Yahia Ehab 7037125

Ahmed Shehata 7005537

Notes: we decided to not use some features in our model for the following reasons:

- Name: it is irrelevant to the label we are trying to predict, also to avoid overfitting.
- Seller-type: non-primary factor to the label and may lead to overcomplication in the model.

We also did some data cleaning by removing Nan values .

Linear Regression:

- Multi-feature equation:

```
MSE:  230276264993.25314
RMSE:  479871.09205832885
MAE:  282071.31510551943
```

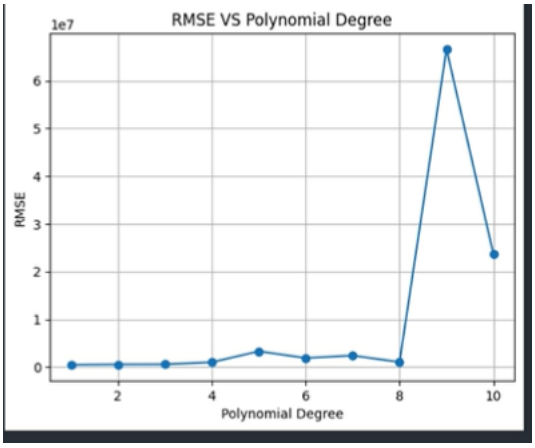
- Gradient Descent:

```
MSE:  230276264993.25314
RMSE:  479871.09205832885
MAE:  282071.31510551943
```

We would naturally choose both as they complement each other, but if we have to choose one, we tend to favour the gradient descent approach more as it grants the ability to find the optimal coefficient values and minimises the cost function with each epoch, and we consider optimisation to be of higher regard (this is shown in the Jupyter notebook).

Polynomial Regression:

- RMSE values:



As shown from the plot above it is clear that a degree of 1 is optimal to our case as it has the least RMSE value of 467898, after the 8th degree it is clear that the model undergoes overfitting hence 1 is more optimal as it is less complex.