

Homework 1

Q1. Neural Network architecture:

```
n = 2

model = models.Sequential()
model.add(layers.Dense(2, activation='selu', input_shape=(n,)))
model.add(layers.Dense(1, activation='linear'))

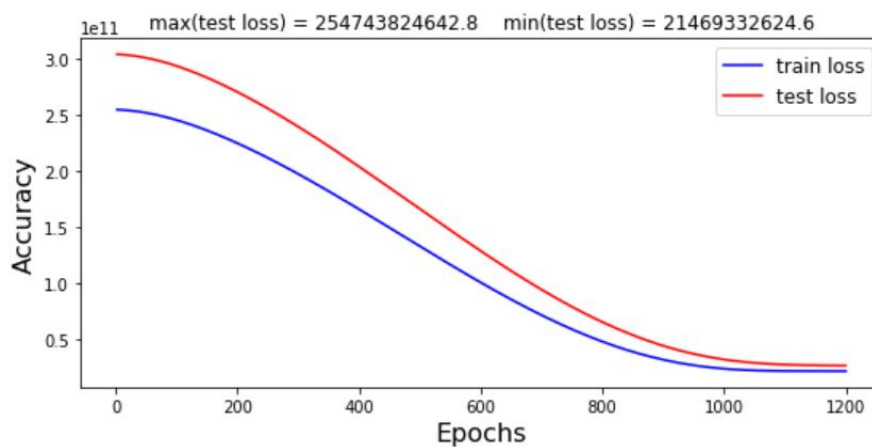
model.summary()
```

Layer (type)	Output Shape	Param #
dense_1 (Dense)	(None, 2)	6
dense_2 (Dense)	(None, 1)	3

Total params: 9
Trainable params: 9
Non-trainable params: 0

From the train loss and test loss obtained we can see that the optimal point is around 1000 epochs. Both train and test loss begins to flatten after this point.

Setting epochs = 1200.



Testing the predictions against test data:

	Predicted Value	Actual Value
0	459372.0	888000
1	377306.0	338000
2	555469.0	420000

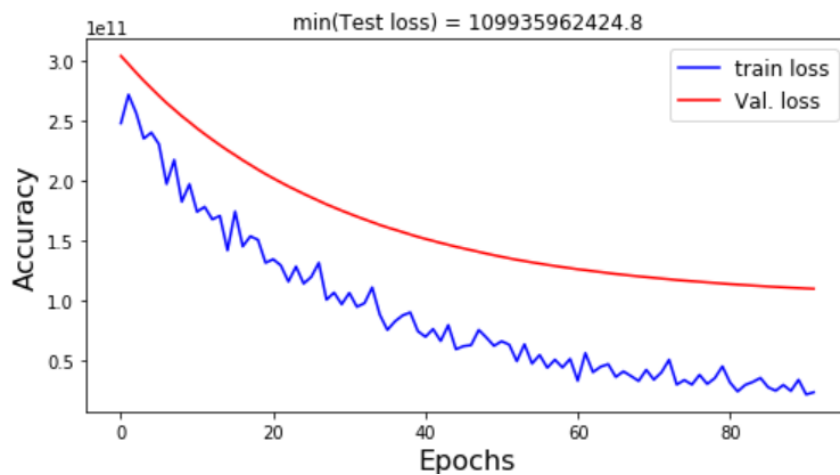
Q2. Neural Network architecture:

9 Total Parameters.

1 Hidden layer: Sigmoid activation function.

Output Layer: Linear

From the train loss and test loss obtained we can see that the optimal point is around 80 epochs. The validation loss begins to flatten at this point. Here epoch refers to each gradient descent step (i.e after every mini batch step of size = 256).



MSE error for both versions are very close.

Testing the predictions against test data:

	Predicted Value	Actual Value
0	358754.0	888000.0
1	420596.0	338000.0
2	323984.0	420000.0