CSE 555 Project

Group DAGS

Supplementary Images for the project

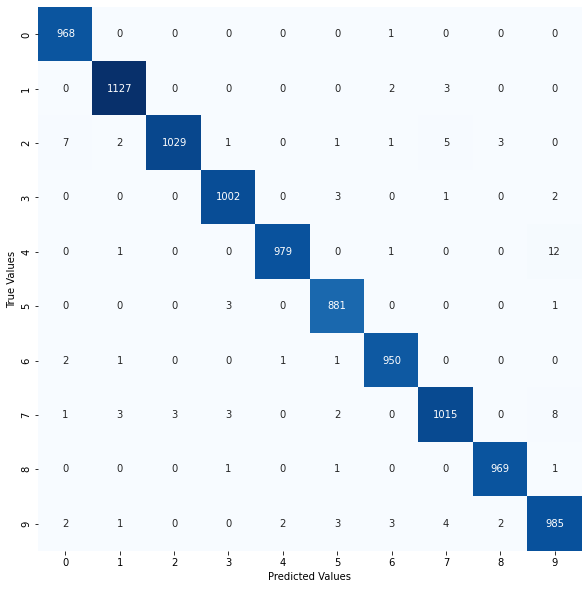
We trained multiple ML and DL models on the six types of MNIST dataset (Original, Balanced, Asymmetric Balanced, Asymmetric Imbalanced, Symmetric Balanced, Symmetric Imbalanced) for the completion of our project.

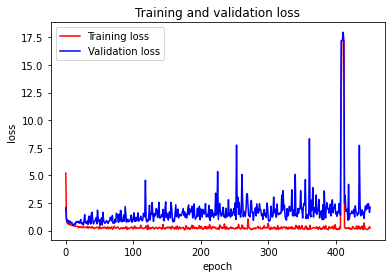
In this file we provide some images showing the performance of the various models.

We have shown the confusion matrix along with the Training and Validation Loss graphs for the DL models and Precision vs Recall and ROC curve for the ML models.

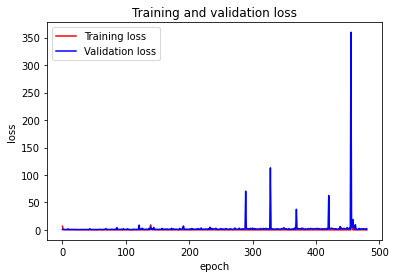
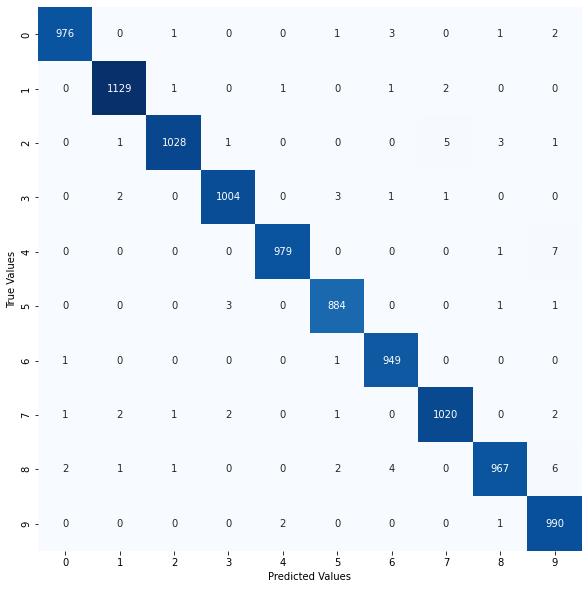
LDAM-DRW

Original Balanced Dataset:

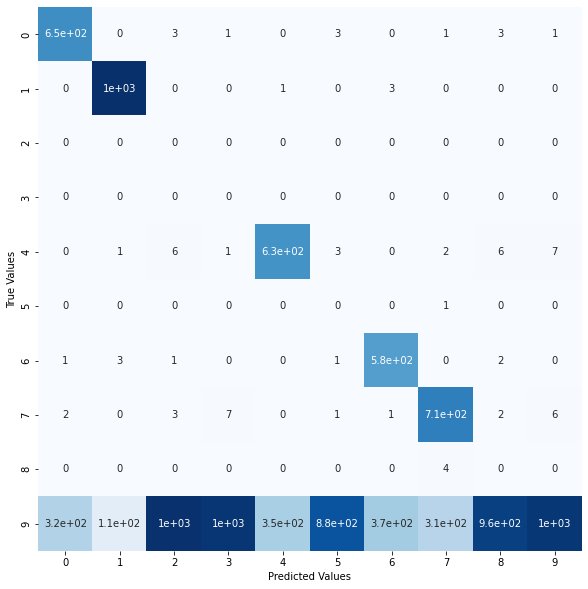


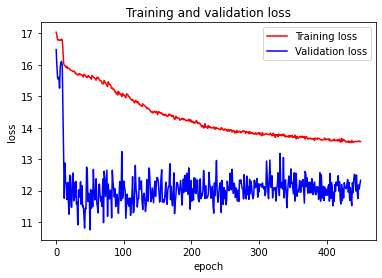


Original Imbalanced Dataset:

