

7

Conditional Statements and Logical Operators

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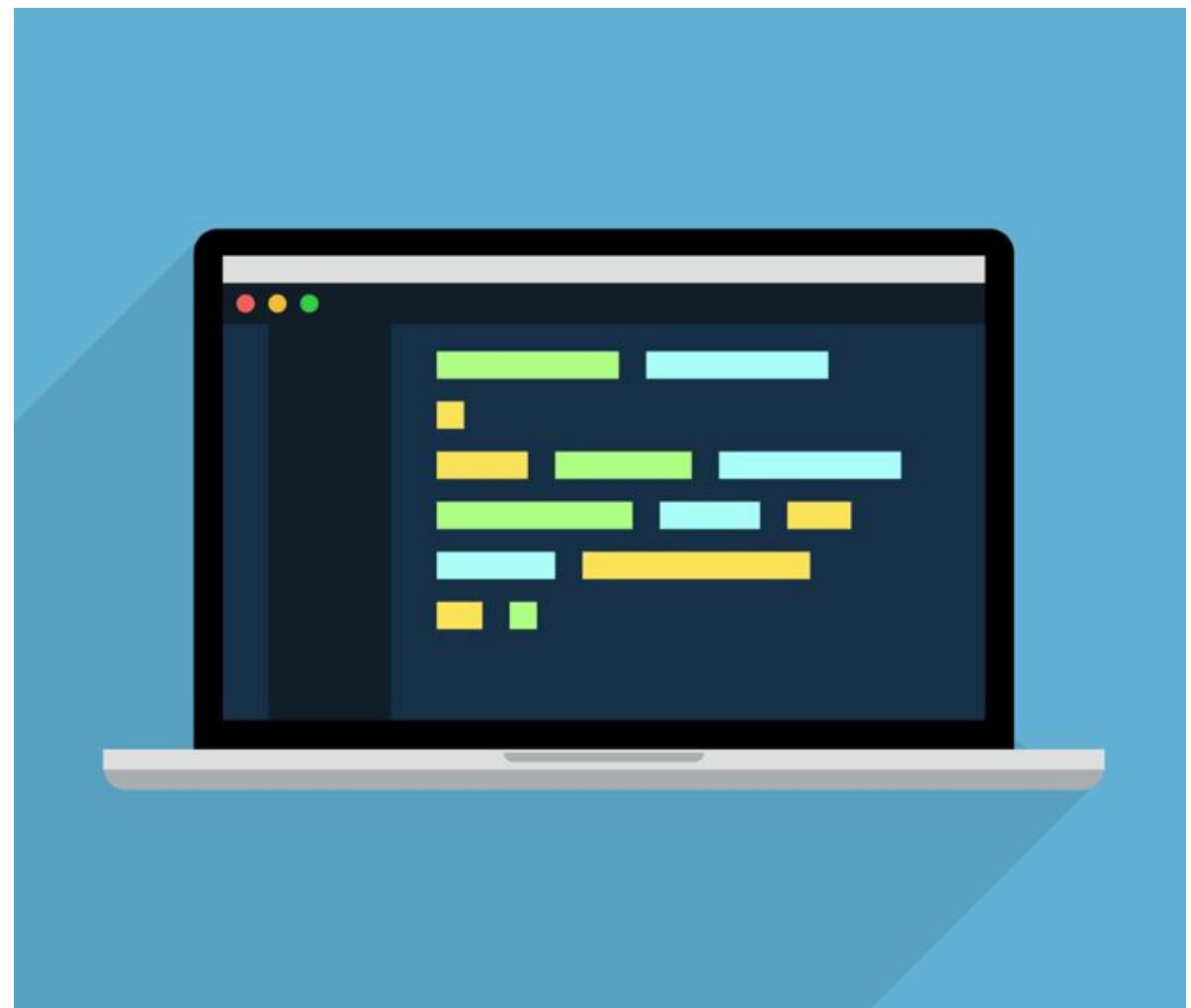
