Python Programming for All

Lab 1

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Numeric Data Types and Accumulator Algorithm

Part A: Math Operations

1. In the interactive window;

   Define an integer variable that equals 100:

   ```
   a = 100
   ```

   Define a `float` variable that equals 100:

   ```
   b = 100.0
   ```

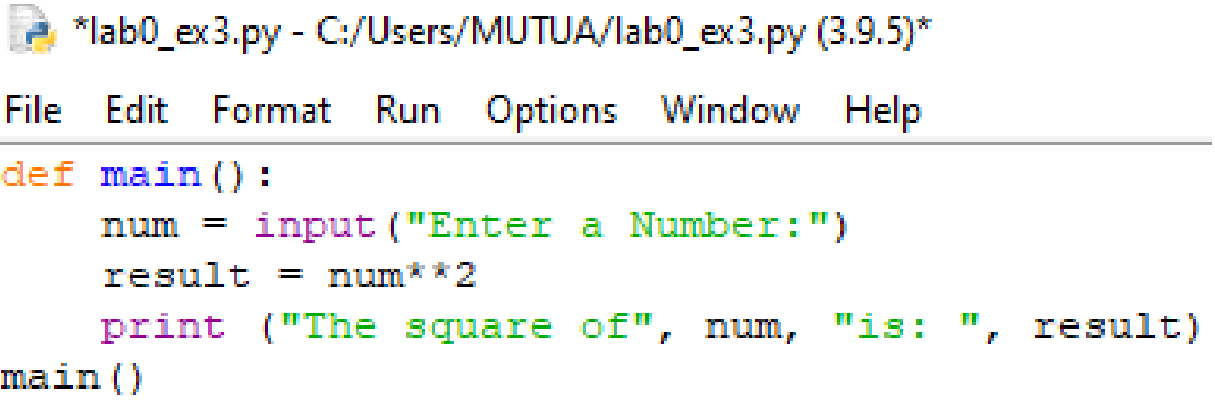
   Define a `long int` variable that equals 100:

   ```
   c = 100L
   ```

2. Check the data type of the variables a, b, and c using the type() function:

```
type(a)
type(b)
type(c)
```

3. Open a new Window and Write, Save, and Run the following program that reads a number and writes its square:



4. Modify the above program so that it prints square root instead of square. Use the function in the math module. Update the print message accordingly.

Part B: Accumulator Algorithm

1. Write the factorial program that we saw in the class in a new window, Save and Run.

```
#This function computes the factorial of the number
entered by a user.

def factor():
    n = input("Please enter a whole number: ")
    fact = 1
    for factor in range(1,n+1):
       fact = fact * factor
    print("The factorial of", n, "is", fact)

factor()
```

2. In the above program if you replace the statement `fact = fact * factor` with `fact = fact * 5`, what would this function compute? Run the modified program and try with different values.

```
#This function computes the factorial of the number
entered by a user.

def factor():
    n = input("Please enter a whole number: ")
    fact = 1
    for factor in range(1,n+1):
       fact = fact * 5
    print("The factorial of", n, "is", fact)
```

```
factor()
```

3. Modify the loop in the above program as follows. Run the program and observe the computation steps in the loop.
4. Write a program that finds the sum of numbers from 1 to 1000 using a `for` loop.
5. Write a program that inputs 5 numbers from the user in a loop and finds the sum of the numbers.
6. Modify the above program so that it finds the sum and also the average of the 5 numbers.