

AI DATA SCIENCE

With LLM's & PROMPT ENGINEERING

PYTHON, ML, DL, NLP

Learn. Build. Predict.
The Future is AI.



Python
for Data Science



Machine Learning
& Deep Learning



NLP & LLM's
Prompt Engineering



Real-World
Projects

PROFICIENCY IN DATA SCIENCE SKILLS BY ROLE



DATA ANALYST

- Data Collection
- Data Cleaning & Preprocessing
- Data Analysis
- Data Visualization
- Report Generation
- Data Modeling
- Data Quality Assurance
- Collaborative Decision-making



DATA SCIENTIST

- Data Preparation
- Data Analysis
- Data Investigation and Data Analysis
- Data Mining
- Data Pipelines
- Data Visualization
- Machine Learning
- Computer Vision
- Experience With MLOps Technology: Git, Docker, Kubernetes, MLflow/dvc/cleverml, Airflow



NLP ENGINEER

- Develop and implement natural language processing (NLP) algorithms to extract meaningful insights from text data.
- Design and develop NLP-based applications to automate text-based tasks.
- Analyze and interpret text data to identify patterns and trends.



COMPUTER VISION SPECIALIST

- Deep Learning
- Object recognition & tracking
- Image segmentation
- Feature extraction
- Pattern recognition
- Image analysis



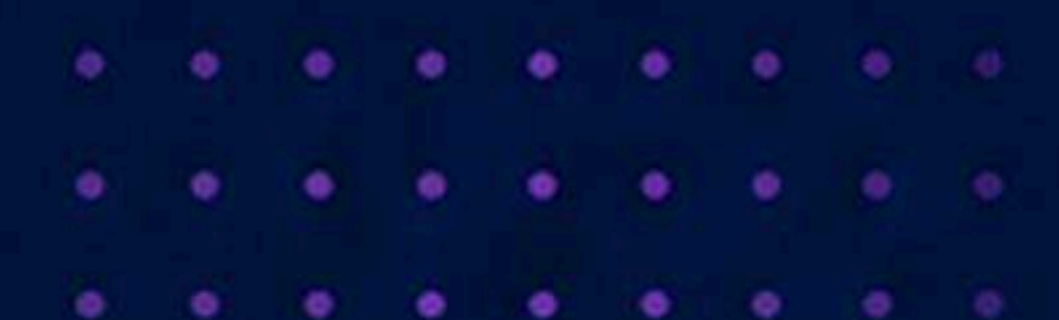
ADDRESS

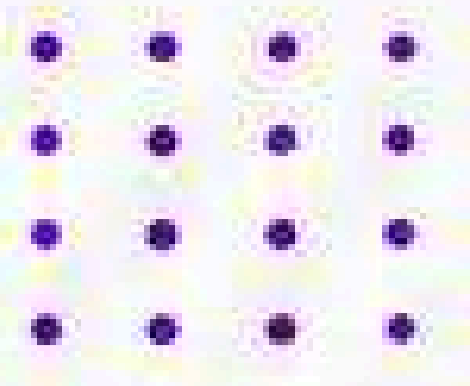
#304, 3rd floor, Nilagiri Block,
Beside Metro station,
Ameerpet, Hyderabad.



PHONE

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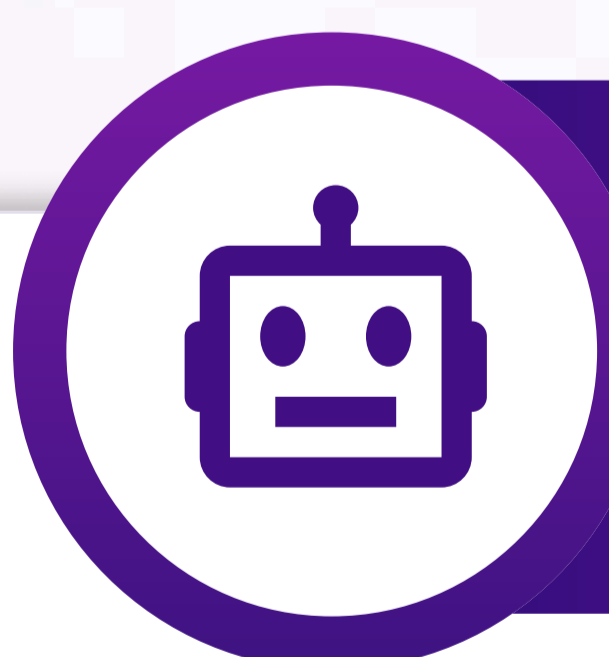
INTRODUCTION TO DATA SCIENCE

- ➔ What is Data Science?
- ➔ Why data science?
- ➔ Impact of data science
- ➔ Future of Data Science
- ➔ Data Science Life Cycle
- ➔ Introduction to Pre-Core Python
- ➔ Introduction to Jupiter Notebook
- ➔ Overview of Data Science Real Time IDEs
- ➔ Introduction to Google-Collaborator-Notebook



