Python Programming Assignments

Assignment 02

Question 1: Variables and Data Types

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. Converts the string to uppercase and prints it.

4. Checks if the integer is even or odd and prints the result.

5. Multiplies the float by 2 and prints the result.

Solution:

```
# Initializing data types
string = input("Enter any string: ")
integer = int(input("Enter any integer: "))
double = float(input("Enter any float number: "))
boolean = bool(input('Enter True/False: '))

# Checking odd or even integer
def even_or_odd(integer):
    div = integer%2
    if div==0:
        print(f"{integer} is even")
    else:
        print(f"{integer} is odd")

# Capitalizing string
def capitalize(string):
    capitalized = string.capitalize()
    print(f"Capitalized string: {capitalized}")

# Doubling the float
def doubled_float(float):
    doubled = float * 2
    print(f"Doubled float: {doubled}")

if __name__=='__main__':

    capitalize(string)
    even_or_odd(integer)
    doubled_float(double)
    print(boolean)
```

Question 2: Operators

Write a Python program that:

1. Accepts two numbers as input from the user.

2. Performs and prints the result of all arithmetic operations (addition, subtraction, multiplication, division, modulus, floor division) between these two numbers.

3. Uses comparison operators to check if the first number is greater than the second, and if they are equal.

4. Uses logical operators to combine two conditions (e.g., the first number is greater than the second, and the second number is less than 10).

Solution:

```
num_1 = int(input('Enter any number: '))
num_2 = int(input('Enter any number: '))

# Addition
add = num_1 + num_2
print(add)

# Subtraction
sub = num_1 - num_2
print(sub)

# Multiplication
product = num_1 * num_2
print(product)

# Division
if num_1 != 0 and num_2 != 0:
    quotient = num_1 / num_2
    flow_quotient = num_1//num_2
else:
    print("Error! Division by zero is not allowed")

print(quotient)
print(flow_quotient)

# Logical Checks
cond_1 = num_1>num_2
cond_2 = num_1==num_2

print("First number is greater than second:",cond_1)
print("First number is equal to second number:",cond_2)

cond_3 = cond_1 and cond_2

if cond_3:
    print("Both conditions are true: True")
else:
    print("Both conditions are true: False")
```

Question 3: Loops

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, skips it using the continue statement.
4. Stops the loop if the number is 20 using the break statement.
5. After the loop ends, prints a message that the loop ended naturally.