

Python:

What is the data type of the result in the following expression: $10 / 2$?

- a. int
- **b. float**
- c. str
- d. bool
- ans: integer

Which data type is used to represent a sequence of characters in Python?

- a. int
- b. float
- **c. str**
- d. list
- ans: string

What is the output of `bool("False")`?

- a. **False**
- b. True
- c. TypeError
- d. None

In Python, which data type is used to store an ordered collection of elements with no duplicate values?

- a. tuple
- b. list
- c. set
- **d. dictionary**

What is the result of the expression $3 ** 2$?

- a. 5
- b. 6
- **c. 9**
- d. 27

What does the `%` operator do in Python?

- a. Exponentiation
- b. Floor division
- **c. Modulus**
- d. Multiplication

What is the result of the expression $5 // 2$?

- a. 2.5
- **b. 2**
- c. 3
- d. 2.0

In Python, how is a block of code inside an if statement defined?

- **a. By indentation**
- b. By braces {}
- c. By parentheses ()**
- d. By square brackets []

What is the purpose of the elif keyword in Python?

- a. It signifies the end of an if statement.
- b. It is used to catch exceptions.
- c. It is an abbreviation for "else if" and is used for multiple conditions.**
- d. It represents a loop in Python.

In a for loop in Python, what does the range(5) represent?

- a. The numbers 0 to 5 (inclusive)
- b. The numbers 1 to 5 (inclusive)
- c. The numbers 0 to 4 (inclusive)**
- d. The numbers 1 to 4 (inclusive)

What is the output of int("10")?

- **a. 10**
- b. "10"
- c. TypeError
- d. None

Which data type is mutable (can be modified after creation) in Python?

- a. int
- b. float
- c. str
- d. list**

In Python, how do you check the type of a variable?

- a. typeof(var)
- b. typeOf(var)
- c. type(var)**
- d. var.type()

What is the result of the expression 5 != 5?

- a. True
- b. False
- c. Error**
- d. None

What is the purpose of the and operator in Python?

- **a. Logical AND**
- b. Bitwise AND
- c. Assignment AND
- d. Concatenation

Which operator is used for string concatenation in Python?

- **a. +**
- b. -

- c. *
- d. /

What does the in operator do in Python?

- **a. Membership test for lists and strings**
- b. Exponentiation
- c. **Bitwise AND**
- d. Modulus

In Python, what is the purpose of the else clause in an if statement?

- a. It is used for error handling.
- b. It contains the main block of code.
- c. It is executed when the if condition is True.
- d. It is executed when the if condition is False.**

How can you terminate a loop prematurely in Python?

- a. stop statement
- b. end statement
- c. **break statement**
- d. terminate statement

What is the purpose of the pass statement in Python?

- a. It indicates the end of a code block.
- b. It is a placeholder and does nothing.**
- c. It is used to define a function.
- d. It is a comment.

What is the result of the expression 8 // 3?

- a. 2.67
- b. 2.0
- c. **2**
- d. 2.5

What is the purpose of the or operator in Python?

- **a. Logical OR**
- b. Bitwise OR
- c. Assignment OR
- d. Concatenation

Which operator is used for exponentiation in Python?

- **a. ****
- b. ^
- c. //
- d. %

In Python, what is the purpose of the elif clause in an if statement?

- a. It is executed when the if condition is True.
- b. It is used for error handling.
- c. It is a short form of "else if" and is used for multiple conditions.**
- d. It contains the main block of code.

What is the output of the following code snippet?

```
num = 7
if num % 2 == 0:
    print("Even")
elif num % 3 == 0:
    print("Divisible by 3")
else:
    print("Odd")
```

- a. Even
- b. Divisible by 3
- c. Odd**
- d. None

programs:

Task 1: Arithmetic Operators

Write a program that takes two numbers from the user and performs the following operations:

- Addition
- Subtraction
- Multiplication
- Division

Ans: # take two numbers from the user
num1 = float(input("enter the first number:"))
num2 = float(input("enter the second number."))
perform and print the operations
print("Addition:", num1 + num2)
print("subtraction:", num1 - num2)
print("multiplication:", num1 * num2)
print("division:", num1/num2)

Input: enter the first number:10
enter the second number:5

output: addition: 15.0
subtraction: 5.0
multiplication: 50.0
division: 2.0

Task 2: Logical Operators

Write a program that asks the user for their age.

- If the age is less than 18, print "You are a minor."
- If the age is 18 or older, print "You are an adult."