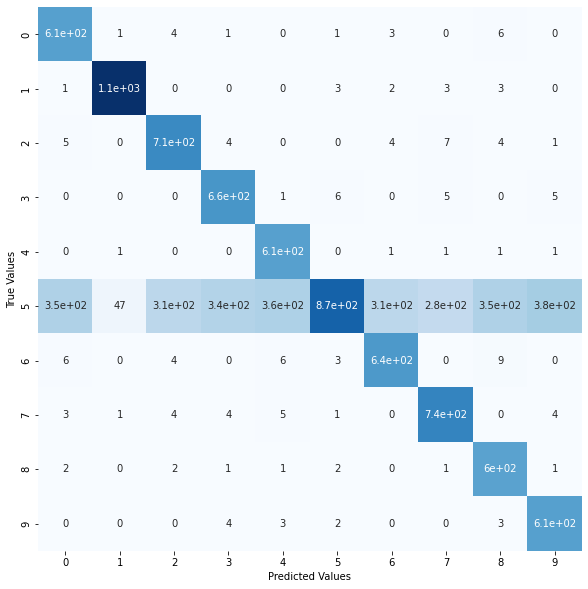


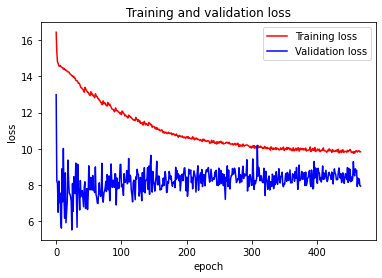
Balanced Symmetric Dataset:



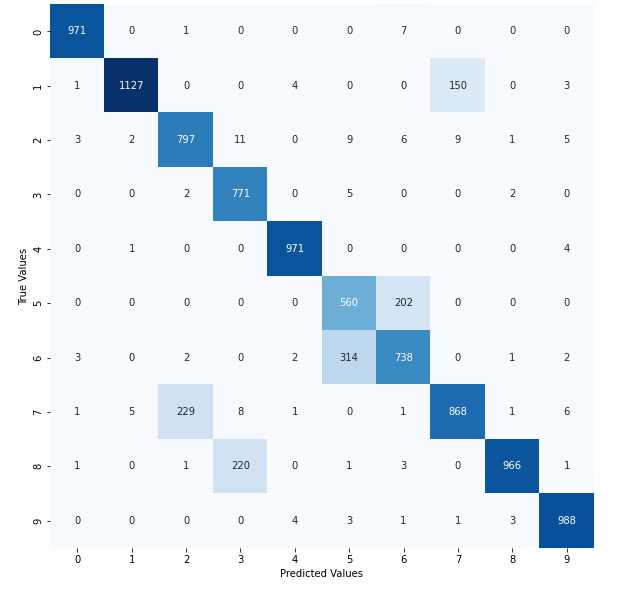


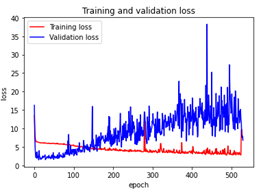
Imbalanced Symmetric Dataset:



