Day 4: Conditional Statements in Python

Topics Covered:

- *Introduction to Conditional Statements*
- *if Statement*
- *if-else Statement*
- *elif Statement*
- *Nested if*
- *Logical Operators in Conditional Statements*

1. Introduction to Conditional Statements:

Conditional statements in Python allow you to execute certain blocks of code based on whether a given condition is true or false. They are fundamental to controlling the flow of the program.

2. if Statement:

The `if` statement is used to test a condition. If the condition evaluates to true, the code block within the `if` statement is executed.

Example:

```
x = 10
if x > 5:
   print("x is greater than 5")  # Output: x is greater than 5
```

3. if-else Statement:

The `if-else` statement provides two paths: one is executed if the condition is true, and the other if the condition is false.

Example:

```
x = 10
if x > 15:
   print("x is greater than 15")
else:
   print("x is not greater than 15")  # Output: x is not greater than 15
```

4. elif Statement:

The `elif` statement stands for 'else if'. It allows checking multiple conditions after an initial `if` statement. You can use multiple `elif` statements to test several conditions.

Example:

```
x = 10
if x > 15:
   print("x is greater than 15")
```

```
elif x == 10:
   print("x is equal to 10")
else:
   print("x is less than 10")  # Output: x is equal to 10
```

5. Nested if:

You can place `if` statements inside other `if` statements. This is known as a nested if statement.

Example:

```
x = 10
if x > 5:
   if x < 15:
      print("x is between 5 and 15")  # Output: x is between 5 and 15
```

6. Logical Operators in Conditional Statements:

Logical operators (`and`, `or`, `not`) can be used in conditional statements to combine multiple conditions.

Example using and:

```
x = 10
if x > 5 and x < 15:
   print("x is between 5 and 15")  # Output: x is between 5 and 15
```

Example using or:

```
x = 10
if x < 5 or x > 15:
   print("x is outside the range")  # Output: No output
```

Example using not:

```
x = 10
if not(x > 15):
   print("x is not greater than 15")  # Output: x is not greater than 15
```

Summary of Day 4:

Today, we learned about conditional statements in Python, including the `if`, `else`, and `elif` statements. We also explored how to use logical operators in conditional statements and how to nest `if` statements for more complex conditions.