1 through 5.

Example
1 + 2 + 3 + 4 + 5 = 15

▶ Sample Output

```
Sum of 1st 5 numbers is: 15
```

13. Sum of Integers from 1 to 100

➜ A beginner-friendly Python program demonstrating loops and simple problem-solving.

Python Code

```
# Program to calculate the sum of integers from 1 to 100
sum = 0
for i in range(1, 101):
    sum = sum + i
print("Sum of integers from 1 to 100 is:", sum)
```

Key Concept
sum is an accumulator. range(1, 101) generates the integers from 1 through 100.

Example
1 + 2 + 3 + ... + 100 = 5050

▶ Sample Output

```
Sum of integers from 1 to 100 is: 5050
```

15. Sum of Squares of N Natural Numbers

➜ A beginner-friendly Python program demonstrating loops and simple problem-solving.

Python Code

```
# Program to find the sum of squares of first N natural numbers
n = int(input("Enter value of n: "))
sum = 0
for i in range(1, n + 1):
    sum = sum + i * i
print("Sum of squares of integers up to n is:", sum)
```

Key Concept
i * i calculates the square of each number, and sum keeps the running total.

Example
For N = 5: $1^2 + 2^2 + 3^2 + 4^2 + 5^2 = 55$

▶ Sample Output

```
Enter value of n: 5
Sum of squares of integers up to n is: 55
```

16. Sum of All Even Numbers up to N

➜ A beginner-friendly Python program demonstrating loops and simple problem-solving.

Python Code

```
# Program to find the sum of all even numbers up to N
n = int(input("Enter value of n: "))
sum = 0
for count in range(0, n + 1, 2):
    sum = sum + count
print("Sum of even numbers up to n is:", sum)
```

Key Concept

range(0, n + 1, 2) uses a step of 2, so the loop generates only even numbers.

Example

For N = 10: 0 + 2 + 4 + 6 + 8 + 10 = 30

▶ Sample Output

```
Enter value of n: 10
Sum of even numbers up to n is: 30
```

Quick Revision

Remember

- for loop → repeats a block of code
- range() → generates a sequence of numbers
- accumulator → keeps a running total
- i * i → calculates a square
- step = 2 → moves through even numbers
- factorial → product of positive integers from 1 to N

Happy Coding! • Learn • Practice • Build