

✓ Assignment 02

Question 1: Variables and Data Types

Problem: Write a Python program that:

1. Accepts a string, an integer, a float, and a boolean from the user.
2. Initializes variables for each type, and prints them out.
3. Convert the string to uppercase and print it.
4. Check if the integer is even or odd and print the result.
5. Multiply the float by 2 and print the result.

```
1 # Accepting user input
2 user_string = input("Enter a string: ")
3 user_int = int(input("Enter an integer: "))
4 user_float = float(input("Enter a float: "))
5 user_bool = input("Enter a boolean (True/False): ")
6
7 # Converting the boolean input to actual boolean type
8 user_bool = user_bool.lower() == 'true'
```

```
Enter a string: Ashna
Enter an integer: 32
Enter a float: .7
Enter a boolean (True/False): false
```

```
1 # Initializing variables for each type
2 string_var = user_string
3 int_var = user_int
4 float_var = user_float
5 bool_var = user_bool
```

```
1 # Printing the initialized variables
2 print("\nInitialized variables:")
3 print(f"String: {string_var}")
4 print(f"Integer: {int_var}")
5 print(f"Float: {float_var}")
6 print(f"Boolean: {bool_var}")
```

```
Initialized variables:
String: Ashna
Integer: 32
Float: 0.7
Boolean: False
```

```
1 # Convert the string to uppercase and print it
2 uppercase_string = string_var.upper()
3 print(f"\nUppercase string: {uppercase_string}")
```

```
Uppercase string: ASHNA
```

```
1 # Check if the integer is even or odd and print the result
2 if int_var % 2 == 0:
3     print(f"The integer {int_var} is even.")
4 else:
5     print(f"The integer {int_var} is odd.")
```

```
The integer 32 is even.
```

```
1 # Multiply the float by 2 and print the result
2 multiplied_float = float_var * 2
3 print(f"The float multiplied by 2: {multiplied_float}")
```

```
The float multiplied by 2: 1.4
```

✓ Question 2: Operators

Problem: Write a Python program that:

1. Accepts two numbers as input from the user.
2. Performs and prints the result of all the arithmetic operations (addition, subtraction, multiplication, division, modulus, floor division) between these two numbers.
3. Use comparison operators to check if the first number is greater than the second, and if they are equal.
4. Use logical operators to combine two conditions (e.g., the first number is greater than the second, and the second number is less than 10).

```

1 # Step 1: Accept two numbers from the user
2 num1 = float(input("Enter the first number: "))
3 num2 = float(input("Enter the second number: "))
4
5 # Step 2: Perform and print arithmetic operations
6 print("\nArithmetic Operations:")
7 print(f"{num1} + {num2} = {num1 + num2}")      # Addition
8 print(f"{num1} - {num2} = {num1 - num2}")      # Subtraction
9 print(f"{num1} * {num2} = {num1 * num2}")      # Multiplication
10 print(f"{num1} / {num2} = {num1 / num2}")      # Division
11 print(f"{num1} % {num2} = {num1 % num2}")      # Modulus
12 print(f"{num1} // {num2} = {num1 // num2}")    # Floor division
13
14 # Step 3: Use comparison operators
15 print("\nComparison Results:")
16 print(f"Is {num1} > {num2}? {num1 > num2}")    # Greater than
17 print(f"Is {num1} == {num2}? {num1 == num2}")  # Equal to
18
19 # Step 4: Use logical operators
20 condition1 = num1 > num2
21 condition2 = num2 < 10
22 print("\nLogical Operations:")
23 print(f"Is {num1} > {num2} AND {num2} < 10? {condition1 and condition2}")
24 print(f"Is {num1} > {num2} OR {num2} < 10? {condition1 or condition2}")
25 print(f"Is NOT {num1} > {num2}? {not condition1}")

```

Enter the first number: 3
Enter the second number: 8

Arithmetic Operations:

```

3.0 + 8.0 = 11.0
3.0 - 8.0 = -5.0
3.0 * 8.0 = 24.0
3.0 / 8.0 = 0.375
3.0 % 8.0 = 3.0
3.0 // 8.0 = 0.0

```

Comparison Results:

```

Is 3.0 > 8.0? False
Is 3.0 == 8.0? False

```

Logical Operations:

```

Is 3.0 > 8.0 AND 8.0 < 10? False
Is 3.0 > 8.0 OR 8.0 < 10? True
Is NOT 3.0 > 8.0? True

```

✓ Question 3: Loops

Problem: Write a Python program that:

1. Accepts a list of integers from the user.
2. Loops through the list and prints out each number.
3. If a number is greater than 10, skip it using the continue statement.
4. Stop the loop if the number is 20 using the break statement.
5. After the loop ends, print a message that the loop ended naturally.

```

1 # Step 1: Accept a list of integers from the user
2 input_str = input("Enter a list of integers (comma-separated): ")
3 numbers = [int(num.strip()) for num in input_str.split(',')]
4
5 print("\nProcessing the list...")
6
7 # Step 2: Loop through the list
8 for num in numbers:
9     # Step 3: Skip numbers greater than 10
10    if num > 10:
11        print(f"Skipping {num} (greater than 10)")
12        continue # Skip to the next iteration
13

```

```
14 # Step 4: Stop the loop if the number is 20
15 if num == 20:
16     print(f"Found 20! Stopping the loop.")
17     break # Exit the loop immediately
18
19 # Print the number if it passes the conditions
20 print(f"Current number: {num}")
21
22 # Step 5: Print a message if the loop ended naturally
23 else:
24     print("\nThe loop ended naturally (no 20 encountered).")
```

 Enter a list of integers (comma-separated): 3, 9, 10, 15, 17, 32, 20, 21

Processing the list...

Current number: 3

Current number: 9

Current number: 10

Skipping 15 (greater than 10)

Skipping 17 (greater than 10)

Skipping 32 (greater than 10)

Skipping 20 (greater than 10)

Skipping 21 (greater than 10)

The loop ended naturally (no 20 encountered).

1 Start coding or [generate](#) with AI.