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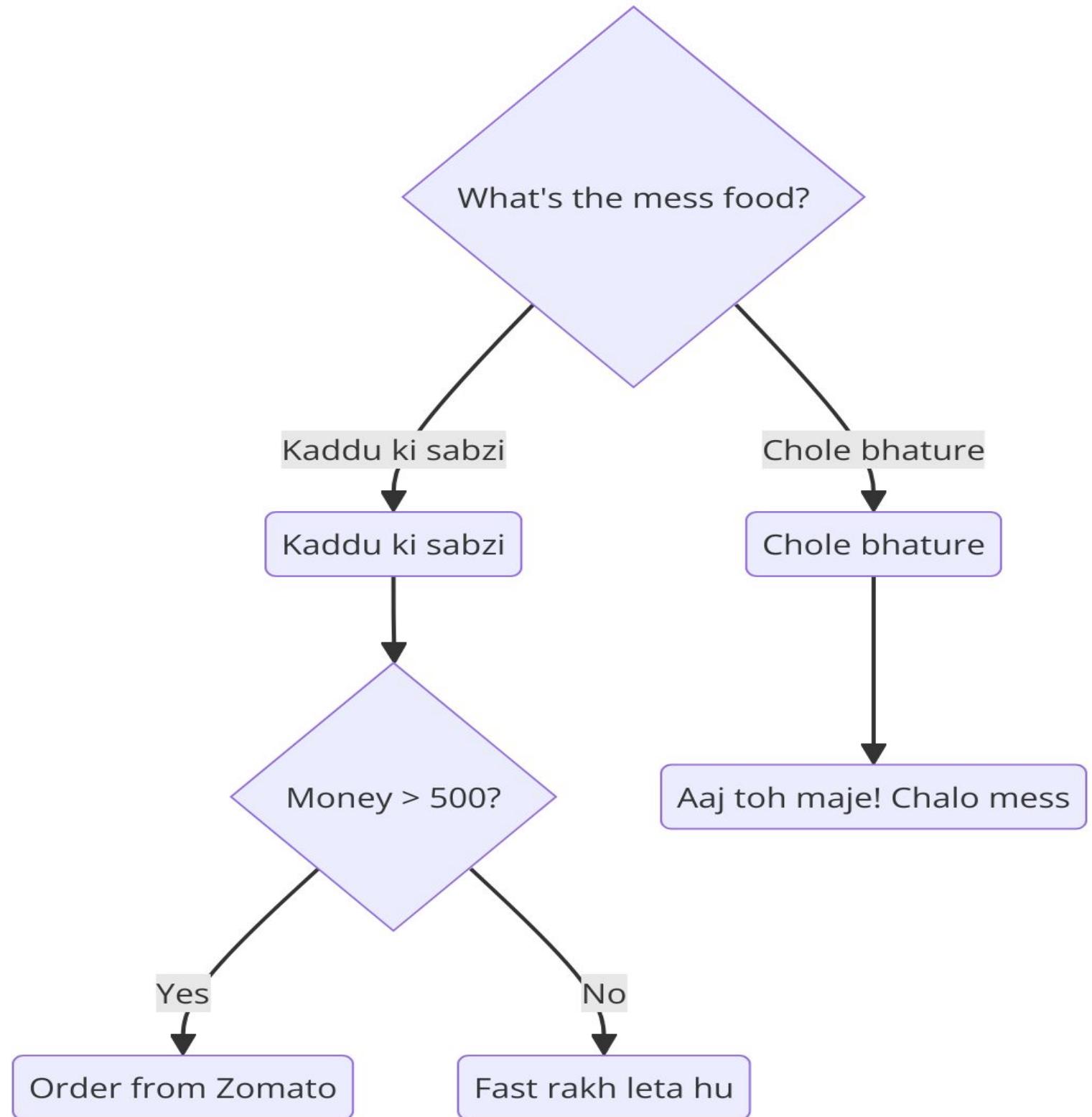
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Quick Recap :

