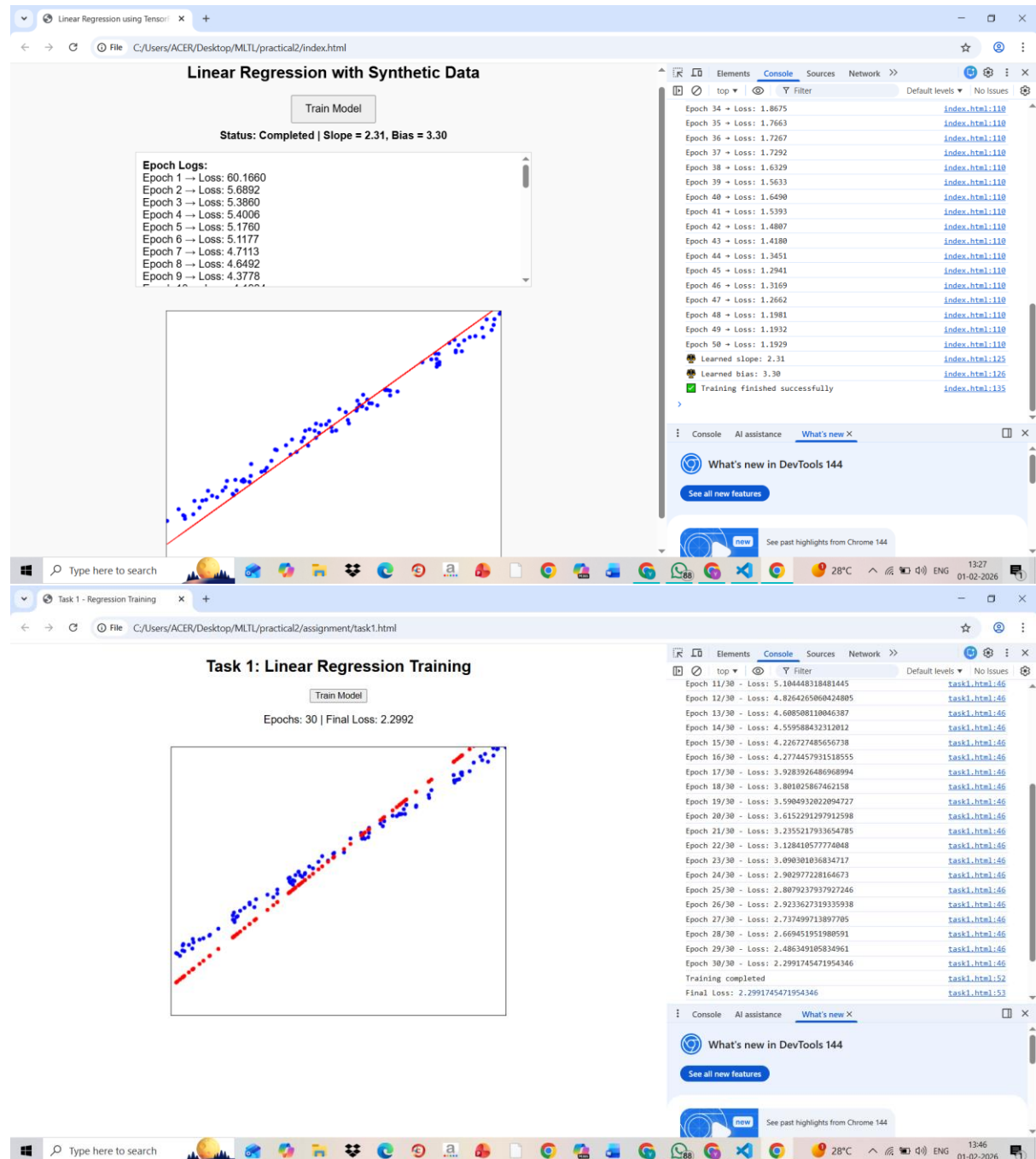


MLTL – PRACTICAL 2

CM23042



Task 2 - Learning Rate Comparison

Run Experiment

Epochs: 30 | Final Loss → LR 0.001: 3.4522 | LR 0.01: 1.3856 | LR 0.1: NaN |

LR 0.001
LR 0.01
LR 0.1

Console

```
Epoch 1: Loss = 4.0741 task2.html:61
Epoch 2: Loss = 1.7545 task2.html:61
Epoch 3: Loss = 1.6368 task2.html:61
Epoch 4: Loss = 1.5045 task2.html:61
Epoch 5: Loss = 1.4394 task2.html:61
Epoch 6: Loss = 1.5194 task2.html:61
Epoch 7: Loss = 1.3856 task2.html:61
Epoch 8: Loss = 1.3856 task2.html:61
Epoch 9: Loss = 1.3856 task2.html:61
Epoch 10: Loss = 1.3856 task2.html:61
Epoch 11: Loss = 1.3856 task2.html:61
Epoch 12: Loss = 1.3856 task2.html:61
Epoch 13: Loss = 1.3856 task2.html:61
Epoch 14: Loss = NaN task2.html:61
Epoch 15: Loss = NaN task2.html:61
Epoch 16: Loss = NaN task2.html:61
Epoch 17: Loss = NaN task2.html:61
Epoch 18: Loss = NaN task2.html:61
Epoch 19: Loss = NaN task2.html:61
Epoch 20: Loss = NaN task2.html:61
Epoch 21: Loss = NaN task2.html:61
Epoch 22: Loss = NaN task2.html:61
Epoch 23: Loss = NaN task2.html:61
Epoch 24: Loss = NaN task2.html:61
Epoch 25: Loss = NaN task2.html:61
Epoch 26: Loss = NaN task2.html:61
Epoch 27: Loss = NaN task2.html:61
Epoch 28: Loss = NaN task2.html:61
Epoch 29: Loss = NaN task2.html:61
Epoch 30: Loss = NaN task2.html:61
--- Learning Rate = 0.1 ---
Epoch 1: Loss = 462176.3125 task2.html:61
Epoch 2: Loss = 416203488.0000 task2.html:61
Epoch 3: Loss = 517198418280448.0000 task2.html:61
