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Conditions if-else

Relational operators:

< , < = , > , >=,==,!= (Boolean)

4 < 5 🡪 T

4 <= 5 🡪 F

4 > 5 🡪 T

4 >= 5 🡪 T

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Check number is positive or negative

a=10

if a >= 0:

    print("a is non-negative")

else:

    print("a is negative")

Output:

a is non-negative

Conditional statement

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Compound statements:

Logical Operators

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Relational operators

Logical operators

----🡪 Compound

AND:

Cond1 cond2 cond1 and cond2

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OR

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NOT:

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a=5

b=7

c=3

* a>b and b>c 🡪 False
* a>b or b>c 🡪 True

a=8

a > 0 and a<10

True

Code:

a=5

b=7

c=3

print( a>b and a>c)

#False

print(a>b or a>c)

# True

a=8

print(a>0 and a<10)

# True

a=8

print(not a)

#False

Challenges using conditional statements:

---------------------------------------------------------------

Odd or Even

num=eval(input("Enter a number: "))

if num % 2 == 0:

    print("Even")

else:

    print("Odd")

Enter a number: 5.5

Odd

VOTE:

age=eval(input("Enter your age: "))

if age > = 18:

    print("You are an adult to vote")

else:

    print("You are not an adult to vote")

Compound Conditions:

1. Age check for work

try:

age = int(input("Enter your age: "))

except ValueError:

print("Invalid input. Please enter a valid age.")

else:

if age >= 18 and age <= 60:

print("You are eligible to work")

else:

print("You are not eligible to work")

finally:

print("Age check completed.")

1. Valid marks or not

marks=int(input("Enter your marks: "))

if marks >=0 and marks <= 100:

print("Valid marks entered.")

else:

print("Invalid marks entered. Please enter marks between 0 and 100.")

C.

# Gender check

gender= input("Enter gender (M/F): ")

print(gender)

if gender=='m' or gender=='M':

    print("Male")

elif gender=='f' or gender=='F':

    print("Female")

else:

    print("Wrong input. Please enter 'M' or 'F'.")

Challenge Compound challenges:

Vowel or Consonant

# vowel or consonent

ch=input("Enter a character: ")

if ch=="a" or ch=="e" or ch=="i" or ch=="o" or ch=="u" or ch=="A" or ch=="E" or ch=="I" or ch=="O" or ch=="U":

    print("Vowel")

else:

    print("Consonent")

Exam Result:

maths=int(input("Enter your maths marks: "))

science=int(input("Enter your science marks: "))

english=int(input("Enter your english marks: "))

if maths >=45 and science >=45 and english >=45:

    print("You are pass")

else:

    print("You are fail")

NESTED IF /ELIF statement;

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Temp check

temp=eval(input("Enter temperature in Celsius: "))

if temp == 25:

    print("temp is normal")

else:

    if temp > 25:

        print("temp is high")

    else:

        print("temp is low")

if-elif

if temp == 25:

    print("temp is normal")

elif temp > 25:

    print("temp is high")

else:

    print("temp is low")

if and elif ladder:

A white paper with black text

AI-generated content may be incorrect.

Generated Discounted bill

A person pushing a cart with groceries

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amount=eval(input("Enter the amount: "))

if amount < 1000:

    total = amount - (amount \* 0.1)

elif amount >=1000 and amount < 5000:

    total = amount - (amount \* 0.15)

elif amount >= 5000 and amount < 10000:

    total = amount - (amount \* 0.2)

else:

    total = amount - (amount \* 0.25)

print("Total amount after discount is:", total)

Weekday Name:

# day=eval(input("Enter the day number (1-7): "))

# if day == 1:

#     print("Monday")

# elif day == 2:

#     print("Tuesday")

# elif day == 3:

#     print("Wednesday")

# elif day == 4:

#     print("Thursday")

# elif day == 5:

#     print("Friday")

# elif day == 6:

#     print("Saturday")

# elif day == 7:

#     print("Sunday")

# else:

#     print("Invalid day number. Please enter a number between 1 and 7.")

YEAR

Month=eval(input("Enter the month number (1-12): "))

if Month == 1:

    print("January")

elif Month == 2:

    print("February")

elif Month == 3:

    print("March")

else:

    print("Invalid month number. Please enter a number between 1 and 12.")

DIGIT:

digit=eval(input("Enter the digit (0-9): "))

if digit == 0:

    print("Zero")

elif digit == 1:

    print("One")

elif digit == 2:

    print("Two")

LEAP Year :

year=eval(ifput("Enter the year: "))

if year%4 == 0 and (year%100 != 0 or year%400 == 0):

    print(year, "is a leap year.")

else:

    print(year, "is not a leap year.")

STRING COMPARISION:

Relational operators:

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String:

* Comparsion : lexicographic order

Dictonary Order

A close up of a text

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S1=” software”

S2=”Hardware”

S1>S2 🡪 True

S1=”python”

S2=”pycharm”

S1<S2 -🡪 t<c 🡪 False

S1=”integer”

S2=”integer

S1==S2 🡪 True

Relational on all datatypes:

Integer

Float

Boolean

True-1

False -0

False < True 🡪 True

Complex:

==

!=

3+4j != 4+3j

Short Circuit:

And

Or

A=10

B=5

C=3

If a<b and a>c:

If a<b is false 🡪 False (1st condition is False)

If a>b and a<c 🡪

T and F🡪 Check the 2nd condition too

OR :

If a>b or a>c:

T (Does not check for 2nd condition)

If a< b or a>c

F and check for 2nd condition

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Boolean:

False🡪0

True 🡪 any other value

5 > 10🡪 True

5 and 0 🡪 False

0 and 10 🡪 False

OR:

5 or 10

Yes or NO (no 2nd condition check)

O or 10

F and T

print(5 and 10)

# 10

print(5 and 0)

# 0

print(0 and 10)

# 0

print(5 or 10)

# 5

print(0 or 10)

# 10

Code2:

a=10

b=5

c=3

print(a > b and b>c)

# True

print(a<b and b>c)

#False

print(a > b or b>c)

# True

print(a<b or b<c)

# False

BITWISE OPERATOR:

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A=10

B=13

A= 1010🡪 10

B= 1101 🡪 13

A & B

-----------------------

1000 🡪 8

A=1010 🡪 10

B=1101 🡪 13

A|B

1010

1101

1111 🡪 F

XOR

1010

1101

-------------------

0 1 1 1 🡪 7

<<

a<<1

1<<1 =🡺 1 \*\* 2=2

2<<1 🡪 2\*\*2=4

4 <<2🡪 4 \*\* 4=16

A screenshot of a blackboard with writing on it

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Complement:

~5=-6

print(~4)

# # -5

print(~5)

# # -6

print(~-6)

# # 5

Chaining Comparision:

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CODE 1:

a=10

b=5

c=3

if a<b and b<c:

    print("a is less than b and b is less than c")

# a<b and b<c

if a==b<c:

    print("a is equal to b and b is less than c")

# a==b<c

if a>b and b<c and c<d:

    print("a is greater than b, b is less than c, and c is less than d")

# a>b and b<c and c<d

is

is not

Code 2:

a=10

b=10

print(a is b) # true

print(id(a),id(b))

# 140706594215232 140706594215232

# same memory for 25 literals

a="hello"

b="hello"

print(a is b)

#true

print(id(a),id(b))

#2987109078664 2987109078664