1. Create a tuple with 5 numbers and print the first and last elements.

t=(10,20,30,40,50)

print("first in 5 elements are:",t[0])

print("last in 5 elements are:",t[-1])

o/p ->first in 5 elements are: 10

last in 5 elements are: 50

2. Write a Python program to check if an element exists in a tuple.

t=(1,2,3,4,5)

print(3 in t)->output=True

3. How can you find the length of a tuple?

Use len()

t=(1,2,3)

print(len(t))    ->output=3

4. Write a program to convert a tuple into a list.

t=(1,2,3,4,5)

list=list(t)

list[0]=10

print(list)  ->output=[10, 2, 3, 4, 5]

5. Write a Python code to repeat a tuple 3 times.

t=(10,20,30,40)

print(t\*3)  ->output=(10, 20, 30, 40, 10, 20, 30, 40, 10, 20, 30, 40)

6. What happens if you try to change an element of a tuple? Explain with example.

Tuples are immutable and cannot be changed.

Ex:t=(10,15,20,25)

t[0]=10

displays->   TypeError: 'tuple' object does not support item assignment

7. Write a Python program to concatenate two tuples.

a=(10,20)

b=(30,40)

c=a+b

print(c) ->output=(10, 20, 30, 40)

8. How can you slice a tuple to get its first three elements?

t=(10,20,30,40,50)

print(t[ :3])  ->output=(10, 20, 30)

9. Create a set with strings and print all elements.

names={"abhi","josh","ben","mark"}

print(names)     ->output={'josh', 'mark', 'abhi', 'ben'}

10. Write a program to add multiple elements to a set using `update()`.

set={1,2,3,4,5}

set.update([6,7,8])

print(set)      ->output={1, 2, 3, 4, 5, 6, 7, 8}

11. Write a program to check if an element is present in a set.

num={1,2,3,4,5}

print(2 in num)     ->output=True

12. Write a Python code to find the difference between two sets `{1, 2, 3, 4}` and `{3, 4, 5}`

a={1,2,3,4}

b={3,4,5}

#print(a.difference(b))

print(a-b)     ->output={1, 2}

13. What is the symmetric difference of two sets? Write a program for it.

Symmetric difference means(^)-Returns a set with the symmetric differences of two sets

a={10,20,30}

b={30,40,50}

print(a^b)     ->output={40, 10, 50, 20}

14. Can a set contain duplicate elements? Explain with example.

No a set cannot contain duplicate elements.

s={1,2,3,4,1,2,2,3,6,7,6,9,3}

print(s)      ->output={1, 2, 3, 4, 6, 7, 9}

15. How do you clear all elements from a set?

s={"apple","banana","kiwi","mango"}

s.clear()

print(s)      ->output=set( )

16. Write a program to copy a set to another set.

set={1,2,3,4,5}

set1=set.copy()

print(set)      ->output={1, 2, 3, 4, 5}

17. Write a program to compare two integers and print if they are equal or not.

a=10

b=20

print(a==b)  ->Output=False

18. What is the output of `10 != 5`?

print(10!=5)   -> True

19. How do you check if a number is less than or equal to another number?

a=10

b=50

print(a<=b)  ->output=False

20. Write a program to compare two strings entered by the user using `==`.

s1=input(enter string1:”)

s2=input(enter string2:”)

print(s1==s2)

->    s1=("employees")

        s2=("students")

        print(s1==s2)       ->output=false

21. What is the difference between `>` and `>=` operators?

> means strictly greater than

>= means greater than or equal to.

Ex: a=10 , b=10  print(a>b)- false

                             print(a>=b)- true

22. Write a program to check if `a` is not equal to `b`.

a=50

b=20

print(a!=b)  ->output= true

23. Write a program to compare the lengths of two input strings.

s1 = input("First string: ")

s2 = input("Second string: ")

if len(s1) == len(s2):

    print("Same length")

else:

    print("Different lengths")

o/p->First string: abhi

Second string: esha

Same length

24. Write a program to check if the first number is greater than the second and print an appropriate message.

a = int(input("Enter first number: "))

b = int(input("Enter second number: "))

if a > b:

    print("First number is greater")

else:

    print("First number is not greater")

o/p -> Enter first number: 10

Enter second number: 5

First number is greater

25. What will be the output of `True or False`?

print(True or False) ->output=True

26. Write a Python condition using `and` that checks if a number is positive and less than 100.

n = int(input("Enter a number: "))

if n > 0 and n < 100:

    print("number is positive and less than 100")

o/p ->Enter a number: 50

           number is positive and less than 100

27. Write a program to check if a character entered by the user is a vowel or consonant using logical operators.

ch = input("Enter a character: ")

if ch in 'aeiou':

    print("Vowel")

else:

     print("Consonant")

o/p ->Enter a character: g

          Consonant

28. How does the `not` operator work? Write an example.

x=True

print(not x) ->output=False

 OR

print(3>5 or 10>5) -> True

print(not(3>5 or 10>5))  ->False

29. Write a Python code using `or` to check if a number is divisible by 3 or 5.

n = int(input("Enter a number: "))

if n % 3 == 0 or n % 5 == 0:

    print("The number is divisible by 3 or 5.")

else:

    print("The number is not divisible by 3 or 5.")

->Enter a number: 15

The number is divisible by 3 or 5.

30. Write a Python program to check if a number is between 50 and 100 (inclusive) using logical operators.

num=70

#print(50<=num<=100)

print(num>=50 and num<=100)

->output=True

31. Explain how `and`, `or`, `not` can be used in a single condition.

num = 5

if(num>0 and num<10)or not(num %2==0)

 print("logical operators AND,OR,NOT can be handled in the single condition with control statement" )

32. Write a program using `not` to check if a string is not empty.

string=("company")

print(not(string==" ")) ->output= true

33. Write a program to take a number from the user and print its square.

n = int(input("Enter number: "))

print(n \*\* 2)

o/p->Enter number: 5

25

34. How do you take a floating-point number as input and print it?

f = float(input("Enter floating point no: "))

print(f)

o/p->Enter floating point no: 45.5

45.5

35. Write a program to take a space-separated list of integers from the user and print the maximum number.

nums = list(map(int, input("Enter the integers: ").split()))

print(max(nums))

o/p->  Enter the integers: 10 20 30 40 50

50

36. Write a Python program to read a string from the user and print its length.

s = input("Enter string: ")

print(len(s))

Enter string: cgi employee

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37. Write a program to input two numbers and print their product.

import math

mul=list(map(int,input("Enter the numbers:").split()))

print("multiplication is",math.prod(mul))

 o/p->  Enter thenumbers:10 20

multiplication is 200

38. Write a program to input a number and check if it is positive, negative, or zero.

n = int(input("Enter the  number: "))

if n > 0:

    print("Positive")

elif n < 0:

    print("Negative")

else:

    print("Zero")

o/p->Enter the  number: 10

          Positive

39. Write a program to take the user's full name as input and display it in uppercase.

name = input("Enter name: ")

print(name.upper())

o/p->Enter name: python class

PYTHON CLASS

40. Write a program to take a sentence from the user and count the number of words.

s = input("Enter sentence: ")

print(len(s.split()))

o/p->   Enter sentence: we are having training session

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