Course	Python 101
Term	
Week	
Date	
Chapter. Topic	

Short-Circuit Evaluation

Siva R Jasthi

Computer Science and Cybersecurity

Metropolitan State University

0 is False. Non-zero (anything else) is True

- Can you guess the output of this program?

```
#@title 0 is False; Anything else is True

a = False
b = True
c = 0
d = 1

print(a == b)
print(a == c)
print(a == d)
print(b == c)
print(b == d)
```

Short Circuit Evaluation of Boolean Expressions

- OR stops at the first True

```
#@title OR stops at the first True
x = 0 or 9 or 10
print(x)
```

- AND stops at the first False

```
#@title AND stops at the first False
x = 0 and 9 and 10
print(x)
```

Short Circuit Evaluation of Boolean Expressions (OR)

- Your mom asked to buy any of these breads at the grocery store.

- Your first task is to find out whether you can satisfy her request.

- You can write the if conditions as follows.

```
if (white == True) or (wheat == True) or (whole_wheat == True) or (multi_grain == True):
    print("Yes! I can get what she wants!")
else:
    print("Time to go to another store")
```

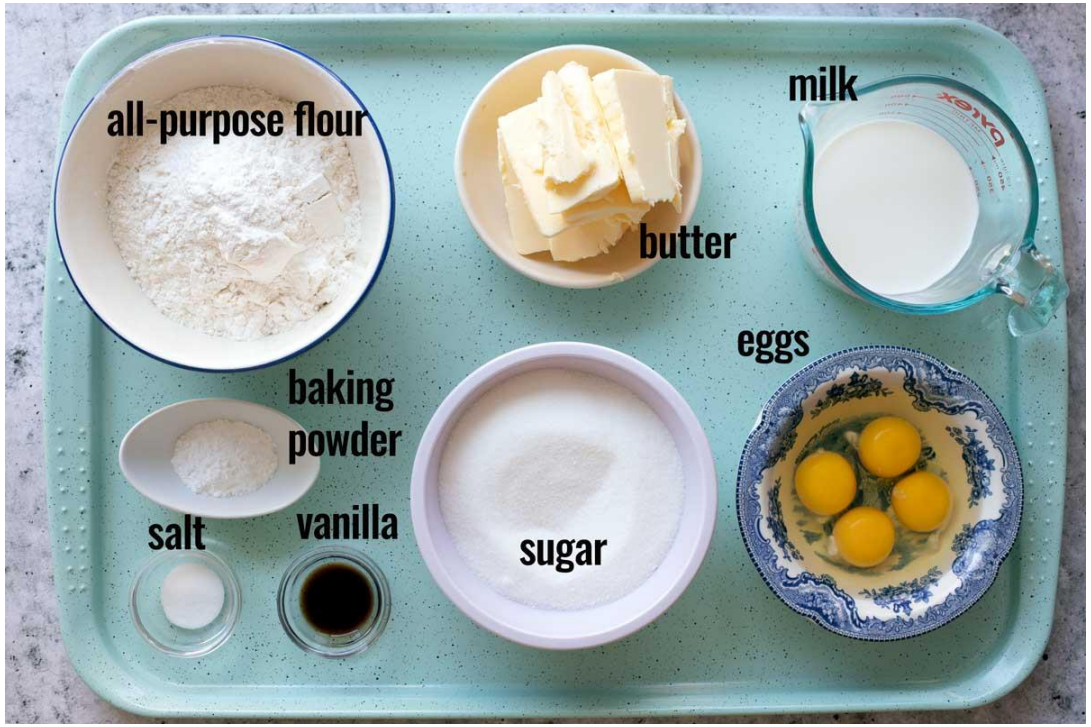
Short Circuit Evaluation of Boolean Expressions (OR)

```
If (white == True) or (wheat == True) or (whole_wheat == True) or (multi_grain == True):
    print("Yes! I can get what she wants!")
```

- Plain English:
  - Do you have WHITE bread? No
  - Do you have WHEAT bread? Yes
  - ~~Do you have WHOLE WHEAT bread? Not necessary to ask this question.~~
  - ~~Do you have MULTIGRAIN bread? Not necessary to ask this question.~~
- Summary: OR evaluation stops when it comes across True

Short Circuit Evaluation of Boolean Expressions (AND)

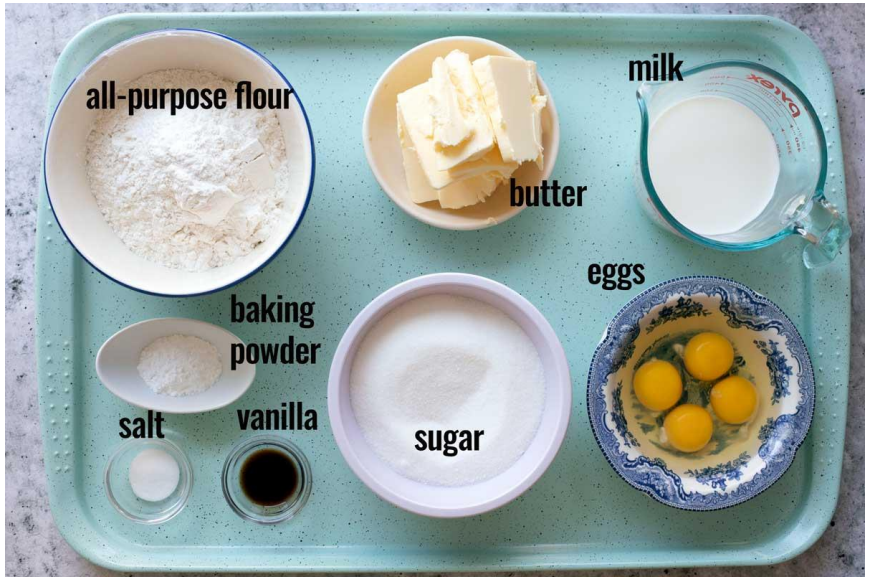
- You are planning to make a cake. You already have every ingredient except sugar, milk, and butter.
- You want to get all three at one store in one go.
- Your first task is to find out whether you can satisfy her request.
- You can write the if conditions as follows.




```
If (sugar == True) and (milk == True) and (butter == True):
    print("Yes! I can buy all at one place!")
Else:
    print("Time to go to another store")
```

Short Circuit Evaluation of Boolean Expressions (AND)

```
If (sugar == True) and (milk == True) and (butter == True):
    print("Yes! I can buy all at one place!")
```



- Plain English
  - Do you have Sugar? Yes
  - Do you have milk? No
  - ~~Do you have butter? Not needed.~~

Short Circuit Evaluation : Summary

- OR condition stops at the first True
- AND condition stops at the first False

Empty list, tuple, set and dictionary evaluates to False

Check this code. Python_tutor link