CIC6010 - Python programming

Practice session 1

Variables

Numbers

A variable is something that holds a value that may change. In simplest terms, a variable is just a box that you can put stuff in. You can use variables to store all kinds of stuff, but for now, we are just going to look at storing numbers in variables. Enter some statements that use variables to store values. Use = to assign a value to a variable. Most of the time, it is better to use meaningful names for variables, rather than simple names such as x.

Integer number:

```
x = 435
y = 3 * x + 2
print x
print y
```

You can print both at the same line: print x, y

Float numbers:

```
x = 3.5
x = x + 1.1
print(x)
```

Type conversion:

```
x = '4'
y = 56

x = int(x)    #Now x is integer
print(x)

x = float(x)    #Now x is float
print(x)
```

Try different conversions, such as string to integer or float. Integer to string, etc… Some of them will work some of them will not. Why?

Try the basic arithmetics and calculate the average and the standard deviation of the following numbers: 3, 7, 32, 54, 12, 34. You can create 6 variables now.

Raising to a power: 4 ** 4 = 256

Square root: 4 ** (1/2)

Strings

Strings are amongst the most popular types in Python. We can create them simply by enclosing characters in quotes. Strings are defined either with a single quote or a double quotes. Python treats single quotes the same as double quotes. Creating strings is as simple as assigning a value to a variable.

```
example_string1 = ' Hello! '
example_string2 = "Python”
print(example_string1 + example_string2)
```

Write a program which is able to convert distance in miles to kilometers. The input is the distance in miles and the output is:

Converting distance in miles to kilometers:
Distance in miles:
<?>
Distance in kilometers:
<?>

Write a new program but the input is in kilometers now. Try to produce the following format of output.

Converting distance in kilometers to miles:
Distance in kilometers: <?> km
Distance in miles: <?> miles