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If Else Statement in Python

if statement

An **if condition** in Python is used to make decisions in your program. It allows your program to **check whether a certain condition is true or false** and then execute specific code only when the condition is true.

In short:

"If something is true, do this; otherwise, skip it"

Example: A program adds two numbers. If the result is negative, the program prints an error.

A **condition** is an expression that evaluates to true or false. An if statement is a decision-making structure that contains a condition and a body of statements. If the condition is true, the body is executed. If the condition is false, the body is not executed.

Basic Syntax:

```
python  
  
if condition:  
    # code to run if the condition is true
```

Solved Example 1: Checking a Number

```
number = 10
```

```
if number > 0:  
    print("The number is positive.")
```

Output:

The number is positive.

Explanation:

Python checks if $number > 0$.

Since 10 is greater than 0, it prints the message.

If you changed it to $number = -5$, nothing would print because the condition would be **False**.

Solved Example 2: Checking for Even Number

```
num = 8
```

```
if num % 2 == 0:  
    print(num, "is an even number.")
```

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Output:

8 is an even number.

Explanation:

num % 2 gives the remainder when divided by 2.
If the remainder is 0, it's an even number.

Solved Example 3: Checking if a Person is an Adult

age = 20

```
if age >= 18:  
    print("You are an adult.")
```

Output:

You are an adult.

Explanation:

Python checks if age >= 18.
If yes, it prints the message; otherwise, it just moves on.

Solved Example 4: Checking a String

```
name = "Abhyas"
```

```
if name == "Abhyas":  
    print("Welcome, How are you?")
```

Output:

Welcome, How are you?

Explanation:

The condition checks if the variable name contains the text "Abhyas".
If yes, the message is printed.

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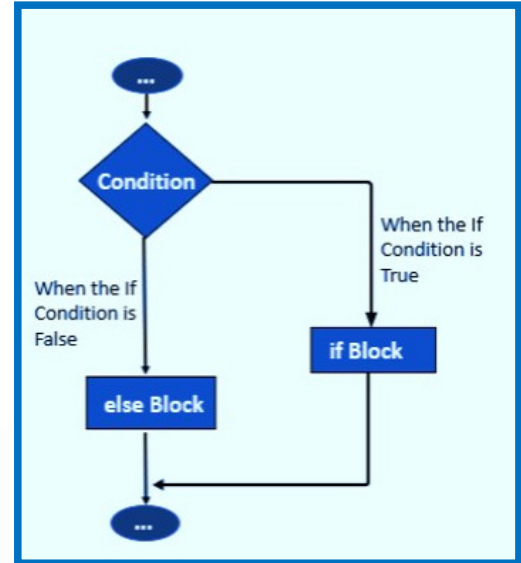
If Else Statement in Python

if-else statement

The **if...else** statement lets your program make a decision and choose between **two paths** – one when a condition is **True**, and another when it's **False**.

Why we use if-else:

- To run different code depending on whether something is true or false
- To make your program respond to user input, data, or situations
- To control the flow of your program – what happens, when, and why.



Syntax of If Else

if condition:
 # Code block if condition is True
else:
 # Code block if condition is False

NOTE:

- The **if** part runs when the condition is **True**.
- The **else** part runs when the condition is **False**.

Solved Example 1: Check Odd and Even Number

```
number = int(input("Enter a number: "))
if number % 2 == 0:
    print("The number is even.")
else:
    print("The number is odd.")
```

Enter a number: 89
The number is odd.
=== Code Execution Successful ===

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Solved Example 2: Age Checker - Are You Eligible to Vote

```
age = int(input("Enter your age: "))
if age >= 18:
    print("You are eligible to vote.")
else:
    print("You are not eligible to vote yet.")
```

Enter your age: 23
You are eligible to vote.
=== Code Execution Successful ===

Assignment

Ques 1-Check if a Number is Positive, Negative.

- Instructions:
- Take a number as input
- Use if-else to print whether it's positive, negative.

Ques 2-Check if Year is a Leap Year

- Instructions:
- A year is a leap year if:
- Divisible by 4 and not by 100, OR
- Divisible by 400
- Take input and check

Ques 3-Password Checker

- Instructions:
- Ask the user to input a password
- If the password is correct (e.g., "python123"), print success
- Otherwise, print access denied

Ques 4- Check if Character is a Vowel or Consonant

- Instructions:
- Take a single alphabet letter from the user
- Use if-else to check if it's a vowel

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