- **Conditional Statements**
- **if-else statement**
- **if-elif-else ladder**



Conditional statements: Definition



Conditional statements: Definition

A nested conditional **if statement** is like making decisions within decisions. It's when you have an **if statement inside another if or else statement**.



```
1 if mess_food == "Chole Bhature":  
2     print("Aaj toh maje. chalo mess!!")  
3 elif mess_food == "Kaddu ki sabzi":  
4     if money >500:  
5         print("Ordering cheese burst pizza")  
6     else:  
7         print("Fast rkhan leta hu")
```

Conditional statements: Nested

```
if mess_food == "Chole bhature":  
    ans= "Aaj toh maje! Chalo mess"  
elif pocket_money_left > 500:  
    ans = "Ordering Cheese Burst Pizza"  
elif pocket_money_left >150:  
    ans = "Ordering Indian Thali"  
else:  
    if mess_food == "Dal-makhani Chawal Roti Lauki sabzi":  
        ans = "Dal Makhni hai , Dal -chawal se hojayega"  
    elif pocket_money_left >= 100:  
        ans = "Eating paratha from canteen"  
    else:  
        ans = "Mess food is best food"
```



Nested if-else Syntax

Nested if-else statements :

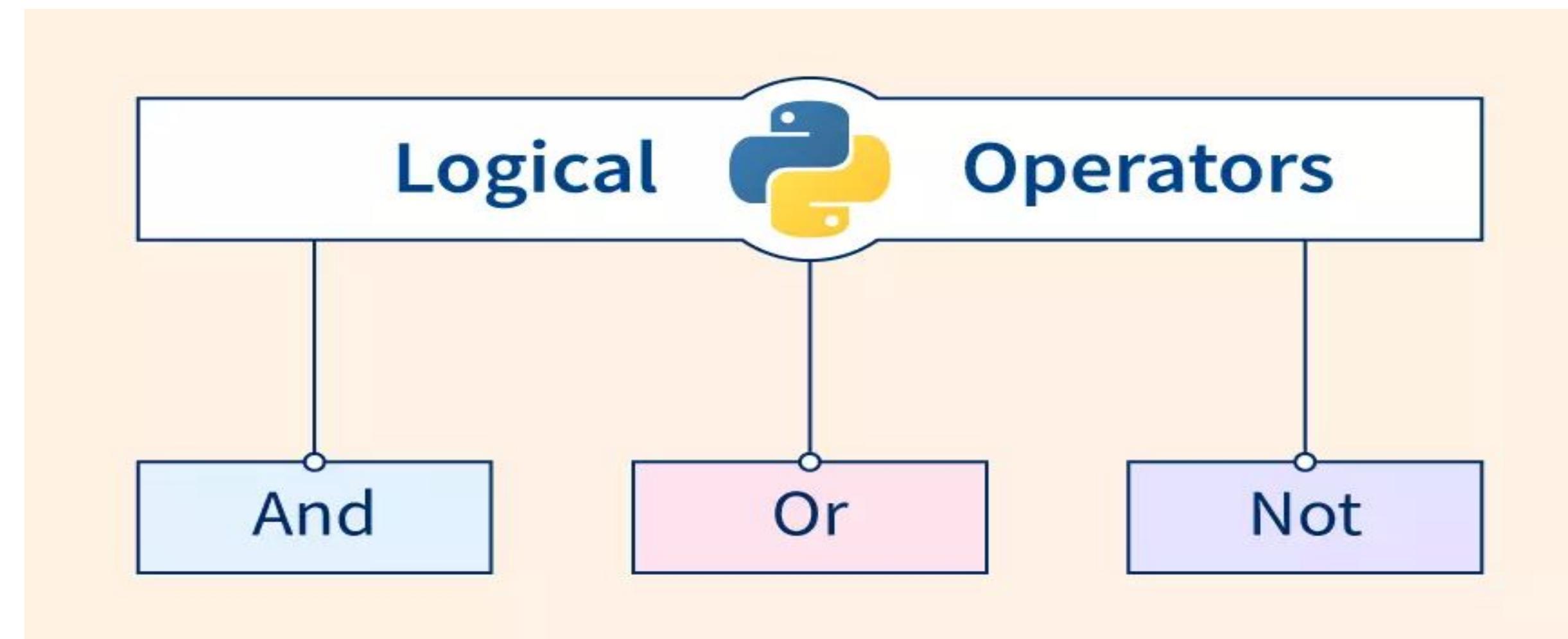
```
if condition1:  
    if condition2:  
        # Code to execute if condition1 and condition2 are true  
    else:  
        # Code to execute if condition1 is true and condition2 is false  
elif condition3:  
    if condition4:  
        # Code to execute if condition3 and condition4 are true  
    else:  
        # Code to execute if condition3 is true and condition4 is false  
else:  
    # Code to execute if none of the above conditions are true
```

Coding Assignment - 1

Logical Operators

Logical operators: Definition

In Python, logical operators are used to combine multiple conditions together and evaluate them as a single boolean expression



Logical operators :

Operator	Description	Example
AND	Returns True if both operands are True	A and B
OR	Returns True if either of the operands are True	A or B
NOT	Returns True if the operand is False	not A

And operator: Syntax & Example

```
if condition1 and condition2:  
    result = "Both conditions are true"  
else:  
    result = "At least one condition is false"
```

```
if has_ticket and has_time:  
    action = "Go to the movie"  
else:  
    action = "Cannot go to the movie"
```



And operator: Truth Table

- A \Leftrightarrow Ticket available or not?
- B \Leftrightarrow Has time or not?