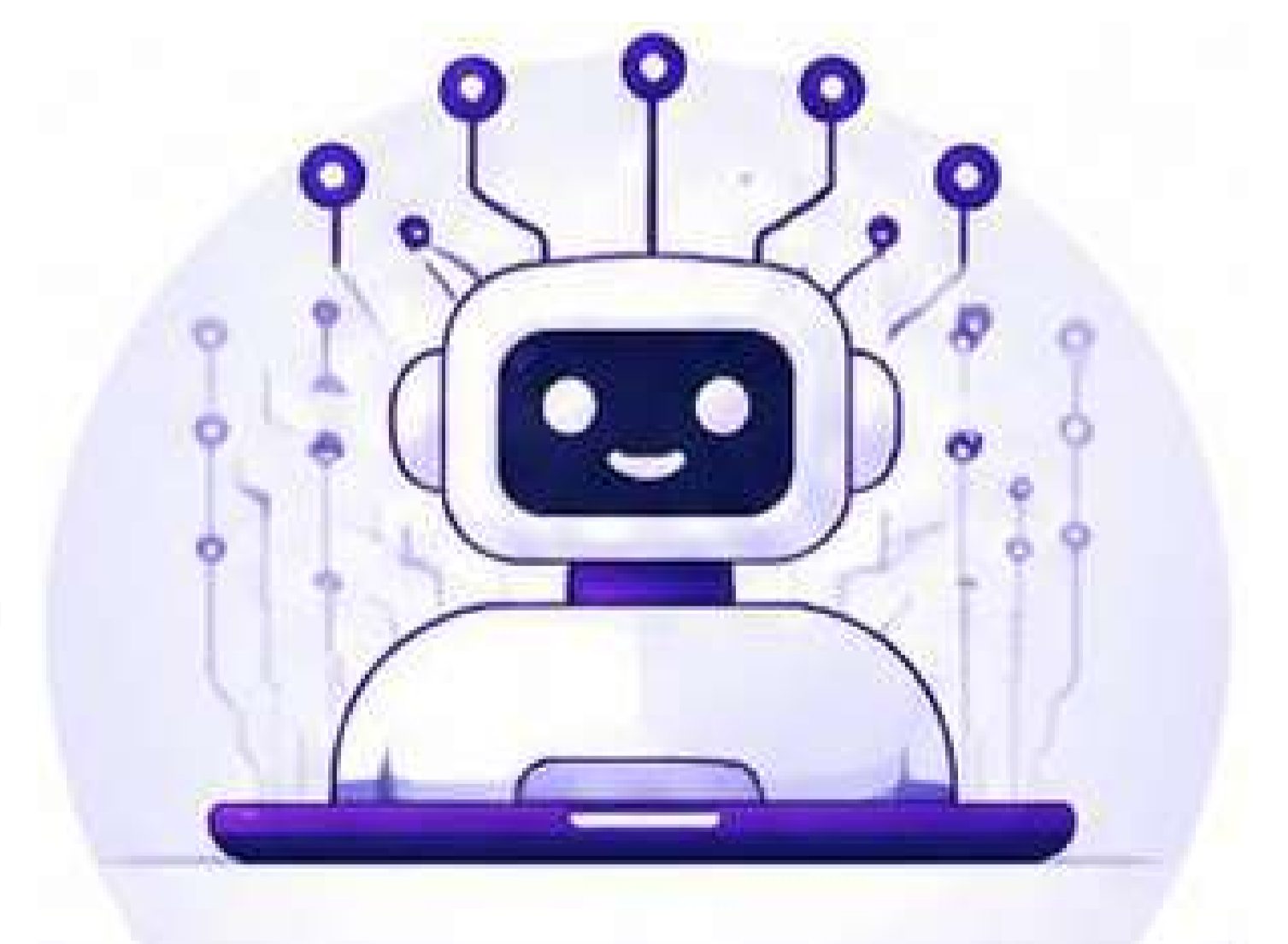
PROGRAMMING IN PYTHON FOR DATA ENVIRONMENTS

- ➔ Core Python and Adv. Python
- ➔ Python Basics
- ➔ Python Introduction
- ➔ Python Data Structure: Lists and Arrays
- ➔ Python Conditions and Branching
- ➔ Python Functions and Methods
- ➔ Exceptions and Files
- ➔ Python OOPs and Advanced Coding
- ➔ PDBC and DB Communications
- ➔ Practice Questions in Python and Reviews
- ➔ Live Application implementation



PYTHON FOR ADVANCED DATA SCIENCE

- ➔ NumPy for Data Science
- ➔ Pandas for Data Science
- ➔ Matplotlib for Data Science
- ➔ Seaborn for Data Science
- ➔ Live Application implementation



