National University of Singapore
School of Computing
CS5242: Neural Networks and Deep Learning

Tutorial 1:
PYTHON 1

Read through the slides "How to set up your system" and "Python Cheat Sheet".

Use Jupyter Notebook, Google Colaboratory, or your program of choice to answer the following questions using Python code.

1. Calculate how much money you would have if you compounded $100 at 10% for 8 years. (Use Python Operators and print the answer to the console).

2. Create a variable called "days". Assign the value "7" to this variable. Try to execute the following code print ("There are " + days + " days in a week"). Rewrite the code to avoid the error.

There are 4 data types in the Python programming language. These data types let you group items into collections with specific properties (that you can then manipulate further later).

- **Lists** are a collection which is ordered and changeable. Allows duplicate members.
- **Dictionaries** are a collection which are unordered, changeable and indexed. No duplicate members.
- **Tuples** are a collection which is ordered and unchangeable. Allows duplicate members.
- **Sets** are a collection which is unordered and unindexed. No duplicate members.

3. Create a list with the following elements ["Tuesday", "Wednesday", "Thursday", "Friday", "Saturday", "Sunday", 42]. Add the string 'Someday' into this list. Add the variable 'days' that you previously created into this list.

   Create a new variable called 'sliced_list', which only contain the first 8 elements of the first list. Delete the integer '42' from the list. Change the string 'Someday' to 'Monday'.

4. Create a dictionary with the following key:value pairs.
   'name':['john','mary','peter','jeff','bill','lisa','jose'],
   'age':[23,78,22,19,45,33,20],
   'gender':['M','F','M','M','M','F','M'],
   'State':['california','dc','california','dc','california','texas','texas'],
   'num_children':[2,0,0,3,2,1,4]

   Add the following key:value pair to the dictionary.
   'num_pets':[5,1,0,5,2,2,3]

5. Import the pandas library as pd and the matplotlib.pylot library as plt. Convert the dictionary above to a dataframe.

6. Plot a scatterplot of ‘num_children’ against ‘num_pets’.

7. Plot a bar plot of ‘name’ against ‘age’.

8. Create a list with the numbers 1 to 10. Write a program to loop through the numbers in the list and print “odd” if the number is odd and “even” if the number is even.