**Data Analysis Lab 2**

**Question 1.**

Examine the following set of data, from last week’s Lab, that shows a person’s average heart rate at three intervals during the day:

Morning Afternoon Evening

Person 1 80 120 77

Person 2 55 152 0

Person 3 147 60 55

Person 4 0 120 85

1. Create a 2D list and insert these values into this list, remember to change the zero values to an average heart rate of 70.
2. Print the list using the basic print function.
3. Print out the details of Person 3s afternoon heart rate and Person 4s evening heart rate only.
4. Print all the data out using a nested loop ensuring it displays nicely.

**Include your completed working code here:**

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| import statistics as st  my2DList = []  firstInstance = ["", "Morning", "Afternoon", "Evening"]  secondInstance = ["Person1",80,120,77]  thirdInstance = ["Person2",55,152,70]  fourthInstance = ["Person3",147,60,55]  fifthInstance = ["Person4",70,120,85]  print(my2DList)  my2DList.append(firstInstance)  my2DList.append(secondInstance)  my2DList.append(thirdInstance)  my2DList.append(fourthInstance)  my2DList.append(fifthInstance)  print(my2DList)  print(fourthInstance[2])  print(fifthInstance[3])  for instance in my2DList:  for element in instance:  print(element) |

**Question 2.**

Download the file suicide.txt. This is a sub-section of data on the suicide rates for different genders and age groups in Albania.

You are required to do the following:

1. Familiarise yourself with this dataset and answer the following questions:
   * 1. How many years does the data span **= 2-3 years**
     2. Are there any zero values? If so are they errors or do they make sense? **= yes there are**
2. Create a 2D List and populate it with the given data. Ensure the data is then in the list correctly by doing a basic print. This is time consuming but all the data does need to be included so that you can carry out the analysis that follows.
3. Using your python knowledge from last week and this, in particular getting a subset of data into it’s own list, get the following:
   * 1. The Average number of suicides in 1989
     2. The total number of female suicides.
     3. The total number of male suicides.
     4. The average female suicides in 1987.
     5. The median suicide rate for the full data set, 1987, 1988, 1989.
     6. The mode of the suicides for the full data set given.
     7. The max and min suicides for each year.
4. Looking at the results of all the above analysis describe in English what you have found.

**Include your completed working code here:**

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**Write up for part d here:**

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The Statistics Library gives you access to all of these functions. Use them in your python code.

## Averages and measures of central location

## These functions calculate an average or typical value from a population or sample.

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| [mean()](https://docs.python.org/3/library/statistics.html#statistics.mean) | Arithmetic mean (“average”) of data. |
| [harmonic\_mean()](https://docs.python.org/3/library/statistics.html#statistics.harmonic_mean) | Harmonic mean of data. |
| [median()](https://docs.python.org/3/library/statistics.html#statistics.median) | Median (middle value) of data. |
| [median\_low()](https://docs.python.org/3/library/statistics.html#statistics.median_low) | Low median of data. |
| [median\_high()](https://docs.python.org/3/library/statistics.html#statistics.median_high) | High median of data. |
| [median\_grouped()](https://docs.python.org/3/library/statistics.html#statistics.median_grouped) | Median, or 50th percentile, of grouped data. |
| [mode()](https://docs.python.org/3/library/statistics.html#statistics.mode) | Mode (most common value) of discrete data. |

Measures of spread

These functions calculate a measure of how much the population or sample tends to deviate from the typical or average values.

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| [pstdev()](https://docs.python.org/3/library/statistics.html#statistics.pstdev) | Population standard deviation of data. |
| [pvariance()](https://docs.python.org/3/library/statistics.html#statistics.pvariance) | Population variance of data. |
| [stdev()](https://docs.python.org/3/library/statistics.html#statistics.stdev) | Sample standard deviation of data. |
| [variance()](https://docs.python.org/3/library/statistics.html#statistics.variance) | Sample variance of data. |