dikshen tamang - Assignment 1

**Pandas:** python library developed by Wes McKinney (author of [python for data analysis](https://nibmehub.com/opac-service/pdf/read/Python%20for%20Data%20Analysis%20_%20data%20wrangling%20with%20Pandas-%20NumPy-%20and%20IPython.pdf)) for data manipulation and analysis. It provides data structures like Series (1D) and DataFrame (2D) that allow easy handling and processing of structured data.

Used to load and manipulate data analysis projects. For eg: data preprocessing of CSV files such as cleaning, transforming, and merging datasets.

**NumPy:** Python package for scientific computing created by Travis Oliphant, founder of [Anaconda](https://www.anaconda.com/). provides support for arrays, matrices, and many mathematical functions to operate on data structures. Used for performing linear algebra operations on large datasets.

**TensorFlow**: Open-source machine learning framework developed by Google. The framework providers tools, libraries, and community resources that allow researchers and developers to build and deploy ML models.

used in deep learning applications like building neural networks for image recognition.

**Keras:** Neural networks API, written in Python and capable of running on top of TensorFlow, CNTK, or Theano. With keras its easy to develop deep learning models sice its modular. used for quick neural network prototyping. [Convolutional Neural Networks (CNNs)](https://www.ibm.com/topics/convolutional-neural-networks) for image classification was made using keras.

**Scikit-learn:** Scikit-learn aka sklearn is a machine learning library that provides tools for data mining and data analysis. It includes algorithms for classification, regression, clustering etc. used for implementing machine learning algorithms like [Random Forest Algorithm](https://www.ibm.com/topics/random-forest#:~:text=Random%20forest%20is%20a%20commonly,both%20classification%20and%20regression%20problems.), a supervised machine learning algorithm used for classification and regression in ML.

**PyTorch:** open-source machine learning library developed by Facebook. It is popular for both research and development as it provides a flexible and quick deep learning framework

Used in natural language processing (NLP) <3 to build and train transformer models like [google’s BERT](https://www.techtarget.com/searchenterpriseai/definition/BERT-language-model#:~:text=BERT%20language%20model%20is%20an,surrounding%20text%20to%20establish%20context.) for text classification.