DATA VISUALIZATION

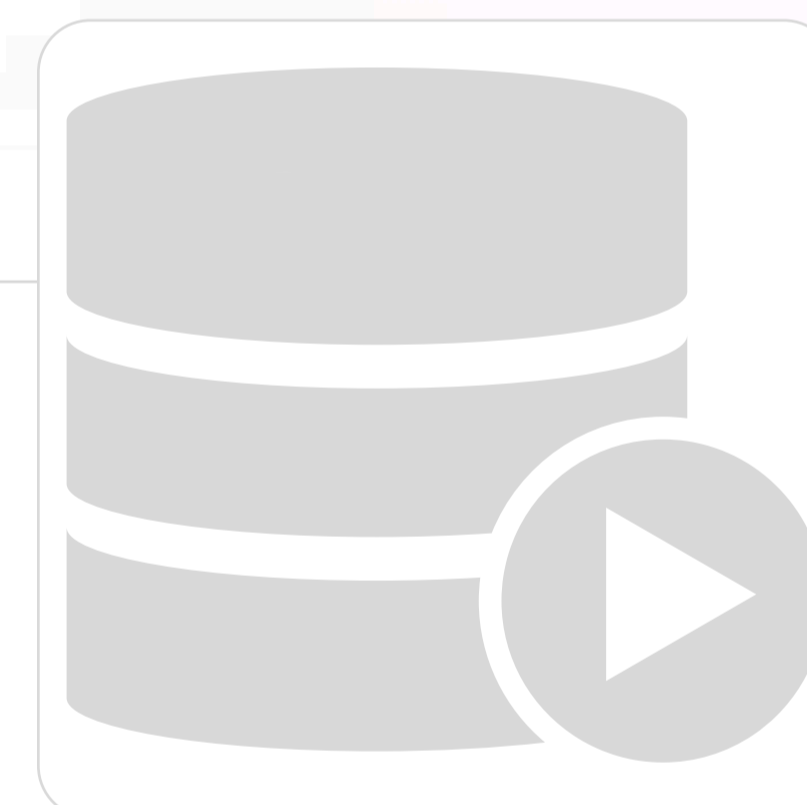


- > Basic Plotting for Data Visualization
- > Data Manipulation for Visualization
- > 1D Data Analysis: Histograms, Boxplots, and Violin Plots
- > Power-BI
- > Introduction to Power-BI
- > Data Extraction Process
- > Data Transformations
- > Data Modelling and DAX
- > Data Visualization with Analytics
- > Power-BI, Q&A & Data Insights



DATA ANALYSIS IN EXCEL

- ✓ Introduction to Excel
- ✓ Functions, Formulas and Charts
- ✓ Pivots and Lookups
- ✓ Ranges and Tables
- ✓ Data Cleaning: Text Functions, Dates and Times
- ✓ Conditional Formatting
- ✓ Sorting and Filtering
- ✓ Subtotals with Ranges
- ✓ Data Visualization in Excel
- ✓ Advanced Excel with AI Features



DATA ANALYSIS USING SQL

- ➔ SQL – Overview and SQL Process
- ➔ SQL Commands – RDBMS Concepts
- ➔ SQL – RDBMS Databases
- ➔ What is Database?
- ➔ What is DBMS and RDBMS?
- ➔ Sub Languages in SQL
- ➔ SQL – Syntax: Data Types – Operators
- ➔ Create – Select – Delete – Drop – Insert
- ➔ Where – AND and OR Conjunctive Operators
- ➔ Like – Top – Limit or ROWNUM
- ➔ Order By – Group By – Distinct Keyword

MATHS FOR DATA SCIENCE



- ▶ Basics of Statistics
- ▶ Types of Statistics
- ▶ Population & Sample
- ▶ Central Tendencies
- ▶ Percentiles & Dispersion
- ▶ Statistics implementation with Python-I
- ▶ Correlation & Covariance
- ▶ Parametric and Non Parametric Tests



PROBABILITY

- ▶ What is probability?
- ▶ Importance of Probability in ML
- ▶ Basics of Probability
- ▶ Random Variables
- ▶ Probability Distributions
- ▶ Information Theory
- ▶ Information Gain



LINEAR ALGEBRA

- ▶ Scalar, Vector
- ▶ Vector Subtraction
- ▶ Multiplying a vector by a Scala
- ▶ Dot Product of two Vectors
- ▶ Cross Product of two Vectors
- ▶ Different types of Matrix
- ▶ Transpose of a Matrix
- ▶ Eigen Values of Eigen Vectors



CALCULUS

- ✓ What Is Calculus?
- ✓ Limits and Differential Calculus
- ✓ Limits and Continuity
- ✓ Evaluating Limits
- ✓ Continuous Functions
- ✓ Derivatives of Powers and Polynomials
- ✓ Introduction to Multivariate Calculus
- ✓ Continuous Functions