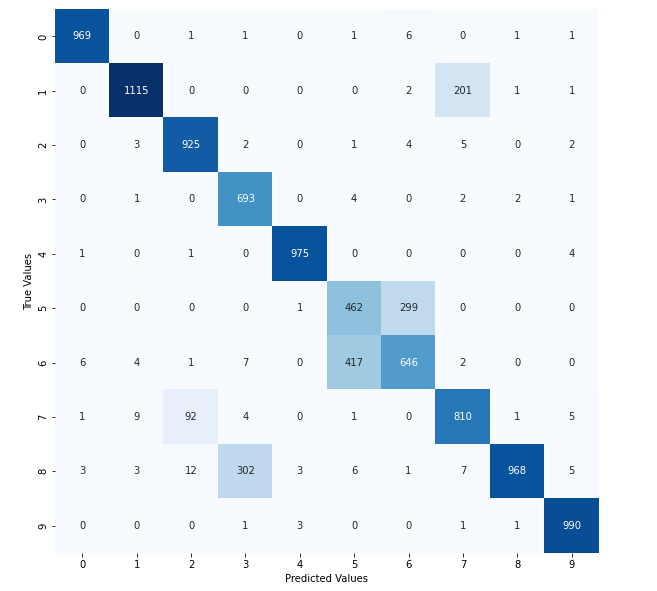


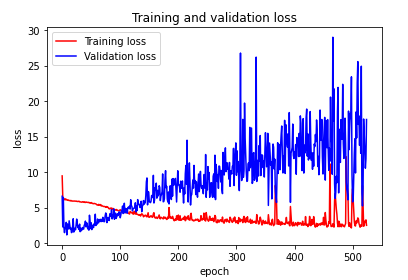
Balanced Asymmetric Dataset:





Imbalanced Asymmetric Dataset:





Symmetric Learning

Graphical user interface

Description automatically generatedChart

Description automatically generatedOriginal (Imbalanced) Dataset:

Chart

Description automatically generatedBalanced Dataset:

Graphical user interface, application

Description automatically generated

Chart

Description automatically generatedSymmetric Balanced Dataset:

Graphical user interface, application

Description automatically generated

Asymmetric Balanced Dataset:

A picture containing chart

Description automatically generatedChart, line chart

Description automatically generated

Symmetric Imbalanced:

Chart

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Description automatically generated

Asymmetric Imbalanced Dataset:

Chart

Description automatically generatedGraphical user interface, application

Description automatically generated

Normalized SL (Proposed Model)

Chart

Description automatically generated with medium confidenceOriginal (Imbalanced) Dataset:

Chart, histogram

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Chart

Description automatically generatedOriginal Balanced Dataset:

Chart, histogram

Description automatically generated

Chart

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Chart, histogram

Description automatically generated

A picture containing timeline

Description automatically generatedAsymmetric Balanced Dataset:

Chart, histogram

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Chart

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Chart, histogram

Description automatically generated

Chart

Description automatically generatedSymmetric Balanced Dataset:

Chart, histogram

Description automatically generated

PCA+ KNN (Proposed ML)

Original (Imbalanced) Dataset:

Table

Description automatically generatedGraphical user interface

Description automatically generated with low confidenceChart

Description automatically generated

Balanced Dataset:

Table

Description automatically generatedA picture containing text

Description automatically generatedChart

Description automatically generated

Imbalanced Asymmetric Dataset:

Table

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Description automatically generatedChart

Description automatically generated

Balanced Symmetric Dataset:

Table

Description automatically generatedGraphical user interface, text, application

Description automatically generatedA picture containing chart

Description automatically generated

Balanced Asymmetric Dataset:

Table

Description automatically generatedChart

Description automatically generatedGraphical user interface

Description automatically generated

Imbalanced Asymmetric Dataset:

Table

Description automatically generatedA picture containing chart

Description automatically generatedChart

Description automatically generated

Logistic Regression

Original (Imbalanced) Dataset:

Table

Description automatically generated with medium confidenceText

Description automatically generated with low confidenceChart

Description automatically generated

Balanced Dataset:

Table

Description automatically generated with medium confidenceGraphical user interface

Description automatically generated with medium confidenceChart

Description automatically generated

Imbalanced Symmetric Dataset:

Table

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Description automatically generated

Imbalanced Asymmetric Dataset:

A picture containing table

Description automatically generatedChart

Description automatically generated

Chart

Description automatically generated with medium confidence

Balanced Symmetric Dataset:

Table

Description automatically generated with medium confidenceA picture containing table

Description automatically generatedChart

Description automatically generated

Balanced Asymmetric Dataset:

Table

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Description automatically generatedChart

Description automatically generated

SVM

Original (Imbalanced) Dataset:

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Description automatically generated with medium confidenceA picture containing graphical user interface

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Description automatically generated

Balanced Dataset:

Table

Description automatically generated with medium confidenceA picture containing graphical user interface

Description automatically generatedChart

Description automatically generated

Imbalanced Asymmetric Dataset:

Table

Description automatically generated with medium confidenceChart

Description automatically generated with low confidenceChart

Description automatically generated

Balanced Symmetric Dataset:

Table

Description automatically generated with medium confidenceA picture containing graphical user interface

Description automatically generatedChart

Description automatically generated

Imbalanced Symmetric Dataset:

Table

Description automatically generatedChart

Description automatically generated with low confidenceChart

Description automatically generated