

CONDITIONAL STATEMENTS

Python Conditions and If statements Python supports the usual logical conditions from mathematics.

- Equals: `a == b`
- Not Equals: `a != b`
- Less than: `a < b`
- Less than or equal to: `a <= b`
- Greater than: `a > b`
- Greater than or equal to: `a >= b`

These conditions can be used in several ways, most commonly in "if statements" and loops.

An "if statement" is written by using the if keyword.

Indentation

Python relies on indentation (whitespace at the beginning of a line) to define scope in the code. Other programming languages often use curly-brackets for this purpose.

Elif

The elif keyword is Python's way of saying "if the previous conditions were not true, then try this condition".

Else

The else keyword catches anything which isn't caught by the preceding conditions.

And

The and keyword is a logical operator, and is used to combine conditional statements:

Or

The or keyword is a logical operator, and is used to combine conditional statements:

Not

The not keyword is a logical operator, and is used to reverse the result of the conditional statement:

Nested If

You can have if statements inside if statements, this is called *nested* if statements.

PRACTICE QUESTIONS:

1. You have a variable `age`. Write a conditional statement to check if `age` is greater than or equal to 18. If true, print "You are an adult", otherwise print "You are a minor"

```
age = int(input("Enter your age:"))
if age >= 18:
    print("You are an adult")
else:
    print("You are a minor")
```

```
Enter your age:19
You are an adult
```

2. Given a variable `temperature`, write a conditional statement to check if `temperature` is below 0. If true, print "It's freezing", otherwise print "It's not freezing".

```
temperature = int(input("Enter the temperature:"))
if temperature < 0:
    print("It's freezing")
else:
    print("It's not freezing")
```

```
Enter the temperature:20
It's not freezing
```

3. You have a variable `score`. Write a conditional statement to check if `score` is greater than 90. If true, print "Grade A", if `score` is between 80 and 90, print "Grade B", otherwise print "Grade C".

```
score = int(input("Enter your score:"))
if score > 90:
    print("Grade A")
elif score >= 80 and score <= 90:
    print("Grade B")
else:
    print("Grade C")
```

```
Enter your score:55
Grade C
```

4. Given two variables `a` and `b`, write a conditional statement to check if `a` is equal to `b`. If true, print "a and b are equal", otherwise print "a and b are not equal".

```
a = int(input("Enter the value of a:"))
b = int(input("Enter the value of b:"))
if a == b:
    print("a and b are equal")
else:
    print("a and b are not equal")
```

```
Enter the value of a:20
Enter the value of b:30
a and b are not equal
```

5. You have a variable `number`. Write a conditional statement to check if `number` is even or odd. If even, print "Even number", otherwise print "Odd number".

```
number = int(input("Enter a number:"))
if number % 2 == 0:
    print("Even number")
else:
    print("Odd number")
```

```
Enter a number:40
Even number
```

6. Given a variable `day` which can be any day of the week, write a conditional statement to print "Weekend" if the day is "Saturday" or "Sunday", otherwise print "Weekday".

```
] day = input("Enter the day:")
if day == "saturday" or day == "sunday":
    print("Weekend")
else:
    print("Weekday")
```

```
Enter the day:sunday
Weekend
```

7. You have a variable `marks`. Write a conditional statement to check if `marks` are greater than 75. If true, print "Distinction", if `marks` are between 50 and 75, print "Pass", otherwise print "Fail".

```
] marks = int(input("Enter your marks:"))
if marks > 75:
    print("Distinction")
elif marks >= 50 and marks <= 75:
    print("Pass")
else:
    print("Fail")
```

```
Enter your marks:80
Distinction
```

8. Given a variable `speed`, write a conditional statement to check if `speed` is greater than 120. If true, print "Over speed limit", otherwise print "Within speed limit".

```
speed = int(input("Enter the speed:"))
if speed > 120:
    print("Over speed limit")
else:
    print("Within speed limit")
```

```
Enter the speed:150
Over speed limit
```

9. You have a variable `year`. Write a conditional statement to check if `year` is a leap year. If true, print "Leap year", otherwise print "Not a leap year".

```
year = int(input("Enter the year:"))
if year % 4 == 0:
    print("Leap year")
else:
    print("Not a leap year")
```

```
Enter the year:2025
Not a leap year
```

