* 1. Write a Python program to take the name and age of a user as input and display it in the format: "Hello <name>, you are <age> years old."
  2. Examine the default data type returned by the input() function. Analyze how converting this data type affects subsequent operations, and suggest a method for conversion.
  3. Write a Python program that asks the user to input two numbers and then prints their sum, difference, product, and quotient.
  4. Analyze the effects of performing an arithmetic operation on a string returned by the input() function without conversion. How does this impact the program’s execution?
  5. Identify the syntax error in the following code:
     1. Python
     2. Copy code
     3. print("Hello World"
  6. Explain what a syntax error is and why it prevents the execution of a program.
  7. What is a logical error in Python? Provide an example where a program runs without any errors but produces an incorrect result.
  8. What is a runtime error? Write a Python code that raises a "division by zero" error and explain why it happens.
  9. Modify the following code to prevent a runtime error when dividing by zero:
     1. python
     2. Copy code
     3. numerator = 10
     4. denominator = 0
     5. result = numerator / denominator
  10. How do you write comments in Python? Provide examples of a full-line comment, an inline comment, and a multi-line comment.
  11. What are the different types of numeric data in Python? Provide an example for each.
  12. What is the boolean data type in Python? How is it related to integers? Write a Python code that demonstrates the use of True and False in an arithmetic operation.
  13. Explain the difference between simple data types (like int, float) and sequence data types (like lists, tuples) in Python.
  14. What is a string in Python? Write a Python program that takes a user's full name as input and prints the initials.
  15. What are the differences between lists and tuples in Python? Provide examples where you create a list and a tuple to store a collection of student names.
  16. What is a dictionary in Python? Write a Python program that creates a dictionary to store the names and phone numbers of three people and then prints the phone number of one of them.
  17. Write a Python program to declare two variables x and y. Initialize x with a value of 50 and y with x + 20. Print the value of y using a print statement.
  18. What will be the output of the following code snippet? Explain why:

python

Copy code

a = 15

b = a \* 2

print(b)

* 1. Create a Python script that assigns values of different numeric types to variables: an integer, a float, and a complex number. Print each variable with its type.
  2. Write a Python program that demonstrates the usage of integer, float, and complex numbers in arithmetic operations. Print the results.
  3. Write a Python program that assigns boolean values True and False to two variables. Use these variables in an arithmetic operation and print the result.
  4. Create a function that accepts a boolean value and prints "True value" if the input is True and "False value" if the input is False.
  5. Write a Python program that takes a string input from the user and prints the string in uppercase and lowercase.
  6. Create a list of five different items, including at least one string and one number. Add a new item to the list and print the updated list. Demonstrate accessing an element by index.
  7. Create a tuple with four items of different data types. Print the tuple and access the second item.
  8. Write a Python program that creates both a list and a tuple containing the same set of items. Modify the list by adding and removing items. Attempt to modify the tuple and explain the result.
  9. Create a list of integers and a tuple of integers. Print both and compare their performance in terms of mutability and iteration.
  10. Create a set containing five unique items, including a mix of strings and numbers. Print the set and demonstrate adding a new item to the set.
  11. Write a Python program that shows how sets handle duplicate values. Add duplicate items to a set and print the result.
  12. Write a Python program to create a dictionary that stores names of three people and their ages. Print the dictionary, access an age using a key, and add a new key-value pair.
  13. Modify the dictionary by changing one person's age and removing another person. Print the final dictionary. Include code to check if a specific key exists.
  14. Write a Python program that uses the len() function to find the length of a string, list, and dictionary. Print the results.
  15. Create a function named multiply\_numbers that takes two numbers as arguments and returns their product. Call the function with different arguments and print the results.
  16. Write a Python program that creates a dictionary where the keys are names of fruits and the values are lists containing the color and average price of the fruit. Print the dictionary, then access and print the color and price of a specific fruit.
  17. Identify and correct the syntax error in the following code snippet:

python

Copy code

my\_dict = {'name': 'Alice', 'age': 25, 'city': 'New York'

print(my\_dict['city'])

* 1. Write a Python program that handles a ZeroDivisionError by using a try-except block. The program should attempt to divide two numbers and catch the division by zero error, printing a friendly message instead.