# Building the model for credit card approval

- After performing data cleaning and transforming the data to numerical vectors we used keras to build our logical structure.
- Here we built a sequential model.
- Our model has 3 hidden layers along with input and output layer.
- Our input layer consisted of 27 dimensions with random weights and bias initialization.
- Here we built a fully connected network .
- Our first hidden layers consists of 28 neurons and relu as an activation function.
- Our first hidden layers consists of 18 neurons and relu as an activation function.
- Our first hidden layers consists of 8 neurons and relu as an activation function.
- In all the hidden layers we used randomly initialized weights and bias.
- In the output layer we used sigmoid as an activation function.
- To compile our model we used SGD as the optimizer with batch size of 100 and loss function as binary cross entropy and metrics as accuracy.
- We used 400 epochs to train our model.
- Here we used validation split as 0.2.
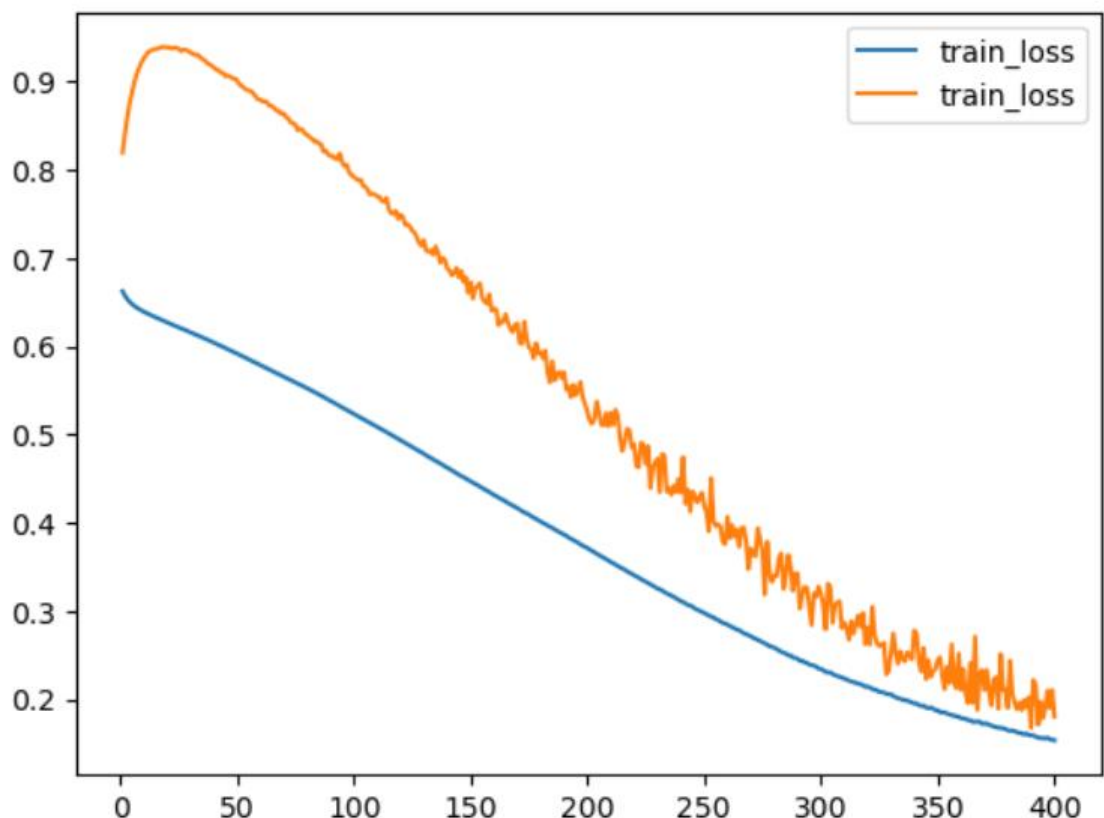
Here we can see the train and test loss

- After doing predictions on test data we used accuracy,confusion matrix and classification report to evaluate our model.
- The model is giving accuracy of 86 %.
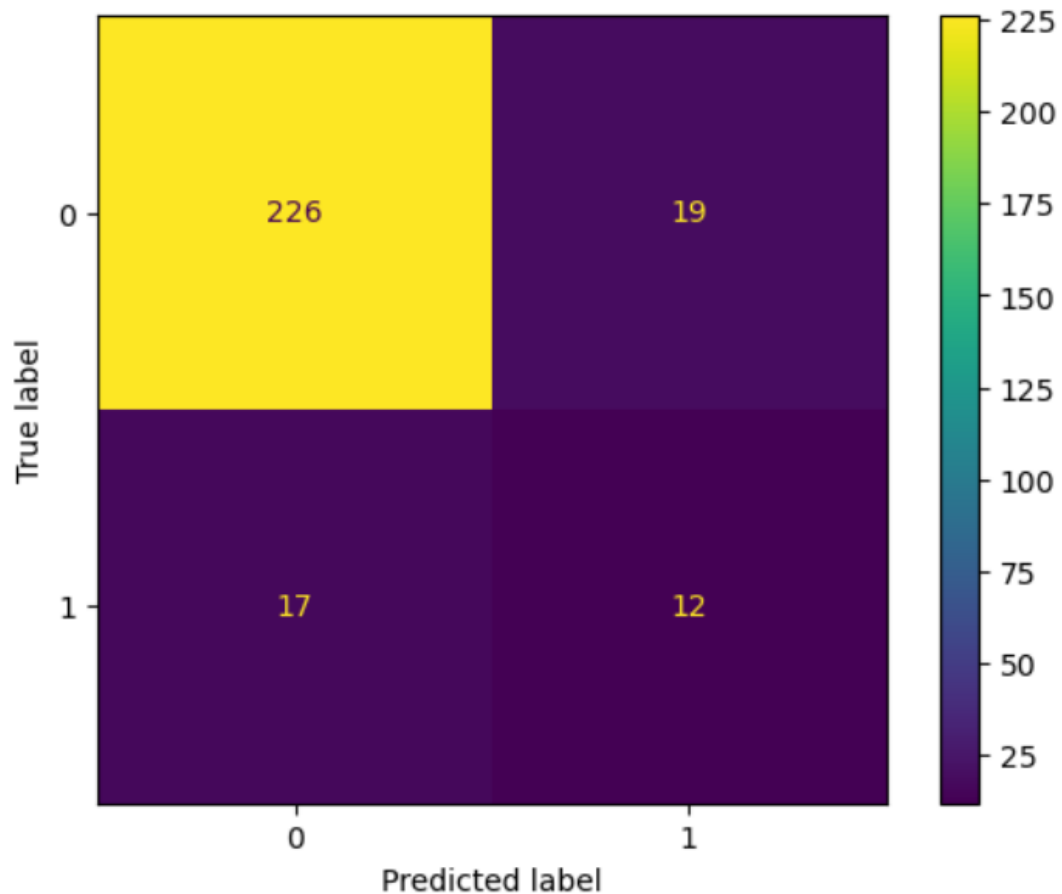
Confusion Matrix

- Here we can see that our model performed well for classifying 0 class datapoints .Out of 245 Zero class labels it is able to correctly classify 226 datapoints.
- For 1 class label out of 29 datapoints it is able to correctly classify 12 datapoints.

```
              precision    recall  f1-score   support

           0       0.93      0.92      0.93       245
           1       0.39      0.41      0.40        29

    accuracy                           0.87       274
   macro avg       0.66      0.67      0.66       274
weighted avg       0.87      0.87      0.87       274
```

Classification report

- For the 0 class label the precision and recall both are high.
- For 1 class label the precision and recall are low.