MATHS FOR DATA SCIENCE



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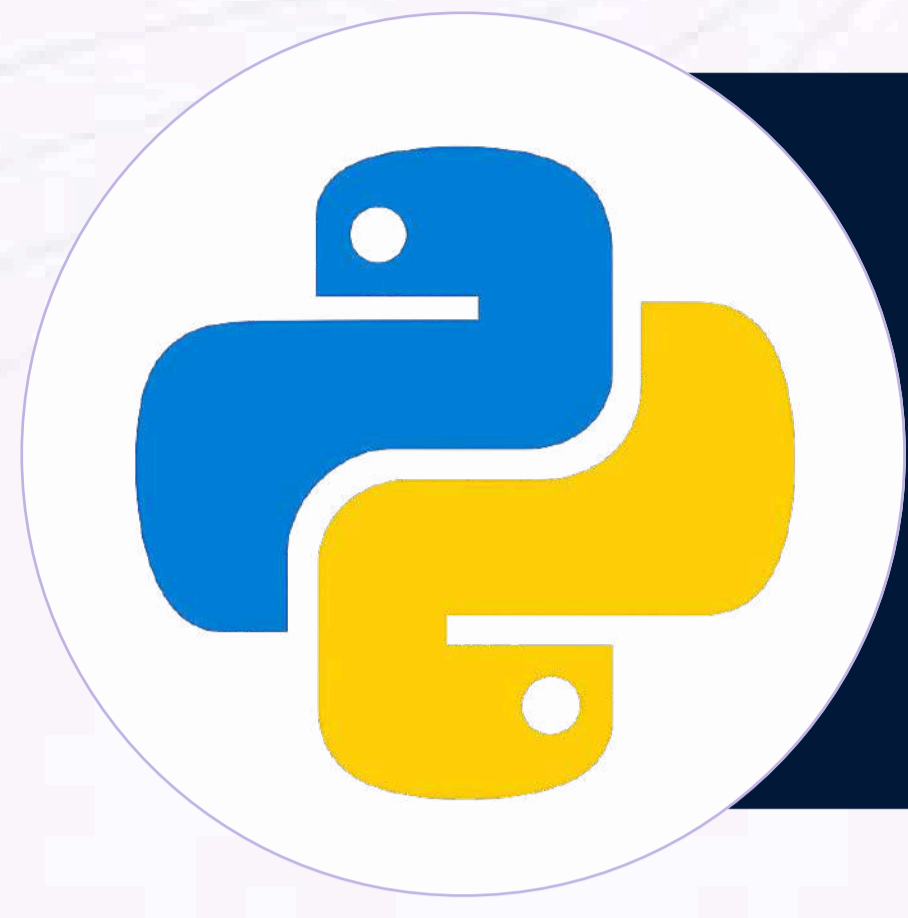
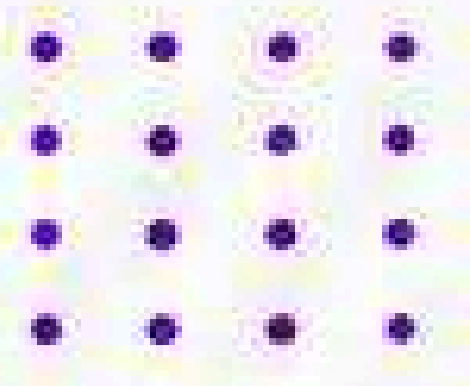
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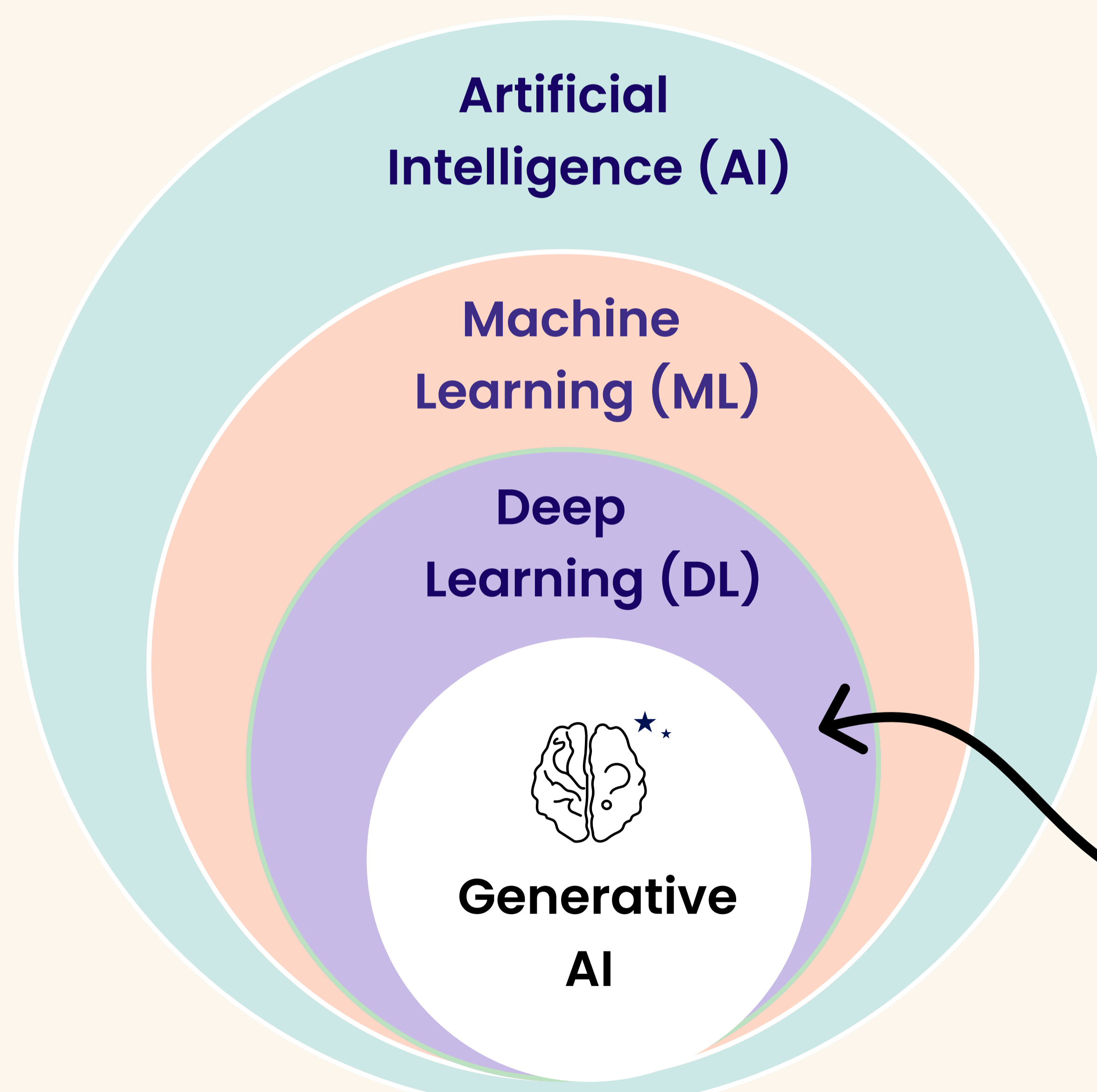


