



Data Science and Ai

Syllabus for the Live classes

Python

- 1) Fundamentals of Python Programming
- 2) Operators
- 3) Input and Output Statements
- 4) Flow Control
- 5) String Data Structures
- 6) Tuple Data Structure
- 7) List Data Structure
- 8) Set Data Structure
- 9) Dictionary Data Structure
- 10) Functions
- 11) Modules
- 12) Packages
- 13) File Handling
- 14) Exception Handling

Machine Learning Concepts

1. Fundamentals of Machine Learning
2. NumPy
3. Pandas
4. Matplotlib

5. Algorithms
6. Linear Regression
7. KNN
8. Decision Tree
9. Random Forest
10. XG boost
11. Logistic Regression

NLP + GenAI + LLM

1. Introduction to NLP & Applications
2. Text Preprocessing Techniques
3. Text Representation Techniques
4. Word Embeddings
5. Sequence Models (RNN, LSTM, GRU)
6. Linguistic Features (POS, NER, Parsing)
7. NLP Evaluation Metrics
8. Introduction to Generative AI
9. Transformer Architecture
10. Tokenization Techniques
11. Pretraining & Finetuning
12. Prompt Engineering
13. LLM Evaluation Metrics
14. Multimodal Generative AI
15. Hugging Face Models & Datasets
16. Model Finetuning
17. Embeddings & Semantic Search
18. Vector Databases
19. Chat Models vs Base Models
20. Model Optimization & Quantization

21. Local LLMs & On-Device AI

Hybrid mode of learning concepts

1. Power BI
2. Tableau
3. SQL
4. Deep learning
5. Computer vision
6. Microsoft Azure fundamentals