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Course Name : Python Programming

Assignment No.2

## Question 1: Variables and Data Types

Problem: Write a Python program that:

1. Accepts a string, an integer, a fl oat, 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 fl oat by 2 and print the result.

Solution:

```
# accept inputs from user.
string = input("Enter a string: ")  # string input
integer = int(input("Enter an integer: ")) # integer input
float_number = float(input("Enter a float: ")) # float input
boolean = input("Enter a boolean(True/False): ") # boolean input


uppercase_string = string.upper() # convert string to uppercase
print("Uppercase string: ", uppercase_string)

# check if the integer is even or odd
if integer % 2 == 0:
    print(f"The number {integer} is even.")
else:
    print(f"The number {integer} is odd.")


# multiply the float by 2
doubled_float = float_number * 2
print("Doubled float: ", doubled_float)

# check if the boolean is True or False
if boolean == "True":
    print("The boolean is True.")
elif boolean == "False":
    print("The boolean is False.")
else:
    print("Invalid boolean input.")
```

```
Uppercase string:  PYTHON
The number 25 is odd.
Doubled float:  6.28
The boolean is True.
```

## 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, fl ow division) between these two numbers.
3. Use comparison operators to check if the fi rst number is greater than the second, and if they are equal.
4. Use logical operators to combine two conditions (e.g., the fi rst number is greater than the second, and the second number is less than 10).

```
# take input from user .
first_number = int(input("Enter the first number: "))
second_number = int(input("Enter the second number: "))

# addition of two numbers
sum_of_numbers = first_number + second_number
print("Addition : ", sum_of_numbers)

# subtraction of two numbers
difference_of_numbers = first_number - second_number
print("Subtraction : ", difference_of_numbers)

# multiplication of two numbers
product_of_numbers = first_number * second_number
print("Multiplication : ", product_of_numbers)

# division of two numbers
quotient_of_numbers = first_number /second_number
print("Division : ", quotient_of_numbers)

# remainder of two numbers
remainder_of_numbers = first_number % second_number
print("Modulus : ", remainder_of_numbers)

# float division of two numbers
float_division_of_numbers = first_number // second_number
print("Float division : ", float_division_of_numbers)

# comparison of two numbers
comparison_of_numbers = first_number > second_number
print("First number is greater than second number: ",
comparison_of_numbers)
```

```
# to check if they are equal
equality_of_numbers = first_number == second_number
print("First number is equal to second number: ", equality_of_numbers)

# combine two conditions
combined_conditions = comparison_of_numbers and equality_of_numbers
print("Both conditions are True: ", combined_conditions)
```

```
Addition :  13
Subtraction :  7
Multiplication :  30
Division :  3.3333333333333335
Modulus :  1
Float division :  3
First number is greater than second number:  True
First number is equal to second number:  False
Both conditions are True:  False
```

## 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.

```
# Accept a list of integers from the user
numbers = list(map(int, input("Enter a list of numbers separated by
spaces: ").split()))

# Loop through the list
for n in numbers:
    if n == 20:
        print(f"Breaking at {n}")
        break  # Stop the loop if the number is 20

    if n > 10:
        print(f"Skipping {n}")
        continue  # Skip numbers greater than 10

    print(n)  # Print the number if it does not meet the above
conditions

# Print message after the loop ends
print("Loop ended naturally")
```

```
5
10
Skipping 12
Skipping 15
Breaking at 20
Loop ended naturally
```