DATA STRUCTURES & ALGORITHMS TUTORIAL IN PYTHON

- | | |
|---|---|
| 01 What are data structures? | 08 Queue - in Different Languages Using List as a Queue Stock Price Examples |
| 02 Big O notation - Data Structures & Algorithms Measuring time complexity | 09 Tree (General Tree) -Tree and Data Structure Implementing in Python |
| 03 Arrays in Python Big O Analysis Static Vs Dynamic Array | 10 Binary Tree BST Binary Search Tree |
| 04 Linked List - Issues with Arrays Double Linked List Big O Analysis | 11 Graph Introduction - Edge Node |
| 05 Hash Table - Hash Map Implementing in Python | 12 Binary Search - Linear Binary |
| 06 Collision Handling In Hash Table Implementing Chaining in Python | 13 Bubble Sort Quick Sort Insertion Sort Merge Sort Shell Sort -Techniques |
| 07 Stack - in Different Languages Using List as a Stack Deque as Stack | 14 Recursion in Python |
| | 15 More Exercises on DSA |

WHAT IS LLM?

Large Language Models (LLMs) are advanced AI systems trained on vast amounts of data to understand and generate human-like text.



Large Language Models (LLMs)

★★
LLMs are a subset of Generative AI focused on language understanding and generation

01

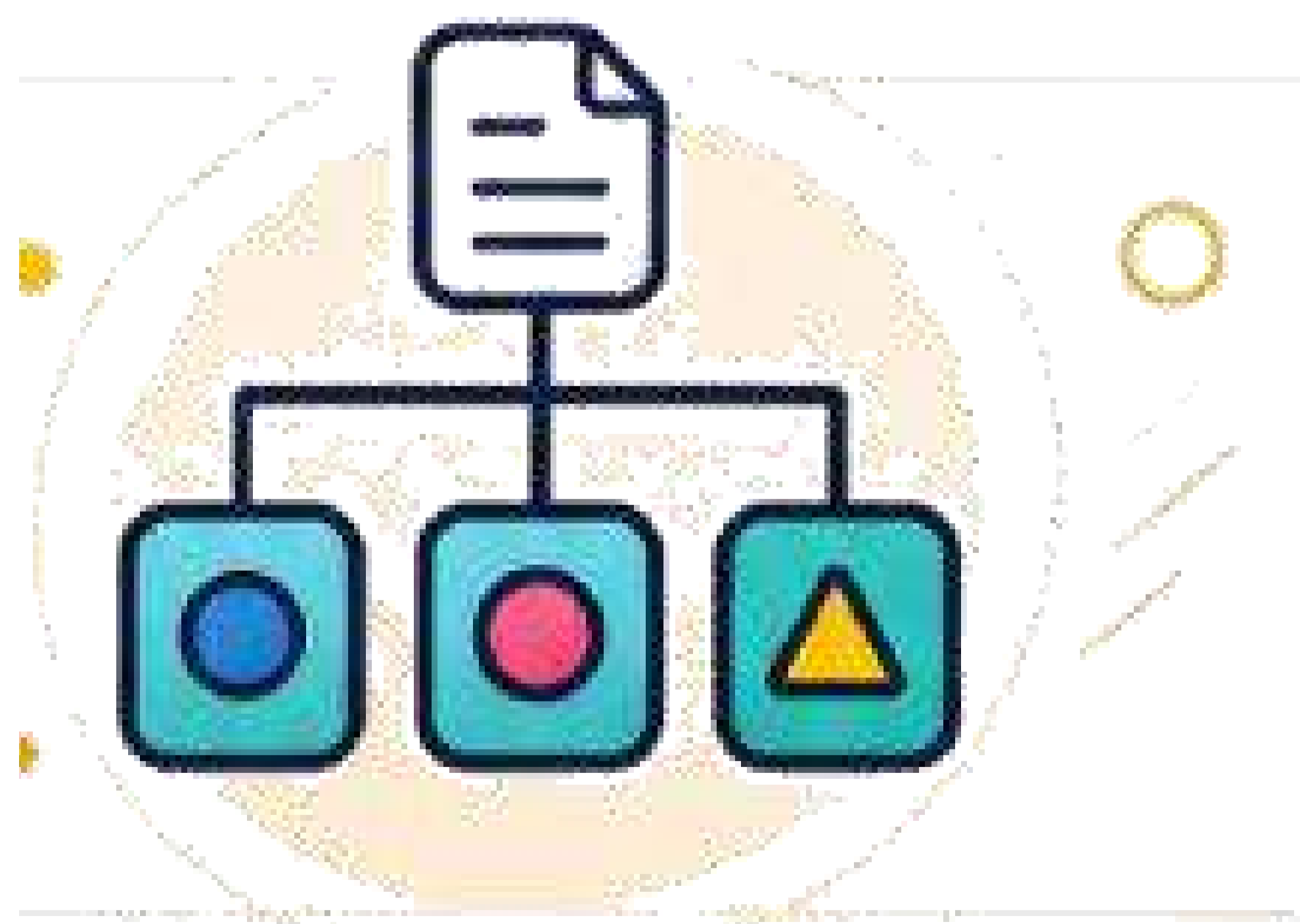
MACHINE LEARNING

- What is Machine Learning?
