Rex Jones II

When To Use if & if-elif Statements

Python Video = https://youtu.be/wiLG8ONcVIs

In this session, let's look at when to use multiple if statements and when to use an if-elif statement. Both are important and good for making a decision. To recap, the if – else statement allows us to check for only 2 conditions. The if-elif statement comes in handy when our scenario has many conditions.

In this scenario, let's make a list of available_fruits = ["oranges", "grapes", "apples", "strawberries", "pineapples"].

```
available_fruits = ["oranges", "grapes", "apples",
                    "strawberries", "pineapples"]
```

Let's start with multiple if statements by writing if "apples" in available_fruits: print("Add apples to the list") / if "grapes" in available_fruits: print("Add grapes to the list") / if "strawberries" in available_fruits: print("Add strawberries to the list \n"). All of these statements are true because apples, grapes, and strawberries are in the available fruit list.

```
if "apples" in available_fruits:
  print("Add apples to the list")
if "grapes" in available_fruits:
  print("Add Grapes to the list")
if "strawberries" in available_fruits:
  print("Add strawberries to the list")
```

Now, let's write if-elif statements. Know what, I'm going to copy and paste the if statements then replace if with elif and one more time. The code looks almost the same. However, there's a difference.

```
if "apples" in available_fruits:
  print("Add apples to the list")
elif "grapes" in available_fruits:
  print("Add Grapes to the list")
elif "strawberries" in available_fruits:
  print("Add strawberries to the list")
```

Let's run. All of the print statements are displayed when using multiple if statements. For the if-elif statement, the console only shows 1 statement.

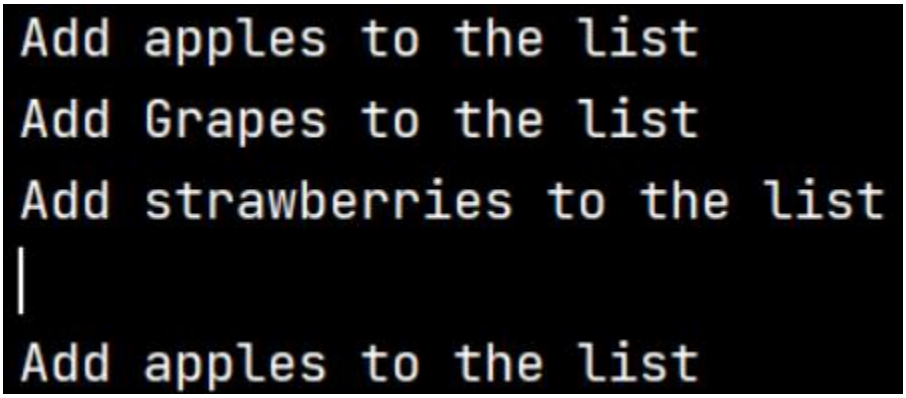
```
Add apples to the list
Add Grapes to the list
Add strawberries to the list

Add apples to the list
```

A person may think, we should use multiple if statements but it depends on the scenario. The if-elif statements are more efficient when we need only 1 condition to Pass. Therefore it's best to use an if-elif statement when we have more than 1 condition and only need 1 to return True. But with multiple if statements, all of the conditions are checked even when one of the if statements is True. Therefore, it's best to use multiple if statements when we need more than 1 condition to pass.

Let's debug and walk through it step-by-step. Add a breakpoint at the beginning of each code block. Go to Run and select Debug. We see execution stopped at if "apples" in available_fruits. The condition is True. At the bottom, click Step Into F7 so it will print("Add apples to the list"). Step Into again and now we are at the condition for if grapes. That's also True, so Step Into takes us to the print statement for grapes. At this point, we see how the block of code for multiple if statements execute every if statement. Step Into 2 more times and we are finished and execution drops down to the next block of code.

Watch what happens behind the scenes for if-elif. The condition is True. Step Into and we are at the print statement for apples. Step Into one more time and we are finished. Only 1 block of code was executed when the condition was True. The remaining conditions were skipped for an if-elif block of code. That's why the debug window is disabled. Run one more time and we see the results in the Console.



The 1st condition checks to see if the statement is True if apples is in the available fruits list. Both blocks are true so apples are added to the list. The if statement checks for grapes and strawberries. However, the elif block of code is bypassed because the if apples statement is True. That's it for the difference between if-elif and multiple if statements.

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