

# Understanding range() in Python

MUKESH KUMAR

# AGENDA

- Introduction to range()
- Using range() in a list
- Understanding range() arguments
- Using range() with a for loop

# Introduction to range()

- **Definition:** range() is a built-in function used to generate a sequence of numbers.
- **Example:** range(5) produces numbers from 0 to 4.
- **Note:** It does not support the float data type and the string data type
- **Key Points:**
  - Generates numbers in a sequence.
  - Used commonly in loops.
  - Does not store values in memory but generates them on demand.

# Passing range() in a List

```
numbers = list(range(5))  
print(numbers)  # Output: [0, 1, 2, 3, 4]
```

- `list(range(5))` converts the range object into a list.
- Useful for initializing sequences.

# range() Arguments

- **Three Forms of range():**

```
range(stop)           # Starts from 0, goes up to stop-1
range(start, stop)    # Starts from start, goes up to stop-1
range(start, stop, step) # Uses step size
```

- **Examples:**

```
list(range(5))          # [0, 1, 2, 3, 4]
list(range(2, 8))       # [2, 3, 4, 5, 6, 7]
list(range(1, 10, 2))   # [1, 3, 5, 7, 9]
```

# Using range() in a for Loop

- **Example 1: Basic for loop** (output: 0 1 2 3 4)

```
for i in range(5):  
    print(i)
```

- **Example 2: Loop with a step size** ( output: 1 3 5 7 9)

```
for i in range(1, 10, 2):  
    print(i)
```

- **Example 3: Loop in Reverse** ( output: 10 8 6 4 2)

```
for i in range(10, 0, -2):  
    print(i)
```

# Summary

- `range()` is used to generate sequences of numbers.
- It can have up to three arguments: start, stop, and step.
- It is widely used in loops for iteration.