Model Development Phase Template

Date	15 October 2024
Team ID	740663
Project Title	Predicting Diamond Prices With ANN Using Deep Learning
Maximum Marks	10 Marks

Initial Model Training Code, Model Validation and Evaluation Report

The initial model training code will be showcased in the future through a screenshot. The model validation and evaluation report will include a summary and training and validation performance metrics for multiple models, presented through respective screenshots.

Initial Model Training Code (5 marks):

```
[ ]  history = model.fit(x_train, y_train, epochs=100, batch_size=32, validation_split=0.1)
```

Model Validation and Evaluation Report (5 marks):

Model	Summary	Training and Validation Performance Metrics

Keras		

```
model.summary()
```

Model: "sequential"

Layer (type)	Output Shape	Param #
dense (Dense)	(None, 128)	1,280
dense_1 (Dense)	(None, 64)	8,256
dense_2 (Dense)	(None, 1)	65

Total params: 9,601 (37.50 KB)
Trainable params: 9,601 (37.50 KB)
Non-trainable params: 0 (0.00 B)

```
Epoch 1/100
674/674 ──────────────── 2s 2ms/step - loss: 6004717.0000 - mae: 1798.3607 - val_loss: 370642.9062 -
Epoch 2/100
674/674 ──────────────── 3s 2ms/step - loss: 315008.2188 - mae: 406.5912 - val_loss: 245858.6406 - v
Epoch 3/100
674/674 ──────────────── 2s 3ms/step - loss: 235605.3281 - mae: 332.6490 - val_loss: 227275.6719 - v
Epoch 4/100
674/674 ──────────────── 2s 2ms/step - loss: 229313.7031 - mae: 324.9062 - val_loss: 223178.1562 - v
Epoch 5/100
674/674 ──────────────── 1s 2ms/step - loss: 219496.8438 - mae: 319.4495 - val_loss: 220520.2344 - v
Epoch 6/100
674/674 ──────────────── 1s 2ms/step - loss: 219706.8906 - mae: 318.4552 - val_loss: 218706.7969 - v
Epoch 7/100
674/674 ──────────────── 1s 2ms/step - loss: 207558.4688 - mae: 310.3093 - val_loss: 220108.1875 - v
Epoch 8/100
674/674 ──────────────── 1s 1ms/step - loss: 214595.2812 - mae: 313.8318 - val_loss: 217865.8438 - v
Epoch 9/100
674/674 ──────────────── 1s 2ms/step - loss: 216433.6562 - mae: 315.0001 - val_loss: 218446.9531 - v
Epoch 10/100
674/674 ──────────────── 1s 2ms/step - loss: 213671.8125 - mae: 308.4117 - val_loss: 217064.2188 - v
Epoch 11/100
674/674 ──────────────── 2s 2ms/step - loss: 214080.5469 - mae: 308.7069 - val_loss: 211551.7188 - v
Epoch 12/100
674/674 ──────────────── 2s 2ms/step - loss: 212854.2500 - mae: 307.5582 - val_loss: 211485.8906 - v
Epoch 13/100
674/674 ──────────────── 2s 2ms/step - loss: 207658.4844 - mae: 303.1884 - val_loss: 209359.2656 - v
Epoch 14/100
674/674 ──────────────── 1s 2ms/step - loss: 203917.1875 - mae: 299.8109 - val_loss: 209411.3438 - v
Epoch 15/100
674/674 ──────────────── 1s 2ms/step - loss: 203519.4219 - mae: 299.2527 - val_loss: 208756.8281 - v

[ ]  Epoch 84/100
     674/674 ──────────────── 1s 2ms/step - loss: 110370.2031 - mae: 197.4303 - val_loss
⇥▾  Epoch 85/100
     674/674 ──────────────── 1s 2ms/step - loss: 107700.4844 - mae: 195.1191 - val_loss
     Epoch 86/100
     674/674 ──────────────── 1s 2ms/step - loss: 105300.4609 - mae: 193.8964 - val_loss
     Epoch 87/100
     674/674 ──────────────── 1s 2ms/step - loss: 100781.6094 - mae: 189.2627 - val_loss
     Epoch 88/100
     674/674 ──────────────── 1s 2ms/step - loss: 102141.9766 - mae: 190.7357 - val_loss
     Epoch 89/100
     674/674 ──────────────── 1s 2ms/step - loss: 106255.8750 - mae: 194.5740 - val_loss
     Epoch 90/100
     674/674 ──────────────── 2s 2ms/step - loss: 101369.6016 - mae: 190.9064 - val_loss
     Epoch 91/100
     674/674 ──────────────── 2s 2ms/step - loss: 98009.5938 - mae: 188.0024 - val_loss:
     Epoch 92/100
     674/674 ──────────────── 2s 2ms/step - loss: 102004.5000 - mae: 189.5029 - val_loss
     Epoch 93/100
     674/674 ──────────────── 1s 2ms/step - loss: 99984.3125 - mae: 188.5337 - val_loss:
     Epoch 94/100
     674/674 ──────────────── 1s 2ms/step - loss: 95966.7266 - mae: 186.1244 - val_loss:
     Epoch 95/100
     674/674 ──────────────── 1s 2ms/step - loss: 94505.1094 - mae: 184.0008 - val_loss:
     Epoch 96/100
     674/674 ──────────────── 1s 2ms/step - loss: 95629.4609 - mae: 184.3552 - val_loss:
     Epoch 97/100
     674/674 ──────────────── 1s 2ms/step - loss: 96706.7344 - mae: 186.0550 - val_loss:
     Epoch 98/100
     674/674 ──────────────── 1s 2ms/step - loss: 96791.5703 - mae: 186.3500 - val_loss:
     Epoch 99/100
     674/674 ──────────────── 3s 2ms/step - loss: 93741.5234 - mae: 183.4680 - val_loss:
     Epoch 100/100
```