**OPTIMIZATION FOR MACHINE LEARNIG LAB**

1. Implementation of Binary Classification problem
2. Implementation of Multiple-class Classification
3. Implementation of Regression problem
4. Principle Component Analysis & Linear discriminant Analysis

**CORE OPTIMIZATION**

1. Understanding and implementation of Gradient descent.
2. Solving Newton’s Method for optimization using Python programming.
3. Implementing and Interpreting Stochastic Gradient Descent
4. Solving Linear Programming problem.
5. Solving non-linear programming problem.
6. Convex Optimization in Python using CVXPY and PULP
7. Illustration and implementation of Mini Batch gradient descent.
8. Implementation Elastic net Regression with L1 and L2 penalties
9. Implementing conjugate gradient method with python
10. Implementation and solution of Quasi Newton’s method for advanced optimization.
11. Illustration of Artificial Neural network and implementing MNIST dataset
12. ANN with backpropagation using Relu and Adam.
13. Implementing Convolution neural networks (cat vs dog dataset)
14. Implementing LSTM neural network for textual sentimental analysis.