

LAB 3: Using numbers in Python

Example 1: Try the following to get the user to input 2 numbers and add them.

```
>>> num1 = input("Please enter a number: ")
Please enter a number: 3
>>> num2 = input("Please enter the second number: ")
Please enter the second number: 2
>>> print(num1+num2)
32
```

What has happened above?

Now try the following:

```
>>> print(num1 - num2)
Traceback (most recent call last):
  File "<pyshell#5>", line 1, in <module>
    print(num1 - num2)
TypeError: unsupported operand type(s) for -: 'str' and 'str'
```

Why did this happen?

Conversion functions

The **int()** or **float()** functions can be used to convert a numeric string value to an integer or a float number respectively.

```
>>> num1 = int(input("Please enter a number: "))
Please enter a number: 3
>>> num2 = int(input("Please enter the second number: "))
Please enter the second number: 2
>>> print(num1+num2)
5
>>> print(num1-num2)
1
```

What happens if we enter a float value (i.e. a number with decimal point) for an entry? Try it

You will get an error as shown below:

```
>>> num1 = int(input("Please enter a number: "))
Please enter a number: 2.4
Traceback (most recent call last):
  File "<pyshell#4>", line 1, in <module>
    num1 = int(input("Please enter a number: "))
ValueError: invalid literal for int() with base 10: '2.4'
```

Try the following using the **float()** function with the input:

```
>>> num1 = float(input("Please enter a number: "))
Please enter a number: 3
>>> num2 = float(input("Please enter the second number: "))
Please enter the second number: 2
>>> print(num1+num2)
5.0
>>> print(num1-num2)
1.0
```

If you are unsure if the user will enter a integer or a float, but would like to treat an integer as a integer (i.e. to show no decimal places) and a float with decimal spaces, you can use the **eval()** function. Try the following:

```
>>> num1 = eval(input("Please enter a number: "))
Please enter a number: 3
>>> num2 = eval(input("Please enter the second number: "))
Please enter the second number: 2
>>> print(num1+num2)
5
>>> print(num1-num2)
1
```

TASK 1: Ask the user to enter a number. The program will then double the number and display it to the user.

userNum =

newNum =

print("The double of _____ is _____")

TASK 2: Write a script called **double.py** and copy the above code. Check if the program is working well.

Sample output:

```
>>>
Please enter a number: 10
The double of 10 is 20
>>>
```

TASK 3: Write a script called **rectangle.py** to ask the user to enter the length and width of a rectangle. Calculate the area (length * width) and the perimeter (2*(length+width)) of the rectangle.

Sample output:

```
>>>
Please enter the length: 10
Please enter the width: 5
The area of the rectangle with length 10 and width 5 is 50
The perimeter of the rectangle with length 10 and width 5 is 30
>>>
```

Bonus question: Modify the output as follows:

```
>>>
Please enter the length: 10
Please enter the width: 5

The length is 10 and the width 5
The area will be: 50
The perimeter will be: 30
>>>
```

TASK 4: Write a script called **math.py** to ask the user to enter two numbers. It will then display the addition, subtraction, multiplication, division, square and cube of the two numbers. Make sure the output is user friendly.

Sample output:

```
>>>
Please enter the first number: 10
Please enter the second number: 5

The two numbers are 10 and 5
The sum is: 15
The difference is: 5
The product is: 50
The division is: 2.0
>>>
```

TASK 5: Write a script called **feetToMeter.py** to ask the user to enter a measurement in feet. It will then display the measurement in meter (meter = 0.305 * feet).

Sample output:

```
>>>
Please enter the measurement in feet: 10

10 feet is 3.05 meters.
>>>
```

Answer:

```
inFeet =
```

```
inMeter = 0.305 * inFeet
```

```
print( )
```

TASK 6: Write a script called **Temperature.py** to ask the user to enter the temperature in celsius. It will then display the temperature in fahrenheit (fahrenheit = (9/5)*Celsius+32).

Sample output:

```
>>>
Please enter the temperature in Celsius: 100

100 Celsius is 212.0 Fahrenheit.
>>>
```

Answer

```
Celsius =
```

```
inF = (9/5)* Celsius + 32
```

```
print( )
```