10. Given a variable `char`, write a conditional statement to check if `char` is a vowel (a, e, i, o, u). If true, print "Vowel", otherwise print "Consonant".

```
] char = input("Enter a character:")
if char == "a" or char == "e" or char == "i" or char == "o" or char == "u":
    print("Vowel")
else:
    print("Consonant")
#
```

```
Enter a character:w
Consonant
```

11. You have two variables `x` and `y`. Write a conditional statement to check if both `x` and `y` are positive. If true, print "Both are positive", otherwise print "At least one is not positive".

```
▶ x = int(input("Enter the value of x:"))
y = int(input("Enter the value of y:"))
if x > 0 and y > 0:
    print("Both are positive")
else:
    print("At least one is not positive")
```

```
Enter the value of x:20
Enter the value of y:-60
At least one is not positive
```

12. Given a variable `time` representing the hour of the day in 24-hour format, write a conditional statement to print "Good morning" if `time` is between 6 and 12, "Good afternoon" if `time` is between 12 and 18, and "Good evening" if `time` is between 18 and 24.

```
] time = int(input("Enter the time:"))
if time >= 6 and time <= 12:
    print("Good morning")
elif time >= 12 and time <= 18:
    print("Good afternoon")
elif time >= 18 and time <= 24:
    print("Good evening")
else:
    print("Invalid time")
```

Enter the time:14
Good afternoon

13. You have a variable `budget` and a variable `price`. Write a conditional statement to check if `budget` is greater than or equal to `price`. If true, print "Purchase possible", otherwise print "Not enough budget".

```
> budget = int(input("Enter the budget:"))
price = int(input("Enter the price:"))
if budget >= price:
    print("Purchase possible")
else:
    print("Not enough budget")
```

Enter the budget:23
Enter the price:45
Not enough budget

14. Given a variable `username`, write a conditional statement to check if `username` is not empty. If true, print "Username is valid", otherwise print "Username cannot be empty".

```
> username = input("Enter the username:")
if username != "":
    print("Username is valid")
else:
    print("Username cannot be empty")
```

Enter the username:
Username cannot be empty

+ Code

+ Text

15. You have a variable `weight` and a variable `height`. Write a conditional statement to calculate BMI and print "Underweight" if BMI is less than 18.5, "Normal weight" if BMI is between 18.5 and 24.9, and "Overweight" if BMI is 25 or above.

```
[ ] weight = int(input("Enter the weight:"))
height = int(input("Enter the height:"))
bmi = weight / (height ** 2)
if bmi < 18.5:
    print("Underweight")
elif bmi >= 18.5 and bmi <= 24.9:
    print("Normal weight")
else:
    print("Overweight")
```

Enter the weight:23
Enter the height:34
Underweight

16. Given a variable `password`, write a conditional statement to check if the length of `password` is greater than or equal to 8. If true, print "Strong password", otherwise print "Weak password".

```
[ ] password = input("Enter the password:")
if len(password) >= 8:
    print("Strong password")
else:
    print("Weak password")
```

Enter the password:ranjot22
Strong password

17. You have a variable grade. Write a conditional statement to print "Excellent" if grade is 'A', "Good" if grade is 'B', "Average" if grade is 'C', and "Poor" if grade is 'D'.

```
▶ grade = input("Enter the grade:")
if grade == "A":
    print("Excellent")
elif grade == "B":
    print("Good")
elif grade == "C":
    print("Average")
else:
    print("Poor")
```

↻ Enter the grade:C
Average

18. Given a variable month, write a conditional statement to check if month is "December", "January", or "February". If true, print "Winter", if month is "June", "July", or "August", print "Summer", otherwise print "Other season".

```
▶ month = input("Enter the month:")
if month == "December" or month == "January" or month == "February":
    print("Winter")
elif month == "June" or month == "July" or month == "August":
    print("Summer")
else:
    print("Other season")
```

↻ Enter the month:September
Other season

+ Code

+ Text

19. You have a variable balance. Write a conditional statement to check if balance is greater than or equal to 1000. If true, print "Sufficient balance", otherwise print "Insufficient balance".

```
[ ] balance = int(input("Enter the balance:"))
if balance >= 1000:
    print("Sufficient balance")
else:
    print("Insufficient balance")
```

