

Conditional Statements

in Python: `if`, `elif`, and `else`

In programming, **conditional statements** are used to perform different actions based on different conditions. Python uses `if`, `elif`, and `else` statements to allow your program to make decisions.

1. The `if` Statement

The `if` statement is used to test a condition. If the condition is **True**, the block of code under the `if` statement is executed.


Syntax:

```
if condition:  
    # Code block to execu
```



🔗 Example:

Let's say you want to check if it's time for dinner (assuming dinner time is 8 PM).

```
time = 20 # 20 represent   
if time == 20:  
    print("It's time for  
_____
```

Here, the program checks if the variable `time` is equal to 20 (8 PM). If it's 20, the message "It's time for dinner!" is printed.

🔗 2. The else Statement

The `else` statement provides an alternative block of code to execute when the `if` condition is **False**.

🔗 Syntax:

```
if condition:
    # Code block if the c
else:
    # Code block if the c
```



🔗 Example:

Let's extend the dinner example by adding an alternative action if it's not 8 PM.

```
time = 18 # 6 PM
if time == 20:
    print("It's time for
else:
    print("It's not dinne
```



If the condition (`time == 20`) is False (because the time is 6 PM), the program prints "It's not dinner time yet."

🔗 3. The `elif` Statement

The `elif` (short for "else if") statement checks another condition if the previous `if` or `elif` condition was False. You can have multiple `elif` statements to test various conditions.

🔗 Syntax:

```
if condition1:
    # Code block if condi
elif condition2:
    # Code block if condi
else:
    # Code block if none
```



🔗 Example:

Let's create a system to check meal times based on the time of the day:

```
time = 15 # 3 PM
```



```
if time == 8:
    print("It's breakfast time!")
elif time == 13:
    print("It's lunch time!")
elif time == 20:
    print("It's dinner time!")
else:
    print("It's not a meal time!")
```

Here, the program checks multiple conditions:

- If the time is 8 AM, it prints "It's breakfast time!" .
- If the time is 1 PM, it prints "It's lunch time!" .
- If the time is 8 PM, it prints "It's dinner time!" .
- If none of these conditions are true, it prints "It's not a meal time."

4. Comparison Operators in `if` Statements

You can use **comparison operators** to compare values in `if` statements:

- `==` : Equal to
- `!=` : Not equal to
- `<` : Less than
- `>` : Greater than
- `<=` : Less than or equal to
- `>=` : Greater than or equal to

Example:

Let's check if someone is eligible to vote in Karnataka (minimum age for voting is 18).

```
age = 19
```



```
if age >= 18:  
    print("You are eligib  
else:  
    print("You are not el
```

Here, the condition `age >= 18` checks if the age is greater than or equal to 18. If True, it prints that the person is eligible to vote. Otherwise,

5. Logical Operators in if Statements

You can also use **logical operators** to combine multiple conditions in **if** statements:

- **and** : Returns True if both conditions are True
- **or** : Returns True if at least one condition is True
- **not** : Reverses the result of a condition

Example:

Let's say you want to check if someone is eligible for a student discount. The person must be both under 18 years of age and have a student ID.

```
age = 16
has_student_id = True

if age < 18 and has_stude
    print("You are eligib
else:
    print("You are not el
```



6. Example: Checking Bus Ticket Prices

Let's create an example based on ticket prices for a Karnataka KSRTC bus. If the passenger is under 5 years old, the ticket is free. If the passenger is between 5 and 12 years old, they get a child discount. If the passenger is 60 years or older, they get a senior citizen discount. Otherwise, they pay the full fare.

```
age = 65
```



```
if age < 5:
    print("Ticket is free")
elif age <= 12:
    print("You get a child discount")
elif age >= 60:
    print("You get a senior citizen discount")
else:
    print("You pay the full fare")
```

In this example:

- If the passenger is younger than 5 years, the output is "Ticket is free."
- If they are 5 to 12 years old, it prints "You get a child discount"

🔗 7. Nested if Statements

You can also use `if` statements inside other `if` statements. This is called **nesting**.

🔗 Example:

Let's say you're planning to visit Mysuru. You want to decide whether to go based on the day of the week and the weather.

```
day = "Saturday"
is_raining = False

if day == "Saturday" or day == "Sunday":
    if not is_raining:
        print("Let's visit Mysuru!")
    else:
        print("It's raining, let's stay home.")
else:
    print("It's a weekday, let's wait for the weekend.")
```

Here, the program first checks if it's a weekend. If it is, it checks the weather. If it's not raining, it prints "Let's visit Mysuru!", otherwise, it prints "It's raining, let's stay home." On weekdays, it prints "It's a weekday, let's wait for the weekend."

🔗 8. Indentation in Python

Python uses **indentation** (spaces at the beginning of a line) to define blocks of code. The indented code after an `if`, `elif`, or `else` statement belongs to that condition. Make sure to use consistent indentation to avoid errors.

🔗 Example:

```
age = 19
```



```
if age >= 18:
    print("You are eligib
    print("Remember to br
else:
    print("You are not el
```

In the example above, the two `print()` statements are part of the `if` block because they are indented. Be careful to maintain the correct indentation for your code to run correctly.

Homework

1. Basic Conditions:

- Write a program to check if someone is eligible for a bus pass. If they are below 5 years, the bus pass is free. If they are 60 years or older, they get a senior citizen discount. Otherwise, they pay the full price.

2. Meal Time Checker:

- Create a program that checks the time of day (24-hour format) and prints whether it's time for breakfast, lunch, or dinner.
 - Breakfast: 8 AM
 - Lunch: 1 PM
 - Dinner: 8 PM
 - If none of these times, print "It's not meal time."

3. Simple Eligibility Check:

- Write a program that checks whether a person is eligible for a library membership. If they are under 18, they get a student membership. If they are 60 or older, they get a senior citizen membership. Otherwise, they get a regular membership.
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