Ans: # ask the user for their age
age = int(input("enter your age:"))
check if the age is less than 18 or 18 and older
if age < 18:
 print("you are a minor.")
else:
 print("you are an adult.")

output: #input
enter your age:16
output: you are a minor.
output: # input
enter your age:20
output: you are an adult

Task 3: Comparison Operators
Write a program that compares two strings entered by the user.
- If the strings are equal, print "Strings are equal."
- If not, print "Strings are not equal."

Ans: # get two strings from the user
string1 = input(" enter the first string:")
string 2 = input("enter the second string:")
compare the two strings
if string1 == string2:
 print("Strings are equal.")
else:
 print("Strings are not equal.")

output: # input given by the user
enter the first string: hello
enter the second string:hello

output: strings are equal

Task 4: While Loop
Write a program that uses a while loop to print the numbers from 1 to 5.

Ans: `i = 1 # initialize the variable`
`while i <= 5: #while loop to print numbers from 1 to 5`
`print(i)`
`i += 1 # increment the value of 1`

output: 1
2
3
4
5

Task 5: For Loop
Write a program that uses a for loop to iterate over a list of fruits and print each fruit.

Ans: `# list of fruits`
`fruits = ["apple", "banana", "cherry", "mango"]`
`#iterate over the list and print each fruit`
`for fruit in fruits:`
`print(fruit)`

output: apple
banana
cherry
mango

Task 6: Lists
Create a list of numbers and perform the following operations:
- Add a new number to the list.
- Remove an existing number from the list.

Ans: `# create a list of numbers`
`numbers = [1, 2, 3, 4, 5]`
`#print the original list`
`print("original list:", numbers)`
`# add a new number to the list`
`numbers.append(6) # adds 6 to the end of the list`
`print("list after adding 6:", numbers)`
`# remove an existing number from the list`
`numbers.remove(3) # removes the first occurrence of 3`
`print("list after removing 3:", numbers)`

output: original list:[1, 2, 3, 4, 5]
list after adding 6: [1, 2, 3, 4, 5, 6]

list after removing 3: [1, 2, 4, 5, 6]

Task 7: Dictionaries

Create a dictionary representing a person with attributes like name, age, and city.

- Print the person's information.

- Add a new attribute (e.g., occupation) to the dictionary.

Ans: # create a dictionary representing a person

```
person = { "name": "suneetha", "age": 25, "city": "guntur"}
```

```
#print the persons original information
```

```
print("original information:")
```

```
print(person)
```

```
#add a new attribute (occupation) to the dictionary
```

```
person["occupation"] = "software engineer"
```

```
#print the updated information
```

```
print("\n updated information:")
```

```
print(person)
```

output: original information:{'name': 'suneetha', 'age':25, 'city':'guntur'}

**updated information:{'name': 'suneetha', 'age':25, 'city':'guntur',
'occupation': 'software engineer'}**

Task 8: Combine Control Statements and Operators

Write a program that asks the user to enter two numbers.

- If the sum of the numbers is greater than 10, print "Sum is greater than 10."

- If the sum is less than or equal to 10, print "Sum is less than or equal to 10."

Ans: # ask the user to enter two numbers

```
num1 = float(input("enter the first number:"))
```

```
num2 = float(input("enter the second number:"))
```

```
#calculate the sum
```

```
sum_of_numbers = num1 + num2
```

```
# check if the sum is greater than 10 or not
```

```
if sum_of_numbers > 10:
```

```
    print("Sum is greater than 10")
```

```
else:
```

```
    print("Sum is less than or equal to 10")
```

output:

input: enter the first number:7

enter the second number:5

output:

Sum is greater than 10

input: enter the first number: 3

enter the second number:4

output:

Sum is less than or equal to 10

9. Write a Python program to count the occurrences of each word in a given string.

Ans:

```
from collections import Counter
text = input("enter a string:") #input string form user
word_count = Counter(text.lower().split()) # split the string into words,
convert to lowercase, and count occurrences
for word, count in word_count.items(): # display the word occurrences
    print(f"{word}: {count}")
```

10. Write a Python program to find the factorial of a given number using recursion.

Ans:

```
def factorial(n):
    if n == 0 or n == 1:
        return 1
    else:
        return n*factorial(n - 1)
num = int(input("enter a number to find its factorial: "))
result = factorial(num)
print("The factorial of {num} is {result}")
```

output: the factorial of 5 is 120