- Types of Machine Learning?
 - a. Supervised Learning
 - b. Unsupervised Learning
- Applications of Machine Learning
- Types of Data: Continuous and Categorical
- Data Exploration and Visualization
 - a. Descriptive Statistics
 - b. Inferential Statistics
 - c. Data Distributions
 - d. Correlation and Covariance
 - e. Handling Missing Values
 - f. Data Visualizations Scatter Plots and Heatmaps
- Data Normalization Techniques
- Data Imputation Techniques

03

CLASSIFICATION

- Introduction to Classification
- Types of Classifiers
- Linear Classifiers
 - a. Logistic Regression
 - b. Multinomial Logistic Regression



02

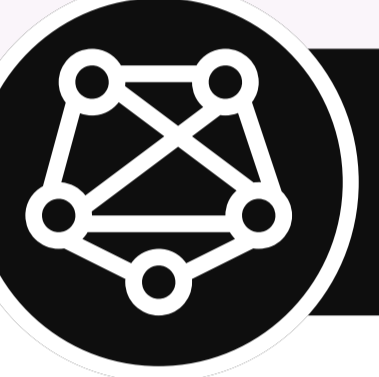
REGRESSION

- Introduction to Regression
- Simple Linear Regression
- Multiple Linear Regression
- Linear Regression Assumptions
- Regularization Techniques
 - a. Lasso Regression
 - b. Ridge Regression
- Polynomial Regression
- Stepwise Regression
- Elastic Net Regression
- R-Squared and Adjusted R-Squared



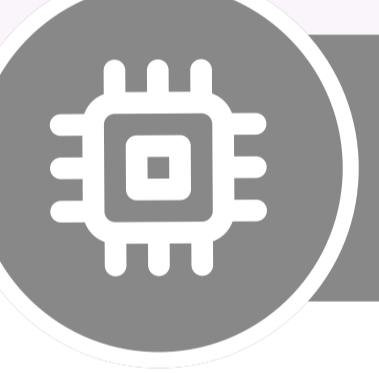
MACHINE LEARNING ALGORITHMS

- Non-Linear Classifiers
- Decision Trees
 - a. CART Algorithm
 - b. ID3 Algorithm
- Random Forests
- Support Vector Machines (SVMs)
 - a. Kernel Trick
 - b. Soft Margin SVMs
 - c. Multi-Class SVMs



