REPORT

Performance metrics of the learning models:

Dataset	Algorithm	Training Error	Test Error
Breast Cancer Diagnosis	SVM (linear kernel)	37.875%	N/A
Breast Cancer Diagnosis	SVM (RBF kernel)	20.289%	N/A
MNIST	SVM (linear kernel)	40.47%	44.52%
MNIST	SVM (RBF kernel)	32.93%	41.28%

Running the code:

Required packages to run the code:
1. numpy
2. pandas

Commands to run the code:

1. to run linear kernel on breast cancer: **python svm.py --kernel linear --dataset bcd --train "./" –test "./"**

2. to run rbf kernel on breast cancer: **python svm.py --kernel rbf --dataset bcd --train "./"**

3. to run linear kernel on MNIST: **python svm.py --kernel linear --dataset mnist --train "./" –test " /". –output " ./"**

4. to run rbf kernel on MNIST: **python svm.py --kernel rbf --dataset mnist --train . --test . --output .**

Possible Values for kernel:

1. **linear** – to run linear algorithm
2. **rbf** – to run rbf algorithm

Possible Values for dataset:

1. **bcd** – to run breast cancer data
2. **MNIST**– to run on MNIST

Value for train, test and output:

Path to **directory** where respective **train, test and output files are available. The files must in folder "MNIST data"**