A	B	A and B
FALSE	FALSE	FALSE
FALSE	TRUE	FALSE
TRUE	FALSE	FALSE
TRUE	TRUE	TRUE

A	B	A and B
0	0	0
0	1	0
1	0	0
1	1	1

OR operator: Syntax & Example

```
if condition1 or condition2:  
    result = "At least one condition is true"  
else:  
    result = "Both conditions are false"
```



```
if is_sunny or is_weekend:  
    action = "Go outside"  
else:  
    action = "Stay inside"
```

OR operator: Truth Table

- A \Leftrightarrow Sunny or not?
- B \Leftrightarrow Weekend or not?

A	B	A or B
FALSE	FALSE	FALSE
FALSE	TRUE	TRUE
TRUE	FALSE	TRUE
TRUE	TRUE	1

A	B	A or B
0	0	0
0	1	1
1	0	1
1	1	1

Not operator: Syntax & Example

```
if not condition:  
    result = "Condition is false"  
else:  
    result = "Condition is true"
```

```
if not is_weekday:  
    action = "Sleep in"  
else:  
    action = "Wake up early"
```



Not operator: Truth Table

- A \Leftrightarrow Weekday or not?

A	not A
FALSE	TRUE
TRUE	FALSE

A	not A
0	1
1	0

Let's plan the weekend again



```
1 if is_weekend and is_sunny and not has_work_left:  
2     action = "Grab the squad, we're heading for a picnic!!! ☀️🎉"  
3 else:  
4     action = "Picnic not possible... Back to the student life struggle! 😅📚"5
```

- A \Leftrightarrow Is weekend or not?
- B \Leftrightarrow Is sunny or not?
- C \Leftrightarrow Has work left or not?
- **Result \Leftrightarrow A and B and not C**

Logical operators: Truth Table

A	B	C
FALSE	FALSE	FALSE
FALSE	FALSE	TRUE
FALSE	TRUE	FALSE
FALSE	TRUE	TRUE
TRUE	FALSE	FALSE
TRUE	FALSE	TRUE
TRUE	TRUE	FALSE
TRUE	TRUE	TRUE

Logical operators: Truth Table

A	B	C	A and B
FALSE	FALSE	FALSE	FALSE
FALSE	FALSE	TRUE	FALSE
FALSE	TRUE	FALSE	FALSE
FALSE	TRUE	TRUE	FALSE
TRUE	FALSE	FALSE	FALSE
TRUE	FALSE	TRUE	FALSE
TRUE	TRUE	FALSE	TRUE
TRUE	TRUE	TRUE	TRUE

Logical operators: Truth Table

A	B	C	A and B	not C
FALSE	FALSE	FALSE	FALSE	TRUE
FALSE	FALSE	TRUE	FALSE	FALSE
FALSE	TRUE	FALSE	FALSE	TRUE
FALSE	TRUE	TRUE	FALSE	FALSE
TRUE	FALSE	FALSE	FALSE	TRUE
TRUE	FALSE	TRUE	FALSE	FALSE
TRUE	TRUE	FALSE	TRUE	TRUE
TRUE	TRUE	TRUE	TRUE	FALSE

Logical operators: Truth Table

A	B	C	A and B	not C	A and B and not C
FALSE	FALSE	FALSE	FALSE	TRUE	FALSE
FALSE	FALSE	TRUE	FALSE	FALSE	FALSE
FALSE	TRUE	FALSE	FALSE	TRUE	FALSE
FALSE	TRUE	TRUE	FALSE	FALSE	FALSE
TRUE	FALSE	FALSE	FALSE	TRUE	FALSE
TRUE	FALSE	TRUE	FALSE	FALSE	FALSE
TRUE	TRUE	FALSE	TRUE	TRUE	TRUE
TRUE	TRUE	TRUE	TRUE	FALSE	FALSE

