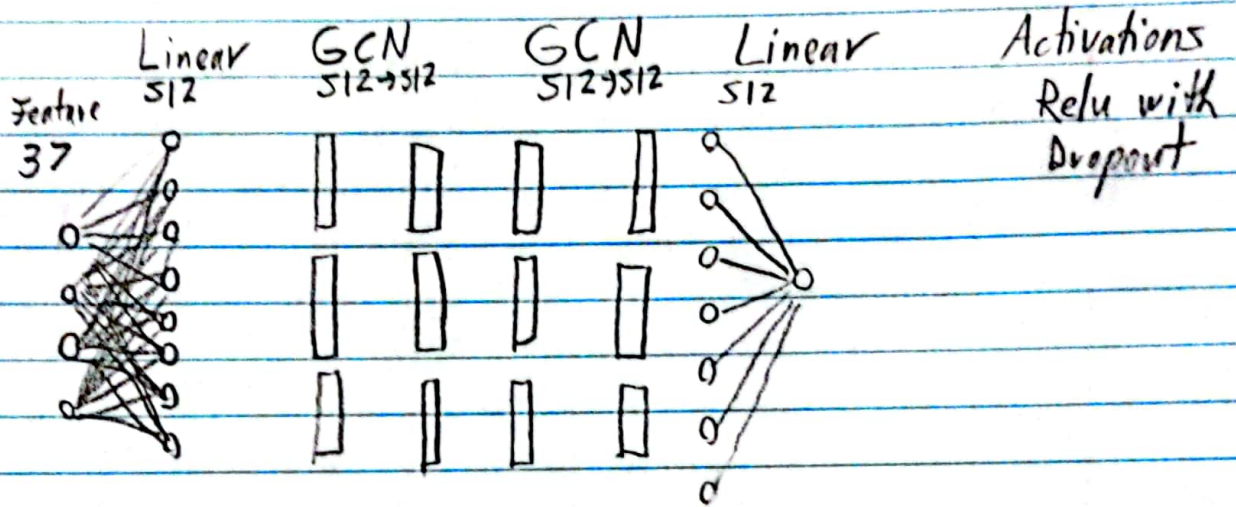


Code P1 report

Model



Hyper parameters

Optimizer: Adam

Loss: MSE Loss

Epochs: 154

learning rate: 0.001

weight decay: 1×10^{-5}

Batch size: 64

Model Design

Linear Layer $37 \rightarrow 512$

GCN Layer $512 \rightarrow 512$

GCN Layer $512 \rightarrow 512$

Linear Layer $512 \rightarrow 1$

Activation: ReLU

Additional: Dropout & maxpool

Final MSE = 138.5

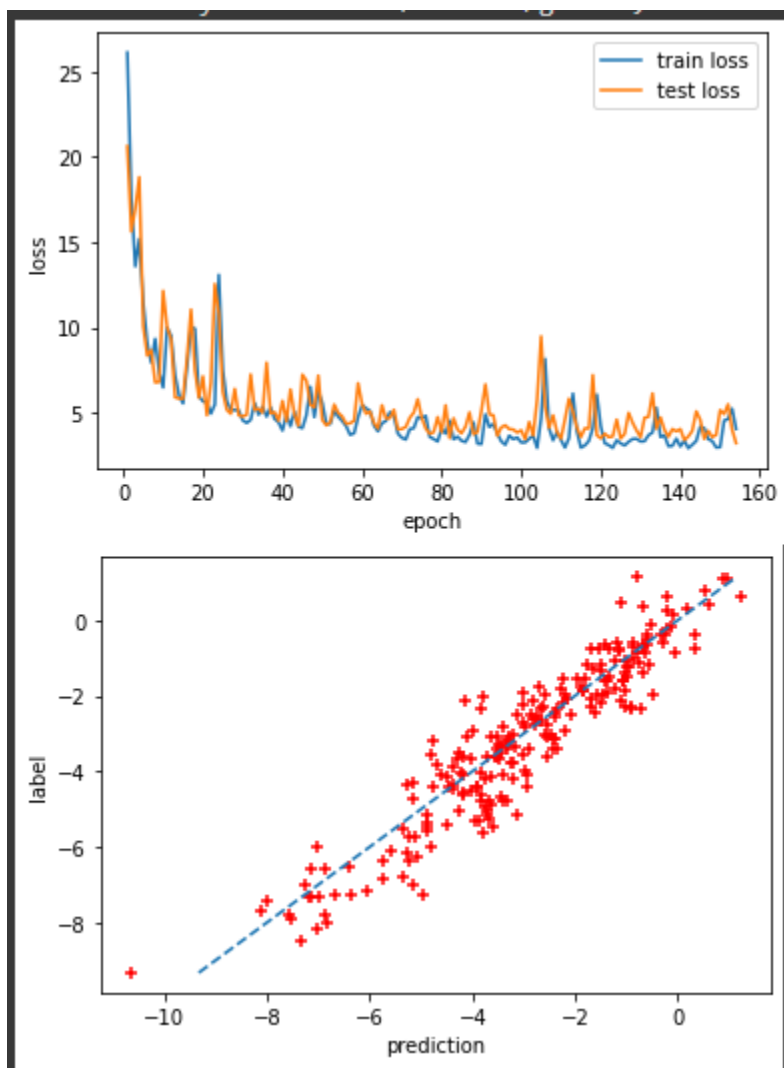
Performance of Test Set

Epoch: 154, Train loss: 4.05, Test loss: 3.22

Model

```
GraphNet(  
  (embed): Linear(in_features=37, out_features=512, bias=True)  
  (conv1): GCNConv(512, 512)  
  (conv2): GCNConv(512, 512)  
  (out_layer): Linear(in_features=512, out_features=1, bias=True)  
)
```

