CS550 : Machine Learning

❑ Install Python

- o Go to -> https://www.python.org/downloads/
- o Download the latest version of python for windows (Python comes inbuilt for Linux users)
- o While installing, don't forget to check "Add Python to PATH" checkbox at the bottom of splash screen.

python
for
windows
ython Developer's Guide.
☑ Install launcher for all users (recommended)
☑ Add Python 3.10 to PATH   Cancel

- o Once done, verify installation by typing "python" in CMD. If it runs without error, python is installed.

```
C:\Users\Anirban_Haldar>python
Python 3.9.10 (tags/v3.9.10:f2f3f53, Jan 17 2022, 15:14:21) [MSC v.1929 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>>
```

❑ Download various modules for python.

- o From CMD using ANY of the following commands to download packages for python,
  ```
  pip install <package_name>
  pip install <package names separated by comma>
  ```
- o Lets install some packages -> NumPy, Pandas, matplotlib & Jupyter Lab.

```
C:\Users\Anirban_Haldar>pip install numpy, pandas, matplotlib, jupyterlab
```

- o To open jupyter lab, first go to the working directory and run "jupyter-lab" command in the CMD.
- o The jupyter lab will be automatically opened in the default browser.

❑ Using Google Colab

- o Google Colab is an alternative of jupyter notebook.
- o Open https://colab.research.google.com/ in browser.
- o Create a new notebook using the "New notebook" button in the popup window.
- o Colab uses Linux system in backend, so all native linux commands will run on colab. To run linux commands, use a "!" (exclamation at beginning of command).

```
⦿   !pip install numpy
[ ]   !cp /contant/abc ./
[ ]   !unzip abc.zip
```

❑ How to read .csv (Comma Separated Values) file.

- o First we need to import pandas library into python using "import pandas as pd". ("pd" is an alias)
- o Next we use the "read_csv()" function to open a .csv file. (we can also pass a URL to a csv file).
- o It creates a DataFrame object, it can be treated as a table.

```
import pandas as pd

df = pd.read_csv('iris.csv')
df
```

	sepal.length	sepal.width	petal.length	petal.width	variety
0	5.1	3.5	1.4	0.2	Setosa
1	4.9	3.0	1.4	0.2	Setosa
2	4.7	3.2	1.3	0.2	Setosa
3	4.6	3.1	1.5	0.2	Setosa
4	5.0	3.6	1.4	0.2	Setosa
...	...	...	...	...	...
145	6.7	3.0	5.2	2.3	Virginica
146	6.3	2.5	5.0	1.9	Virginica
147	6.5	3.0	5.2	2.0	Virginica
148	6.2	3.4	5.4	2.3	Virginica
149	5.9	3.0	5.1	1.8	Virginica

150 rows × 5 columns

❑ Hands-on Machine Learning with Scikit-Learn, Keras, and TensorFlow

❑ Please note down the following github repository for the supportive materials of the book https://github.com/ageron/handson-ml2