↻ Enter the balance:2000
Sufficient balance

20. Given a variable number, write a conditional statement to check if number is positive, negative, or zero. Print "Positive", "Negative", or "Zero" accordingly.

```
[ ] number = int(input("Enter the number:"))
if number > 0:
    print("Positive")
elif number < 0:
    print("Negative")
else:
    print("Zero")
```

↻ Enter the number:0
Zero

21. You have a variable ticket_type. Write a conditional statement to check if ticket_type is "VIP". If true, print "Access to VIP lounge", otherwise print "Regular access"

```
▶ ticket_type = input("Enter the ticket type:")
if ticket_type == "VIP":
    print("Access to VIP lounge")
else:
    print("Regular access")
```

↻ Enter the ticket type:VIP
Access to VIP lounge

22. Given a variable age, write a conditional statement to print "Eligible for senior citizen discount" if age is 65 or above.

```
age = int(input("Enter the age:"))
if age >= 65:
    print("Eligible for senior citizen discount")
else:
    print("Not Eligible")
```

```
Enter the age:55
Not Eligible
```

23. You have a variable color. Write a conditional statement to print "Stop" if color is "Red", "Ready" if color is "Yellow", and "Go" if color is "Green".

```
color = input("Enter the color:")
if color == "Red":
    print("Stop")
elif color == "Yellow":
    print("Ready")
elif color == "Green":
    print("Go")
```

```
Enter the color:Red
Stop
```

24. Given a variable temperature, write a conditional statement to check if temperature is above 100. If true, print "Boiling point", otherwise print "Below boiling point"

```
temperature = int(input("Enter the temperature:"))
if temperature > 100:
    print("Boiling point")
else:
    print("Below boiling point")
```

```
Enter the temperature:99
Below boiling point
```

25. You have a variable loan_amount. Write a conditional statement to check if loan_amount is greater than 50000. If true, print "Approval requires higher authority", otherwise print "Loan approved".

```
loan_amount = int(input("Enter the loan amount:"))
if loan_amount > 50000:
    print("Approval requires higher authority")
else:
    print("Loan approved")
```

```
Enter the loan amount:3000
Loan approved
```

26. Given a variable attendance, write a conditional statement to check if attendance is greater than 75%. If true, print "Eligible to appear in exam", otherwise print "Not eligible to appear in exam".

```
attendance = int(input("Enter the attendance:"))
if attendance > 75:
    print("Eligible to appear in exam")
else:
    print("Not eligible to appear in exam")
```

```
Enter the attendance:78
Eligible to appear in exam
```

27. You have a variable membership_status. Write a conditional statement to print "Premium member" if membership_status is "Gold", "Regular member" if membership_status is "Silver", and "Basic member" if membership_status is "Bronze".

```
membership_status = input("Enter the membership status:")
if membership_status == "Gold":
    print("Premium member")
elif membership_status == "Silver":
    print("Regular member")
elif membership_status == "Bronze":
    print("Basic member")
```

```
Enter the membership status:Bronze
Basic member
```

28. Given a variable age, write a conditional statement to check if age is between 13 and 19. If true, print "Teenager", otherwise print "Not a teenager".

```
[ ] age = int(input("Enter the age:"))
    if age >= 13 and age <= 19:
        print("Teenager")
    else:
        print("Not a teenager")
```

```
Enter the age:15
Teenager
```

29. You have a variable income. Write a conditional statement to print "High income" if income is above 100000, "Middle income" if income is between 50000 and 100000, and "Low income" if income is below 50000.

```
income = int(input("Enter the income:"))
if income > 100000:
    print("High income")
elif income >= 50000 and income <= 100000:
    print("Middle income")
else:
    print("Low income")
```

```
Enter the income:30000
Low income
```

30. Given a variable fuel_level, write a conditional statement to check if fuel_level is less than 10%. If true, print "Low fuel warning", otherwise print "Fuel level sufficient".

```
[ ] fuel_level = int(input("Enter the fuel level:"))
    if fuel_level < 10:
        print("Low fuel warning")
    else:
        print("Fuel level sufficient")
```

```
Enter the fuel level:50
Fuel level sufficient
```