Plot of Training



Final MSE Loss

MSE: 138.50707022213217

Full Test Training Data

```
Epoch: 1, Train loss: 26.1, Test loss: 20.6
Epoch: 2, Train loss: 17.6, Test loss: 15.6
Epoch: 3, Train loss: 13.6, Test loss: 17.0
Epoch: 4, Train loss: 15.2, Test loss: 18.8
Epoch: 5, Train loss: 11.5, Test loss: 10.1
Epoch: 6, Train loss: 9.12, Test loss: 8.35
Epoch: 7, Train loss: 7.94, Test loss: 8.67
Epoch: 8, Train loss: 9.34, Test loss: 6.78
Epoch: 9, Train loss: 7.37, Test loss: 6.81
Epoch: 10, Train loss: 6.48, Test loss: 12.2
Epoch: 11, Train loss: 9.99, Test loss: 10.0
Epoch: 12, Train loss: 9.52, Test loss: 9.32
Epoch: 13, Train loss: 7.2, Test loss: 5.9
Epoch: 14, Train loss: 6.02, Test loss: 5.84
Epoch: 15, Train loss: 5.55, Test loss: 5.82
Epoch: 16, Train loss: 7.68, Test loss: 8.19
Epoch: 17, Train loss: 10.0, Test loss: 11.1
Epoch: 18, Train loss: 9.93, Test loss: 7.49
Epoch: 19, Train loss: 5.98, Test loss: 5.87
Epoch: 20, Train loss: 5.67, Test loss: 7.14
Epoch: 21, Train loss: 5.6, Test loss: 4.85
Epoch: 22, Train loss: 4.95, Test loss: 6.77
Epoch: 23, Train loss: 5.49, Test loss: 12.6
Epoch: 24, Train loss: 13.1, Test loss: 10.8
Epoch: 25, Train loss: 7.51, Test loss: 6.23
Epoch: 26, Train loss: 5.69, Test loss: 5.17
Epoch: 27, Train loss: 5.17, Test loss: 4.94
Epoch: 28, Train loss: 5.16, Test loss: 6.4
Epoch: 29, Train loss: 5.14, Test loss: 4.85
Epoch: 30, Train loss: 4.56, Test loss: 4.78
Epoch: 31, Train loss: 4.4, Test loss: 4.88
Epoch: 32, Train loss: 4.58, Test loss: 7.25
Epoch: 33, Train loss: 5.57, Test loss: 5.16
Epoch: 34, Train loss: 4.89, Test loss: 5.24
Epoch: 35, Train loss: 5.35, Test loss: 5.01
Epoch: 36, Train loss: 4.78, Test loss: 7.94
Epoch: 37, Train loss: 5.32, Test loss: 4.96
Epoch: 38, Train loss: 4.64, Test loss: 5.04
Epoch: 39, Train loss: 4.44, Test loss: 4.53
Epoch: 40, Train loss: 3.96, Test loss: 5.7
```

```
Epoch: 41, Train loss: 4.91, Test loss: 4.5
Epoch: 42, Train loss: 4.21, Test loss: 6.37
Epoch: 43, Train loss: 5.07, Test loss: 4.91
Epoch: 44, Train loss: 4.18, Test loss: 4.23
Epoch: 45, Train loss: 4.1, Test loss: 7.24
Epoch: 46, Train loss: 4.86, Test loss: 6.89
Epoch: 47, Train loss: 6.53, Test loss: 5.47
Epoch: 48, Train loss: 4.75, Test loss: 5.32
Epoch: 49, Train loss: 6.26, Test loss: 7.18
Epoch: 50, Train loss: 5.58, Test loss: 4.59
Epoch: 51, Train loss: 4.38, Test loss: 4.26
