Module A

- Basics of Python and Inspiration of Functions
- Variables and Data Types
- Loops and Conditions
- Taking inputs from users
- Demonstration of File Handling
- Tuple, List, and Dictionaries
- Algorithm Efficiency Using Function Visualisation
- Basics of Sorting (Bubble, Quick, selection and Insertion)
- Searching and Its Relevance
- Vector and Matrices (Operations)
- Markov Chains
- Probability
- Descriptive Statistics (Mean, Median, Mode, Standard Deviation, Variance, Range)
- Numpy
- Pandas
- Visualization (Matplotlib and Seaborn)
- Object-oriented programming
- Hypothesis Testing
- Error handling(Try/Catch)

Module B

- Regression
- Polynomial Regression
- Regularization (L1/L2)
- Classification
- Logistic Regression
- Dimensionality Reduction
- Gradient Descent (batch, stochastic/mini-batch variants)
- Page Rank
- Foundations of the Perceptron
- Enhancing the Perceptron with Learning Algorithms
- Neural Networks (Forward and Backward Propagation)
- Convolutional Neural Networks (CNN)
    - Convolution Operation
    - Pooling
    - Activation Functions (Sigmoid, Tanh, ReLU, Softmax)
    - Architectures (ImageNet 1k data, LeNet-5, AlexNet, VGGNet)
- Support Vector Machines (SVM)
- Supervised Learning - Evaluation Metrics
- Unsupervised Learning - K-Means Clustering
- Unsupervised Learning - Evaluation Metrics