DOCUMENTATION

I. How to run the project

- The project is done within the range of a Jupyter notebook file (ImageClassification.ipynb). Datasets are retrieved online during runtime, thus there is no need to import external dataset files. To start the project, upload the Jupyter notebook file to Google Colab and wait for environment setup. After successful loading, choose Run time > Run all (Ctrl + F9) to run the entire project.
- **Important note:** The dataset retrieval step in the second code cell sometimes fails to run as there are unidentified problems on the provider side (tensorflow.keras.datasets). To tackle this problem, the user could re-run this cell until no error appears (usually takes 1-2 times).

II. Individual contribution

- Apart from the import of three crucial libraries such as *Tensorflow, Numpy*, and *Keras*, our programming project is mostly built from scratch by utilizing some existed built-in functions in order to build and train the model.
- Indeed, although our team implements *Tensorflow_privacy* source code – (DP), we have modified it to contribute to our progress in experimenting with the privacy problem.
- To specify each member's contribution to the programming project, we have:
    - **Team contribution:** To deliver the milestone of the progress, the building model section is contributed as our great effort since we have to define a **function cnn** on our own to result in the optimal number of layers in the convolutional network.
    - **Kiet** has imported the dataset and finished with the pre-processing data section (including normalizing, verifying, and performing one-hot encoding towards data)
    - **Vinh** has done model training and the plotting to observe the accuracy of our model
    - **Tung** has implemented differential privacy and modified the DP which is the library code from Tensorflow