Epoch: 52, Train loss: 4.34, Test loss: 4.44
Epoch: 53, Train loss: 5.12, Test loss: 5.48
Epoch: 54, Train loss: 4.77, Test loss: 4.99
Epoch: 55, Train loss: 4.52, Test loss: 4.78
Epoch: 56, Train loss: 4.21, Test loss: 4.35
Epoch: 57, Train loss: 3.71, Test loss: 4.39
Epoch: 58, Train loss: 3.79, Test loss: 4.53
Epoch: 59, Train loss: 4.73, Test loss: 6.73
Epoch: 60, Train loss: 5.46, Test loss: 5.51
Epoch: 61, Train loss: 5.26, Test loss: 4.94
Epoch: 62, Train loss: 5.1, Test loss: 5.07
Epoch: 63, Train loss: 4.24, Test loss: 4.4
Epoch: 64, Train loss: 3.91, Test loss: 4.08
Epoch: 65, Train loss: 4.38, Test loss: 5.44
Epoch: 66, Train loss: 4.52, Test loss: 4.66
Epoch: 67, Train loss: 5.03, Test loss: 4.69
Epoch: 68, Train loss: 4.8, Test loss: 5.17
Epoch: 69, Train loss: 3.78, Test loss: 4.03
Epoch: 70, Train loss: 3.53, Test loss: 4.05
Epoch: 71, Train loss: 3.43, Test loss: 4.17
Epoch: 72, Train loss: 4.04, Test loss: 4.71
Epoch: 73, Train loss: 4.09, Test loss: 5.01
Epoch: 74, Train loss: 4.74, Test loss: 5.8
Epoch: 75, Train loss: 4.67, Test loss: 4.71
Epoch: 76, Train loss: 4.82, Test loss: 4.08
Epoch: 77, Train loss: 3.58, Test loss: 3.76
Epoch: 78, Train loss: 3.46, Test loss: 3.86
Epoch: 79, Train loss: 3.32, Test loss: 4.75
Epoch: 80, Train loss: 4.08, Test loss: 3.86
```

```
Epoch: 81, Train loss: 3.78, Test loss: 5.44
Epoch: 82, Train loss: 4.53, Test loss: 3.51
Epoch: 83, Train loss: 3.44, Test loss: 4.68
Epoch: 84, Train loss: 3.6, Test loss: 4.02
Epoch: 85, Train loss: 3.36, Test loss: 3.79
Epoch: 86, Train loss: 3.28, Test loss: 4.19
Epoch: 87, Train loss: 3.7, Test loss: 5.02
Epoch: 88, Train loss: 4.43, Test loss: 3.74
Epoch: 89, Train loss: 3.19, Test loss: 3.86
Epoch: 90, Train loss: 3.17, Test loss: 5.12
Epoch: 91, Train loss: 4.9, Test loss: 6.67
Epoch: 92, Train loss: 4.16, Test loss: 4.91
Epoch: 93, Train loss: 4.34, Test loss: 4.85
Epoch: 94, Train loss: 3.77, Test loss: 3.65
Epoch: 95, Train loss: 3.32, Test loss: 4.14
Epoch: 96, Train loss: 3.12, Test loss: 4.26
Epoch: 97, Train loss: 3.66, Test loss: 4.04
Epoch: 98, Train loss: 3.45, Test loss: 4.02
Epoch: 99, Train loss: 3.55, Test loss: 3.84
Epoch: 100, Train loss: 3.26, Test loss: 3.97
Epoch: 101, Train loss: 3.26, Test loss: 3.45
Epoch: 102, Train loss: 3.48, Test loss: 4.46
Epoch: 103, Train loss: 3.66, Test loss: 3.66
