😊 If Elif and Else statements in Python

In Python, **if, elif, and else** statements are used for decision-making, allowing the program to execute specific blocks of code based on conditions.

1. **if Statement**:

   o It checks a condition.

   o If the condition is True, the corresponding block of code executes.

2. **elif (Else If) Statement**:

   o It allows multiple conditions to be checked sequentially.

   o If the previous if condition is False, it checks the elif condition.

   o The first elif condition that evaluates to True gets executed, and the rest are skipped.

3. **else Statement**:

   o It serves as a fallback when none of the if or elif conditions are met.

   o The else block executes when all preceding conditions are False.

Use Cases of If-Elif-Else Statements

1. **Decision Making**:

   o Example: Checking if a user is eligible to vote based on age.

2. **User Input Validation**:

   o Example: Validating if a password meets security requirements.

3. **Menu Selection in Applications**:

   o Example: Handling different user choices in a command-line interface or GUI.

4. **Conditional Execution in Loops**:

   o Example: Applying discounts based on purchase amount in an e-commerce app.

5. **Error Handling**:

   o Example: Checking if a file exists before reading it.

Benefits of If-Elif-Else Statements

1. **Improves Code Readability**:

   o Clearly defines conditions and their corresponding actions.

2. **Efficient Decision Making**:

   o Stops checking conditions as soon as a True condition is found, reducing unnecessary computations.

3. **Flexible and Scalable**:

   o Can handle multiple conditions efficiently using elif.

4. **Helps in Automating Logical Decisions**:

   o Makes programs dynamic by allowing different outcomes based on varying inputs.

😄 To begin with the Lab

1. Below is an example of if and else statements as you can see in the first cell, we told Python that the if statement is set to true, and it gave us the answer.
2. Then in the second cell, we used x as a variable and then printed the answer we get the answer from the else statement because the variable was set to false and on the if statement, we told it to be true.

```
[1]: if True:
         print('It was true!')

It was true!
```

Let's add in some else logic:

```
[2]: x = False

if x:
    print('x was True!')
else:
    print('I will be printed in any case where x is not true')

I will be printed in any case where x is not true
```

3. In the below example, you can see that we have set the location to bank, and based on that we are using multiple statements.

```
[3]: loc = 'Bank'

if loc == 'Auto Shop':
    print('Welcome to the Auto Shop!')
elif loc == 'Bank':
    print('Welcome to the bank!')
else:
    print('Where are you?')

Welcome to the bank!
```

4. Then in the below examples we are using person names.

```
[4]:  person = 'Sammy'

      if person == 'Sammy':
          print('Welcome Sammy!')
      else:
          print("Welcome, what's your name?")
```

Welcome Sammy!

```
[5]:  person = 'George'

      if person == 'Sammy':
          print('Welcome Sammy!')
      elif person =='George':
          print('Welcome George!')
      else:
          print("Welcome, what's your name?")
```

Welcome George!