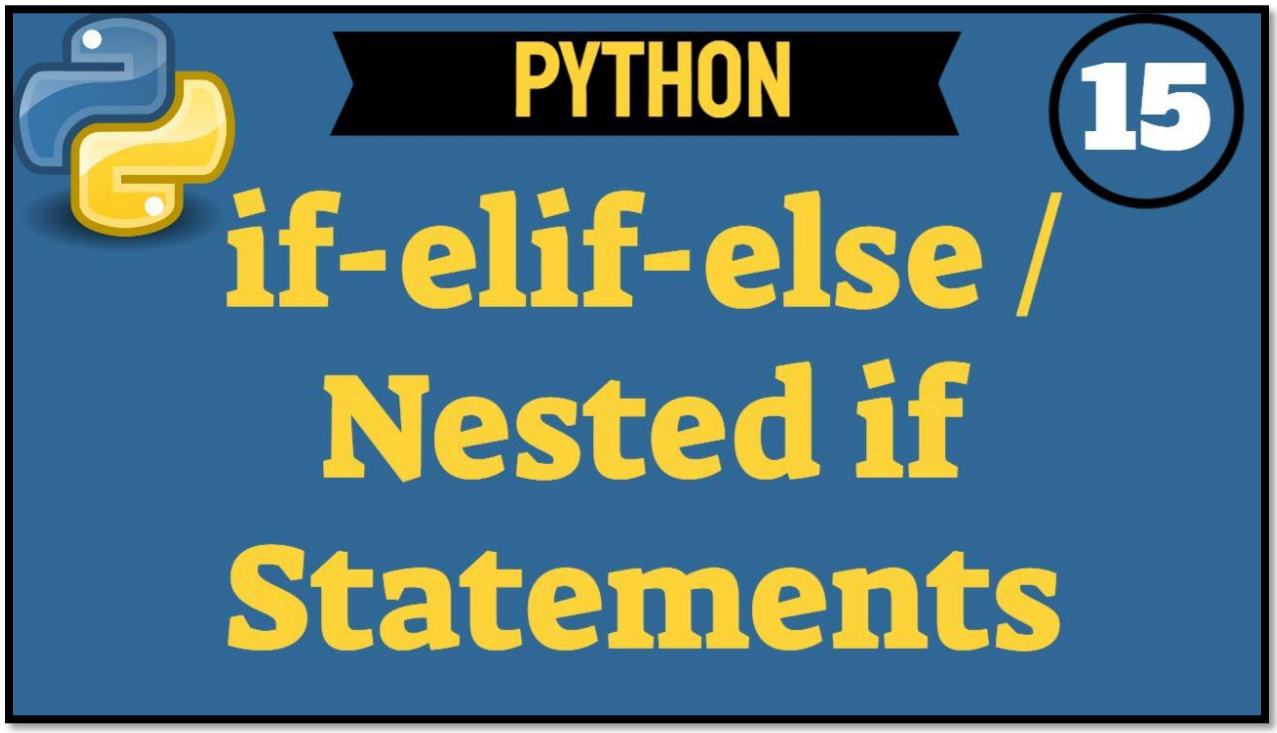
Rex Jones II

Python if-elif-else
Nested if Statements



Python Video = https://youtu.be/01HjJce0HUI

if – elif – else

In this session, let's discuss the if-elif-else Statement. elif is short for else if. It provides another condition statement that our program checks when there are more than 2 conditions. Recall from the previous session, the if – else statement allows us to check for only 2 conditions. We can add as many elif statements that we need in our program because we may come across a scenario that have many scenarios. For example, here's a list of 4 scenario conditions.

```
'''
(1) if the price is > $100 but <= $199.99
      then the customer gets a $10 Discount
(2) if the price is > $200 but <= $299.99
      then the customer gets a $25 Discount
(3) if the price is > $300 but <= $399.99
      then the customer gets a $50 Discount
(4) if the price is > $400
      then the customer gets a $60 Discount
'''
```

1st condition, if the price is greater than $100 and less than or equal to $199.99 then the customer gets a $10 Discount. 2nd condition, if the price is greater than $200 and less than or equal to $299.99 then the customer gets a $25 Discount. 3rd condition, if the price is greater than $300 and less than or equal to $399.99 then the customer gets a $50 Discount. 4th condition, if the price is greater than $400 then the customer gets a $60 Discount.

We need a block of code to handle all of these scenarios. Let's start with input("Enter cost of items: "). The value we expect will be a float() so we add the float function before the input function. Then assign the value to price =. Now, our program will check if the price is < 199.99: When the price is less than $199.99 then the discount = 10. The purpose of an elif statement is to provide another condition when the if statement is False. So our 2nd condition is elif price is < 299.99: then discount = 25. Always type the colon after the condition. The colon means we are starting a block of code that will be executed when the condition is True. That's why our program has an indent. Be careful because if I decrease the indent by 1 space an error will show up. Python is strict on indents. The 3rd condition is elif price is < 399.99: then discount = 50.

