Machine Learning Master's

- Python Core
    - Introduction of python and comparison with other programming languages
    - Installation of Anaconda Distribution and other python IDE
    - Python Objects, Number & Booleans, Strings, Container objects, Mutability of objects
    - Operators – Arithmetic, Bitwise, comparison and Assignment operators, Operators Precedence and associativity.
    - Conditions(If else,if-elif-else)
    - Loops(While ,for)
    - Break and Continue statements
    - Range functions

- String objects and collections
    - String object basics
    - String methods
    - Splitting and Joining strings
    - String format functions
    - List object basics
    - List methods
    - List as Stack and Queues
    - List comprehensions
- Tuples, Set, Dictionaries and Functions
    - Tuples, Sets, Dictionary object basics, Dictionary
    - Object Methods, Dictionary View Objects, Functions basics, Parameter passing, Iterators
    - Generator Functions
    - Lambda functions
    - Map, Reduce, Filter functions
- OOPS concepts and working with files

- Creating classes and Objects
- Inheritance,Multiple Inheritance
- Working with files
- Reading and writing files
- Buffered read and write
- Other File methods

- Modules, Exception Handling and Database Programming
  - Using standard module
  - Creating new modules
  - Exceptions Handling with Try-except
  - Creating, inserting and retrieving table
  - Updating and deleting the data

- Python Projects
  - Number Guessing
  - Hangman
  - Python Story Generator
  - Calculator
  - Tic-Tac-Toe
  - Plagiarism Checker

- Visualization
  - Matplotlib
  - Seaborn

- Database
  - Mongo DB
  - SQL

- GitHub
  - Account creating
  - Pushing Projects
  - Pulling Projects
  - ReadME File

- Python pandas
  - Python Pandas – Series
  - Python Pandas – DataFrame
  - Python Pandas – Panel
  - Python Pandas – Basic Functionality
  - Descriptive Statistics
  - Function Application
  - Python Pandas – Reindexing
  - Python Pandas – Iteration
  - Python Pandas – Sorting
  - Working with Text Data
  - Options & Customization
  - Indexing & Selecting Data
  - Statistical Functions
  - Python Pandas – Date Functionality
  - Python Pandas – Timedelta
  - Python Pandas – Categorical Data

- Python Pandas – Visualization
- Python Pandas – IO Tools

- Python Numpy
  - NumPy – Ndarray Object
  - NumPy – Data Types
  - NumPy – Array Attributes
  - NumPy – Array Creation Routines
  - NumPy – Array from Existing Data
  - Array From Numerical Ranges
  - NumPy – Indexing & Slicing
  - NumPy – Advanced Indexing
  - NumPy – Broadcasting
  - NumPy – Iterating Over Array
  - NumPy – Array Manipulation
  - NumPy – Binary Operators
  - NumPy – String Functions
  - NumPy – Mathematical Functions
  - NumPy – Arithmetic Operations
  - NumPy – Statistical Functions
  - Sort, Search & Counting Functions
  - NumPy – Copies & Views
  - NumPy – Matrix Library
  - NumPy – Linear Algebra

- Statistics
  - Descriptive Statistics
  - Sample vs Population statistics
  - Random Variables
  - Probability distribution function
  - Expected value
  - Binomial Distribution
  - Normal Distributions
  - Z-score
  - Central limit Theorem

- Hypothesis testing
- Z-Stats vs T-stats
- Type 1 type 2 error
- Confidence interval
- Chi-Square test
- ANOVA test
- F-stats

- Machine Learning 1
  - Introduction
  - Supervised, Unsupervised, Semi-supervised, Reinforcement
  - Train, Test, Validation Split
  - Performance
  - Overfitting ,underfitting
  - OLS
  - Linear Regression
  - Assumptions
  - R square adjusted R square
  - Intro to Scikit learn

- Training methodology
- Hands on linear regression
- Ridge Regression
- Logistics regression
- Precision Recall
- ROC curve
- F-Score

- Machine Learning 2
  - Decision Tree
  - Cross Validation
  - Bias vs Variance
  - Ensemble approach
  - Bagging Boosting
  - Randon Forest
  - Variable Importance
- Machine Learning 3
  - XGBoost
  - Hands on XgBoost
  - K Nearest Neighbour
  - Lazy learners
  - Curse of Dimensionality
  - KNN Issues
  - Hierarchical clustering
  - K-Means
  - Performance measurement
  - Principal Component analysis
  - Dimensionality reduction
  - Factor Analysis
- Machine Learning 4
  - SVR
  - SVM

- Polynomial
- Regression

- Machine Learning Projects
  - Stock Price Prediction using Machine Learning
  - Housing Prices Prediction Project
  - Wine Quality Test Project
  - Mall Customers Clustering Analysis

- Natural Language Processing
  - Text Analytics
  - Tokenizing, Chunking
  - Document term Matrix
  - TF and IDF
  - Sentiment analysis hands on

- Deep Learning
  - Neural Network Architecture
  - Loss Function

- Cost Function
- Optimizers
- CNN architecture
- Build First Classifier in CNN
- Deploy Classifier over cloud
- RNN overview
- LSTM

- Deep Learning Projects
  - Image classification using Neural Networks
  - CNN for the image classification
  - Word classification in NLP
  - Time Series analysis with LSTM