K-NEAREST NEIGHBORS (KNN)

- Naive Bayes
- Neural Networks for Classification
 - a. Perception Algorithm
 - b. Multilayer Perception (MLP)
 - c. Backpropagation Algorithm
- Activation Functions



FEATURES & MODEL SELECTION

- Feature Selection Techniques
- Hyperparameter Tuning Techniques
- Model Selection Techniques
 - a. Bias-Variance Tradeoff
 - b. Cross-Validation
 - c. Leave One Out Cross Validation



ENSEMBLE LEARNING

- Ensemble Methods
- Bagging Algorithms
- Boosting Algorithms
 - a. XGBoost Algorithm
 - b. Gradient Boosting Algorithm



01



CLUSTERING

- LightGBM Algorithm
- CatBoost Algorithm
- Adaboost Algorithm
- Stacking Algorithm
- Blending Algorithm

02



DIMENSIONALITY REDUCTION

- Introduction to Dimensionality Reduction
- Principal Component Analysis (PCA)
- Singular Value Decomposition (SVD)
- t-Distributed Stochastic Neighbor Embedding (t-SNE)
- Linear Discriminant Analysis (LDA)
- Truncated SVD

03



DEEP LEARNING

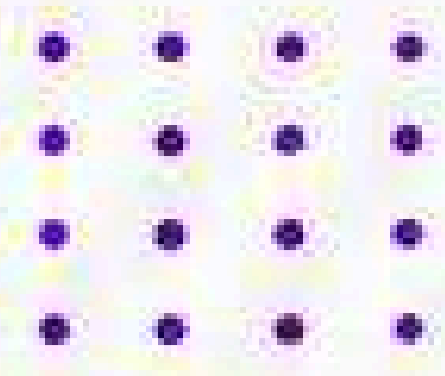
- What is Deep Learning
- Difference Between Machine Learning and Deep Learning
- What is Biological Neural Network
- What is Deep Learning Application
- What is Artificial Neural Network (ANN)
- What is Convolutional Neural Network (CNN)
- What is Recurrent Neural Network (RNN)
- CNN & Computer Vision
- Intro to Images and Image Pre-processing with OpenCV CNN Architecture
- Image Classification Case Study
- Case Study with Transfer Learning

04


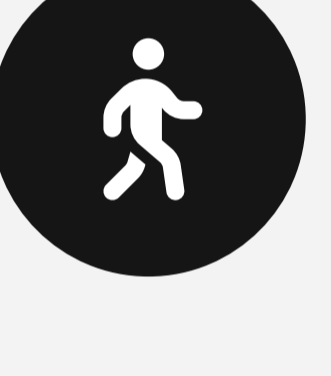
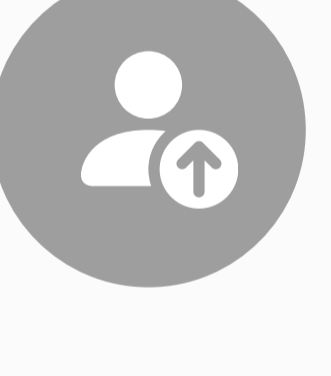
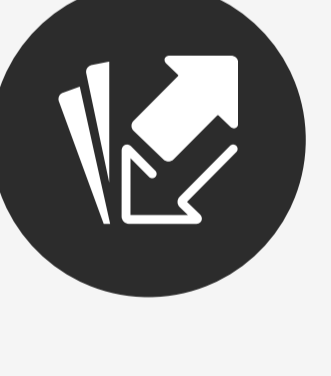



NATURAL LANGUAGE PROCESSING

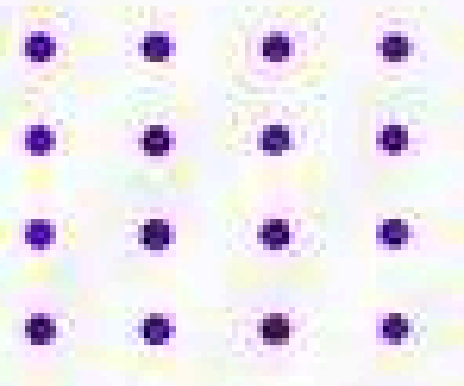
- Introduction to text and Text Pre-processing with nltk and spacy
- Vectorization Techniques
- Project - Text Classification
- RNNs
- Project - Sequence Tagging
- LSTMs
- Auto Encoders



