1. Introduction to Data Science
2. Probability
   - 2.1. Basics of Probability
   - 2.2. Combinatorics
   - 2.3. Bayesian Inference
   - 2.4. Distributions
   - 2.5. Probability in Finance, Statistics and Data Science
3. Statistics
   - 3.1. Descriptive Statistics
   - 3.2. Inferential Statistics
     - 3.2.1. Fundamentals
     - 3.2.2. Confidence Intervals
     - 3.2.3. Real life Examples
   - 3.3. Hypothesis Testing
   - 3.4. Practical Examples
4. Python
   - 4.1. Introduction to Python
   - 4.2. Variables and Data Types
   - 4.3. Basic Python Syntax
   - 4.4. Python Operators
   - 4.5. Conditional Statements
   - 4.6. Python Functions
   - 4.7. Sequences
   - 4.8. Iterations
   - 4.9. Object Oriented Programming
   - 4.10. Scrapping
   - 4.11. Flask/Fast/Quart API
   - 4.12. Advance Python (Unittesing, Pytest, Load Testing)
5. SQL (Basic to Advance)
6. Introduction to relational and non-relational Databases
7. Code Architecture
8. Mathematics for Data Science
   - 8.1. Matrix
   - 8.2. Scalar and Vectors
   - 8.3. Linear Algebra and Geometry

- 8.4. Tensor
- 8.5. Matrices Operations

9. Machine Learning
   - 9.1. Introduction to Machine Learning
   - 9.2. Introduction to Regression Analysis
     - 9.2.1. Linear Regression with StatsModels
     - 9.2.2. Multiple Linear Regression with StatsModels
     - 9.2.3. Linear Regression with Sklearn
     - 9.2.4. Practical Example
   - 9.3. Logistic Regression
     - 9.3.1. Introduction to Logistic Regression
     - 9.3.2. Practical Example
   - 9.4. SVM, Decision Tree, Random Forest, KNN
   - 9.5. Ensemble Models
   - 9.6. Cluster Analysis
     - 9.6.1. Types of Clustering
     - 9.6.2. K-Means Clustering
     - 9.6.3. Practical Example
   - 9.7. Deep Learning
     - 9.7.1. Introduction to Neural Networks
     - 9.7.2. Neural Network with NumPy
     - 9.7.3. TensorFlow
       - 9.7.3.1. Introduction
       - 9.7.3.2. Introduction to Deep Neural Networks
       - 9.7.3.3. Overfitting and Initialization
       - 9.7.3.4. Gradient Descent and Learning Rate Schedules
       - 9.7.3.5. Preprocessing
     - 9.7.4. PyTorch (Basic to Advance)
   - 9.8. Time series forcasting
   - 9.9. Reinforcement Learning
   - 9.10. RNN, LSTM, CNN (Theory + Practical Implementations)
   - 9.11. Transformers
     - 9.11.1. Introduction to Transformer Architecture
     - 9.11.2. Practical Implementation of Transformers
     - 9.11.3. Training from Scratch
     - 9.11.4. Fine Tunning
     - 9.11.5. Reinforcement learning with Human Feedback (RLHF)
     - 9.11.6. LLM Evaluations

9.12. Practical Implementation with GPT3.5, GPT4, Llama V2
9.13. Intorduction to LangChain, Llama Index
9.14. Introduction to Multimodel Models
9.15. Business Case Examples
9.16. DevOps (MLOps, LLMOps, CICD Pipelines, Containerization)
9.17. Real life Projects
9.18. Recommendations