if	if - else	if - elif - else	Ternary Conditional Operator	Nested Conditional Statements:
used to control the flow of program based on a specific condition. It allows to execute a block of code only if the condition is true. If the condition is false, the code block is skipped.	allow to execute one block of code if a condition is true (the if block) and another block of code if the condition is false (the else block)	allows to check multiple conditions in order and execute the block of code associated with the first condition that evaluates to True. If none of the conditions are True, the code block in the else section is executed	used the ternary conditional operator (also known as the conditional expression) to create concise one-liner conditional statements.	A nested conditional statement is an "if" statement that is placed within another "if" statement or within "if-else" or "if-elif-else" structures. This allows you to check multiple conditions in a hierarchical manner.
Syntax: **if condition:** # Code to be executed if the condition is true	**Syntax:** **if condition:** # Code to be executed if the condition is true **else:** # Code to be executed if the condition is false	**Syntax:** **if condition1:** # Code to be executed if condition1 is true **elif condition2:** # Code to be executed if condition2 is true **elif condition3:** # Code to be executed if condition3 is true # Add more elif blocks if needed **else:** # Code to be executed if none of the conditions are true	**Syntax:** **value_if_true if condition else value_if_false**	**Syntax:** **if condition1**: # Code to be executed if condition1 is true **if condition2**: # Code to be executed if both condition1 and condition2 are true **else:** # Code to be executed if condition1 is true but condition2 is false **else:** # Code to be executed if condition1 is false

Example :
x = 10
if x > 5:
print("x is greater than 5")
	Example :
	x = 3
	if x > 5:
	print("x is greater than 5")
	else:
	print("x is not greater than 5")
		Example :
		x = 8
		if x > 10:
		print("x is greater than 10")
		elif x > 5:
		print("x is greater than 5 but not greater than 10")
		else:
		print("x is 5 or less")
			Example :
			x = 10
			message = "x is greater than 5" if x > 5 else "x is not greater than 5"
			print(message)
				Example :
				x = 10
				if x > 5:
				print("x is greater than 5")
				if x < 15:
				print("x is also less than 15")
				else:
				print("x is not less than 15")
				else:
				print("x is not greater than 5")

With different Structures :
1. Lists:
my_list = [1, 2, 3, 4, 5]
if len(my_list) > 0:
print("The list is not empty")
 	
if 3 in my_list:
print("The number 3 is in the list")
 	
2. Dictionaries:
person = {"name": "Alice", "age": 30, "city": "New York"}
	With different Structures :
	1. Lists:
	my_list = [1, 2, 3]
	if my_list:
	print("The list is not empty.")
	else:
	print("The list is empty.")
	
	2. Dictionaries:
	person = {"name": "Alice", "age": 30}
	if "age" in person:
	print(f"{person['name']} is
		With different Structures :
		1. Lists:
		my_list = [1, 2, 3]
		if len(my_list) == 0:
		print("The list is empty.")
		elif len(my_list) == 3:
		print("The list has 3 elements.")
		else:
		print("The list has some elements but not 3.")
		
		2. Dictionaries:
		person = {"name": "Alice", "age":
			With different Structures :
			1. Lists:
			numbers = [1, 2, 3, 4, 5]
			even_numbers = [x for x in numbers if x % 2 == 0]
			odd_numbers = [x for x in numbers if x % 2 != 0]
			
			result = even_numbers if len(even_numbers) > len(odd_numbers) else odd_numbers
			print(result)
				With different Structures :
				1. Lists:
				numbers = [1, 2, 3, 4, 5]
				if len(numbers) > 0:
				print("The list is not empty.")
				if len(numbers) > 3:
				print("The list has more than 3 elements.")
				else:
				print("The list has 3 or fewer elements.")
				else:
				print("The list is empty.")

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if "age" in person:
    print("Age is a key in the dictionary")

3. Strings:
text = "Hello, World!"
if "Hello" in text:
    print("The string contains 'Hello'")

4. Tuples:
dimensions = (5, 10)
if dimensions[0] < dimensions[1]:
    print("The first dimension is less than the second")

5. Sets:
colors = {"red", "green", "blue"}
if "yellow" not in colors:
    print("Yellow is not in the set")
```

```
{person['age']} years old.")
else:
    print("Age information not found.")

3. Strings:
text = "Hello, World!"
if "Hello" in text:
    print("The string contains 'Hello'.")
else:
    print("The string does not contain 'Hello'.")

4. Tuples:
dimensions = (5, 10)
if dimensions[0] < dimensions[1]:
    print("The first dimension is less than the second.")
else:
    print("The first dimension is not less than the second.")

5. Sets:
colors = {"red", "green", "blue"}
if "yellow" in colors:
    print("Yellow is in the set.")
else:
    print("Yellow is not in the set.")
```

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30}
if "age" in person:
    print(f"{person['name']} is {person['age']} years old.")
elif "height" in person:
    print(f"{person['name']} has a height of {person['height']} inches.")
else:
    print(f"{person['name']} has no age or height information.")

3. Strings:
text = "Hello, World!"
if "Hello" in text:
    print("The string contains 'Hello'.")
elif "Goodbye" in text:
    print("The string contains 'Goodbye'.")
else:
    print("Neither 'Hello' nor 'Goodbye' is in the string.")

4. Tuples:
dimensions = (5, 10)
if dimensions[0] < dimensions[1]:
    print("The first dimension is less than the second.")
elif dimensions[0] > dimensions[1]:
    print("The first dimension is greater than the second.")
else:
    print("The dimensions are equal.")

5. Sets:
colors = {"red", "green", "blue"}
if "yellow" in colors:
    print("Yellow is in the set.")
elif "green" in colors:
    print("Green is in the set.")
else:
    print("Neither yellow nor green is in the set.")
```

```
2. Dictionaries:
person = {"name": "Alice", "age": 30}
message = f"{person['name']} is an adult" if person['age'] >= 18 else f"{person['name']} is a minor"
print(message)

3. Strings:
text = "Hello, World!"
contains_hello = "Hello" if "Hello" in text else "No 'Hello' found"
print(contains_hello)
```

```
2. Dictionaries:
person = {"name": "Alice", "age": 30, "city": "New York"}
if "age" in person:
    print(f"{person['name']} has an age.")
    if "city" in person:
        print(f"{person['name']} also has a city.")
    else:
        print(f"{person['name']} does not have a city.")
else:
    print(f"{person['name']} has no age information.")

3. Strings:
text = "Hello, World!"
if "Hello" in text:
    print("The string contains 'Hello'.")
    if "World" in text:
        print("The string also contains 'World'.")
    else:
        print("The string does not contain 'World'.")
else:
    print("The string does not contain 'Hello'.")
```