The elif statement is like an if statement. However, it is only evaluated when the if statement is False. When the if statement and all of the elif statements fail then Python runs the else: block. We have a discount of 10, 25, and 50 but the only discount = remaining is 60. There's a $60 discount when the price is greater than $400.

```
if price < 199.99:
  discount = 10
elif price < 299.99:
  discount = 25
elif price < 399.99:
  discount = 50
else:
  discount = 60
```

Python does not require an else statement. We can easily make the else block an elif statement. The else block is a catchall statement that test any condition not included in the if or elif statement.

Now, let's print() the discount. ("Your Discount Is $") Use the format code for type float. In the string, we write ("Your Discount Is $%.2f"). The %.2f is a format description placeholder for a floating-point number with a 2 precision. 2 means there will be 2 values after the decimal point. Next is the % String Modulo Operator followed by the discount variable name. If you read this statement, it will be 2 values after the dollar sign but if I put a 3 then it will be 3 values after the decimal point.

After the print statement, we are going to calculate the total = with price – discount. Last statement is to print the total by writing print("Your Total Price Is $%.2f" % total).

```
print("Your Discount Is $%.2f" % discount)
total = price - discount
print("Your Total Price Is $%.2f" % total)
```

Let's run. Enter cost of items 100, Discount is $10.00, and Total Price is $90.00.

```
Enter cost of items:100
Your Discount Is $10.00
Your Total Price Is $90.00
```

Next is 250, Discount is $25.00, with a Total Price of $225.00.

```
Enter cost of items:250
Your Discount Is $25.00
Your Total Price Is $225.00
```

Let's test for some more conditions like 399.99, the Discount is not correct because it shows $60.00

```
Enter cost of items:399.99
Your Discount Is $60.00
Your Total Price Is $339.99
```

I wanted to show you $399 because we should write less than or equal to 399.99, 299.99, 199.99. If we put less than only, that means the value True will 399.98 so make sure you add the equal sign. That's a good mistake people make sometimes. Even when we are testing code. The developer can easily forget to put the equal sign.

```
if price <= 199.99:
  discount = 10
elif price <= 299.99:
  discount = 25
elif price <= 399.99:
  discount = 50
```

Let's run again and I'm going to add 399.99. Now, we see $50

```
Enter cost of items:399.99
Your Discount Is $50.00
Your Total Price Is $349.99
```

Next is $400, we see a $60.00.

```
Enter cost of items:400.00
Your Discount Is $60.00
Your Total Price Is $340.00
```

If we think about the condition if the price is greater than $400. I made a mistake and it should be greater than or equal to $400

```
(4) if the price is >= $400
      then the customer gets a $60 Discount
```

It's good to test for many conditions. Therefore, we must think about our code and the possible values before we say it's all good. How about 99.99?

```
Enter cost of items:99.99
Your Discount Is $10.00
Your Total Price Is $89.99
```

We have a problem because the discount supposes to start at $100. Even if we have a cost of items is $-50. We still see a discount and that's not right.

```
Enter cost of items:-50
Your Discount Is $10.00
Your Total Price Is $-60.00
```

nested if

In this situation, we will add a nested if statement. A nested statement is when we place a statement inside of another statement. For this case, we are going to check for a condition after the 1st condition evaluates to True.

So, at the top, we indent the existing block of code then write if price > 99.99:. This condition determines if we execute the remaining code block. If the condition is true then the Python interpreter

will check if the price is less than or equal to 199.99 followed by the subsequent lines. However, if price is not greater than 99.99 then we add an else: block. The else block will only execute if this code is False

```
if price > 99.99_
  if price <= 199.99:
    discount = 10
  elif price <= 299.99:
    discount = 25
  elif price <= 399.99:
    discount = 50
  else:
    discount = 60
  print("Your Discount Is $%.2f" % discount)
  total = price - discount
  print("Your Total Price Is $%.2f" % total)
else:
```

Add another print statement to say print(“You Do Not Qualify For A Discount”).

```
else:
  print("You Do Not Qualify For A Discount")
```

Run again. – 10, The console shows You Do Not Qualify For A Discount.

```
Enter cost of items:-10
You Do Not Qualify For A Discount
```

This time, the cost is 50 and we still do not see a discount.

```
Enter cost of items:50
You Do Not Qualify For A Discount
```

Let's double check to make sure we can get a discount. Run and I'm going to add 150 returns a $10.00 discount with a total price of $140.00.

```
Enter cost of items:150
Your Discount Is $10.00
Your Total Price Is $140.00
```

That's it for if-elif-else and Nested if statements.

Contact Info

- ✔ Email Rex.Jones@Test4Success.org
- ✔ YouTube https://www.youtube.com/c/RexJonesII/videos
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