**Documentation for train\_station\_passenger.ipynb file**

**Software used**

I used VSCode to open and edit the file easily. Python version 3.8.10 is used in this code.

**Installing dependencies**

This code has a class that needs to be imported in other python files. But this class depends on libraries that needs to be installed.

List of libraries to install:

* Numpy
* Tensorflow
* Pandas
* xlsxwriter

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Description automatically generated**The DNN\_model class**

The reason for making this class is to make the process of making and training a specific DNN model easier. The cons of using this class is that it is only specific to categorizing the inputs, meaning the loss function that is used at the output is SparseCategoricalCrossentropy. I also made this class to automatically save the model each specific batch of epochs. This class can also save the weights and biases of a trained model in an excel file.

**make\_model method**

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Parameters:

* train\_dataset
* train\_labels
* validation\_data
* num\_of\_inputs
* num\_of\_outputs
* num\_of\_hidden\_layers
* num\_of\_neurons\_of\_hidden\_layers
* epochs
* batch\_size
* save\_freq
* saved\_models\_path

This method is called if the user does not have a trained and saved model yet. To run this method you will need to input the train dataset and the labels of those dataset. It will automatically train and save the model depending on the save\_freq parameter(default to 100). This method will also automatically create an excel file each saved model to store the weights and biases.

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Description automatically generated**load\_model method**

The load\_model method just loads a saved model and stores it in an attribute of the class.

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Description automatically generated**train\_model method**

Graphical user interface, text, application

Description automatically generatedThe train\_model method is almost the same as the make\_model method except that instead of creating a new model folder, it trains the loaded model and creates train batches of folder each call of the method.

Inside the saved\_per\_train folder of the loaded model there will be “train” folders that will be created each time this method is called.

**make\_excel method**

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This method creates an excel file of the weights and biases of the specified location of neural network.

Graphical user interface, text, application

Description automatically generated

This method is used throughout the class methods and is often found inside the saved checkpoints of the model.

Graphical user interface

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