Week 1 Homework

1. In the following, what is the final output of a, b and t?

```
a = 3
b = 5
t = 2 * a – b
a = b
a = b / t
```

You may want to use a desk check to help you.
https://sites.google.com/a/campioncollege.com/it_eveningschoool/problem-solving-and-programming/desk-check-guide

2. In few weeks ahead, we will look at data frames. A data frame has all data points for analysis. In Python, we can see the summary of the data through Pandas with the describe function. One user used pd.describe() and obtained the following:

```
import pandas as pd
>>> df = pd.Series([0, 1, 5.3, 3, 4.2, 2.0, 2.6, 3.2, 3.3, 3.1])
>>> df.describe()
    count    10.000000
    mean     2.770000
    std      1.509268
    min      0.000000
    25%      2.150000
    50%      3.050000
    75%      3.275000
    max      5.300000
    dtype: float64
```

This may help you a bit:
https://pandas.pydata.org/pandas-docs/stable/reference/api/pandas.DataFrame.describe.html

   a. How many data points are there?
   b. What is the mean and standard deviation of the data frame?
   c. If a new data point located at 2.55, will the mean value risen or lowered? What about the standard deviation?, will it be broaden?

d. The median is the 50^{th} percentile of the data, where is it in the dataframe?

3. In Python we import libraries and use their functions to reduce our workload. In the following, name a library (can be more than one) that can work as described.

Analyse a dataset by comparing them with a null hypothesis.	
I have a huge dataset and require analysing them efficiently.	
Export class objects into a file.	
Fetch webpage data.	
Fetch Twitter feeds.	
I have a list of texts and wish to know if they mean positively or anger.	
When the program meets a criteria, it exits.	
To test my statistical model, I create a list of random numbers.	