***YapAiTek assignment***

There are two python file:

* DeepNeuralNetwork.py
* Regression Models.ipynb

1. DeepNeuralNetwork.py is implementing a neural network model. First I load the data then preprocess the data and choose some features and convert them to numerical features. After training the model, I evaluated and predict the test Data. I split the Data to Train (0.8) and Test(0.2) and at the end I use the test data with unknown target. In this python file there is a part that I use feature selection models to select some important features and retrain the model, but it didn’t make the model better. So I use 13 features in this solution and Dense Network with three layers, I use mean squared error loss function for evaluation. The best loss I get was about 10 with this solution. All this parts are commented in the code and you just run the file to get the result.

Requirements:

* python3.
* pandas, tensorflow and keras libraries.

2. Regression Models.ipynb is a Jupyter file that it contained some regression models to solve the problem. Loading the Data and preprocess step is as the same as last solution, but here I use different models like linear regression, Decision Tree, Random Forest and Gradient Boosting. For evaluation the models I use MSE and MAE metrics. All the models and results are showed in the code. The best result was for Random Forest model, so I predict the test data with this model.

Requirements:

* python3.
* pandas, scikit-learn library.