Epoch: 104, Train loss: 2.94, Test loss: 5.79
Epoch: 105, Train loss: 4.67, Test loss: 9.49
Epoch: 106, Train loss: 8.16, Test loss: 5.38
Epoch: 107, Train loss: 4.09, Test loss: 4.1
Epoch: 108, Train loss: 3.38, Test loss: 4.85
Epoch: 109, Train loss: 3.87, Test loss: 3.87
Epoch: 110, Train loss: 3.4, Test loss: 3.48
Epoch: 111, Train loss: 2.96, Test loss: 4.61
Epoch: 112, Train loss: 3.51, Test loss: 5.83
Epoch: 113, Train loss: 6.12, Test loss: 5.05
Epoch: 114, Train loss: 3.92, Test loss: 4.14
Epoch: 115, Train loss: 2.95, Test loss: 3.58
Epoch: 116, Train loss: 3.08, Test loss: 4.09
Epoch: 117, Train loss: 3.35, Test loss: 4.08
Epoch: 118, Train loss: 4.09, Test loss: 7.21
Epoch: 119, Train loss: 6.07, Test loss: 3.68
Epoch: 120, Train loss: 4.21, Test loss: 3.5
```

```
Epoch: 121, Train loss: 3.21, Test loss: 3.77
Epoch: 122, Train loss: 3.1, Test loss: 3.57
Epoch: 123, Train loss: 2.94, Test loss: 3.61
Epoch: 124, Train loss: 3.39, Test loss: 4.6
Epoch: 125, Train loss: 3.2, Test loss: 3.49
Epoch: 126, Train loss: 3.08, Test loss: 3.76
Epoch: 127, Train loss: 3.3, Test loss: 4.99
Epoch: 128, Train loss: 3.46, Test loss: 4.41
Epoch: 129, Train loss: 3.47, Test loss: 3.96
Epoch: 130, Train loss: 3.31, Test loss: 3.57
Epoch: 131, Train loss: 3.33, Test loss: 4.7
Epoch: 132, Train loss: 3.69, Test loss: 4.77
Epoch: 133, Train loss: 3.84, Test loss: 6.14
Epoch: 134, Train loss: 5.29, Test loss: 4.07
Epoch: 135, Train loss: 3.58, Test loss: 4.73
Epoch: 136, Train loss: 3.67, Test loss: 4.0
Epoch: 137, Train loss: 3.04, Test loss: 3.59
Epoch: 138, Train loss: 3.06, Test loss: 4.04
Epoch: 139, Train loss: 3.48, Test loss: 3.91
Epoch: 140, Train loss: 3.02, Test loss: 4.04
Epoch: 141, Train loss: 3.37, Test loss: 3.39
Epoch: 142, Train loss: 2.92, Test loss: 3.61
Epoch: 143, Train loss: 3.12, Test loss: 3.94
Epoch: 144, Train loss: 3.35, Test loss: 5.08
Epoch: 145, Train loss: 4.18, Test loss: 4.59
Epoch: 146, Train loss: 4.1, Test loss: 3.47
Epoch: 147, Train loss: 3.45, Test loss: 3.94
Epoch: 148, Train loss: 3.34, Test loss: 3.57
Epoch: 149, Train loss: 2.96, Test loss: 3.7
Epoch: 150, Train loss: 2.98, Test loss: 5.15
Epoch: 151, Train loss: 4.54, Test loss: 4.92
Epoch: 152, Train loss: 4.63, Test loss: 5.5
Epoch: 153, Train loss: 5.24, Test loss: 4.02
Epoch: 154, Train loss: 4.05, Test loss: 3.22
```