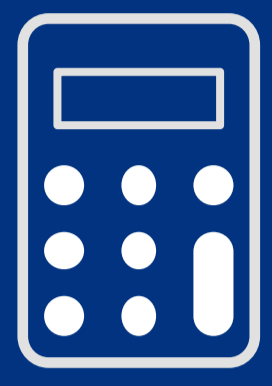
COMMUNICATION SKILLS

Roots of Communication	LSRW	Four pillars of the English Language
 Roots of Communication	<ul style="list-style-type: none"> ▶ LSRW ▶ 7 Cs of Communication 	 Mastering Helping Verb And Main Verb
 Roots of Grammer	<ul style="list-style-type: none"> ▶ Parts of Speech ▶ Sentence Structure Development ▶ Tense Logic ▶ Worksheet Sessions 	
 Speech Intelligence	<ul style="list-style-type: none"> ▶ Vocabulary Development ▶ Usage of words ▶ Group Discussions ▶ JAMS ▶ Debates ▶ Public Speaking 	
 Personality Development	<ul style="list-style-type: none"> ▶ Imagination and Innovation Training ▶ Centralized Brain Storming ▶ Problem Solving Skills ▶ Decision Making 	
 Management Skills	<ul style="list-style-type: none"> ▶ Time Management ▶ Team Building ▶ Task Management ▶ Leadership Skills 	
 Interview Skills	<ul style="list-style-type: none"> ▶ Employability ▶ Think like a Professional ▶ Clearing HR Rounds ▶ Salary Negotiation ▶ Bond Negotiation 	
 Presentation Skills	<ul style="list-style-type: none"> ▶ Research Skills ▶ Public Speaking ▶ Visualization ▶ White Board Presentation ▶ Mastering PowerPoint My Dream Company ▶ Research ▶ Content Creation 	 Dream Company Reading Skills Comprehension Skills
 Creativity Skills	<ul style="list-style-type: none"> ▶ Mind Mapping ▶ Role plays ▶ Mock Interview on the Hot Seat ▶ Listening Skills ▶ Critical Thinking ▶ Thought Analysis / Prioritization ▶ SWOT Analysis 	





APTITUDE & REASONING



Arithmetic

- > Problems on Numbers, Simplification
- > Equations
- > LCM & HCF and Fractions
- > Average
- > Ratio & Proportion
- > Problems on Ages
- > Alligation & Mixtures
- > Percentages
- > Profit and Loss
- > Time and Work, Chain Rule, Pipes & Cisterns

- > Time and Distance
- > Problems on Trains
- > Boats and Streams
- > Simple and Compound Interest
- > Problems on Areas
- > Calendar
- > Clocks
- > Permutations and Combinations
- > Probability
- > Data Interpretation



Reasoning

- > Puzzles
- > Blood Relations
- > Coding and Decoding
- > Ranking Test
- > Seating Arrangement
- > Series (Numeric and Alphanumeric)
- > Data Sufficiency



AI DATA SCIENCE


100%
PLACEMENT
ASSISTANCE

With LLM's & PROMPT ENGINEERING



Full Stack Java with AI



Data Science with Gen AI



Cyber Security with AI



Devops / AWS



Digital Marketing



Full Stack Python with AI



Gcp- Cloud Data Engineer with AI



ADDITIONAL AI & DATA SCIENCE TOPICS YOU WILL LEARN



MACHINE LEARNING

Build smart models that learn from data and make accurate predictions.



DEEP LEARNING

Explore neural networks and build advanced AI models for complex problems.



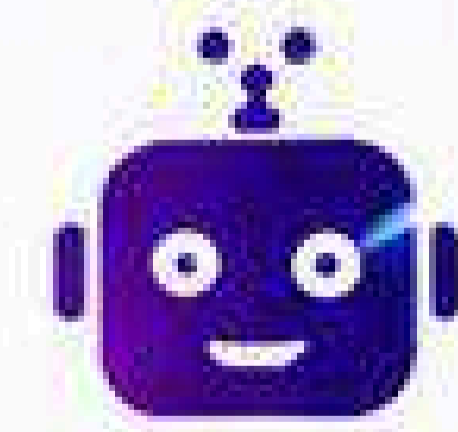
DATA ANALYSIS

Clean, explore and analyze data to extract meaningful insights and support decisions.



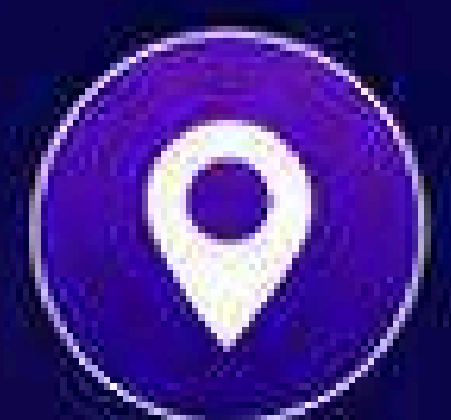
DATA VISUALIZATION

Create interactive and impactful dashboards to communicate data effectively.



NATURAL LANGUAGE PROCESSING

Work with text data to build chatbots, text analysis and language understanding models.



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