

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

$5! = 5 \times 4 \times 3 \times 2 \times 1 = 120$

► 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

$1 + 2 + 3 + \dots + 100 = 5050$

► 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

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The banner features two portraits: Guido van Rossum on the left and Stefan M. Lutz on the right. Guido's quote is "Beautiful is better than ugly." and Stefan's is "Practicality beats purity." Both are identified as co-creators of Python. The central logo reads "Happy Coding!". Below the portraits, it says "Keep Learning • Keep Practicing • Keep Growing". At the bottom, there are several icons and text: a laptop with code symbols, a book titled "Learn Practice Build Grow", a globe with "Visit Our Website EngineersTutor.com", a YouTube icon with "Subscribe to Our YouTube Channel EngineersTutor", and a robot icon with "Code Learn Create Repeat!". The footer text is "Programming Today • A Better Tomorrow".