Epoch 4: Loss = 288035947311548858368.0000 task2.html:61
Epoch 5: Loss = 3.087958001526327e+26 task2.html:61
Epoch 6: Loss = 1.4815704188653003e+32 task2.html:61
Epoch 7: Loss = Infinity task2.html:61
Epoch 8: Loss = Infinity task2.html:61
Epoch 9: Loss = Infinity task2.html:61
Epoch 10: Loss = Infinity task2.html:61
Epoch 11: Loss = Infinity task2.html:61
Epoch 12: Loss = Infinity task2.html:61
Epoch 13: Loss = Infinity task2.html:61
Epoch 14: Loss = NaN task2.html:61
```

Task 3 - Unseen Data Prediction

Predict

Epochs: 30 | Final Loss: 1.8676

Input (x)	Expected Output	Predicted Output
12	29.00	31.60
15	35.00	38.90
20	45.00	51.07

Console

```
Epoch 15/30 | Loss: 3.4134 task3.html:75
Epoch 16/30 | Loss: 3.1263 task3.html:75
Epoch 17/30 | Loss: 3.0823 task3.html:75
Epoch 18/30 | Loss: 2.9468 task3.html:75
Epoch 19/30 | Loss: 2.8054 task3.html:75
Epoch 20/30 | Loss: 2.7168 task3.html:75
Epoch 21/30 | Loss: 2.5891 task3.html:75
Epoch 22/30 | Loss: 2.5395 task3.html:75
Epoch 23/30 | Loss: 2.3733 task3.html:75
Epoch 24/30 | Loss: 2.3587 task3.html:75
Epoch 25/30 | Loss: 2.2200 task3.html:75
Epoch 26/30 | Loss: 2.1205 task3.html:75
Epoch 27/30 | Loss: 2.1385 task3.html:75
Epoch 28/30 | Loss: 1.9692 task3.html:75
Epoch 29/30 | Loss: 1.9100 task3.html:75
Epoch 30/30 | Loss: 1.8676 task3.html:75
Final Training Loss: 1.867611050605774 task3.html:81
Unseen Inputs: Array(3) task3.html:91
Expected Outputs: Array(3) task3.html:92
Predicted Outputs: Float32Array(3) task3.html:93
```