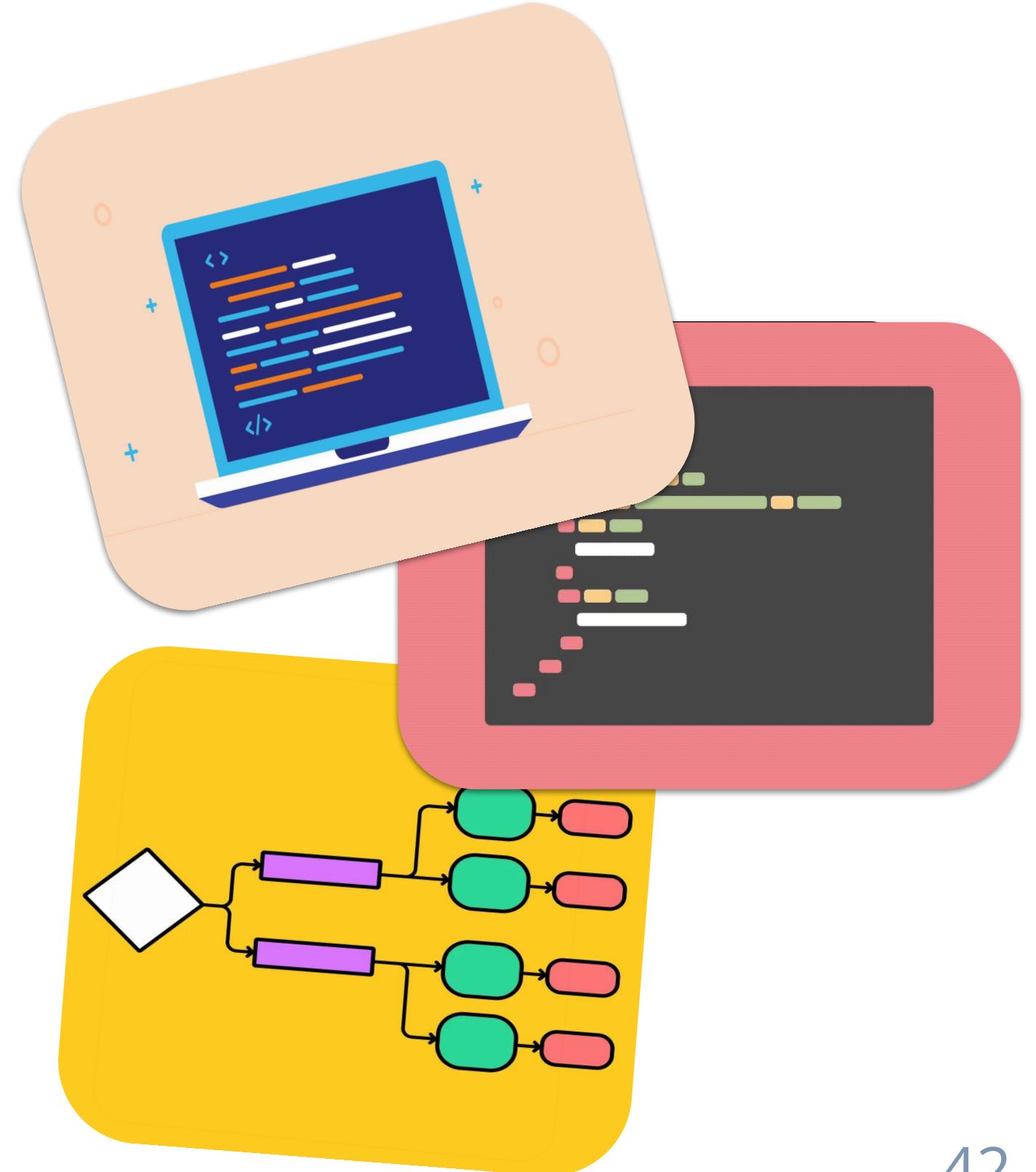
Truth Table for AND , OR , NOT :

X	Y	X OR Y	X AND Y	NOT X
true	true	true	true	false
true	false	true	false	false
false	true	true	false	true
false	false	false	false	true

Coding Assignment-2

Summary

- **Conditional Statements**
 - Nested conditional statements
- **Logical Operators**
 - and, or, not
 - Combining them
 - Truth tables



Thank You!