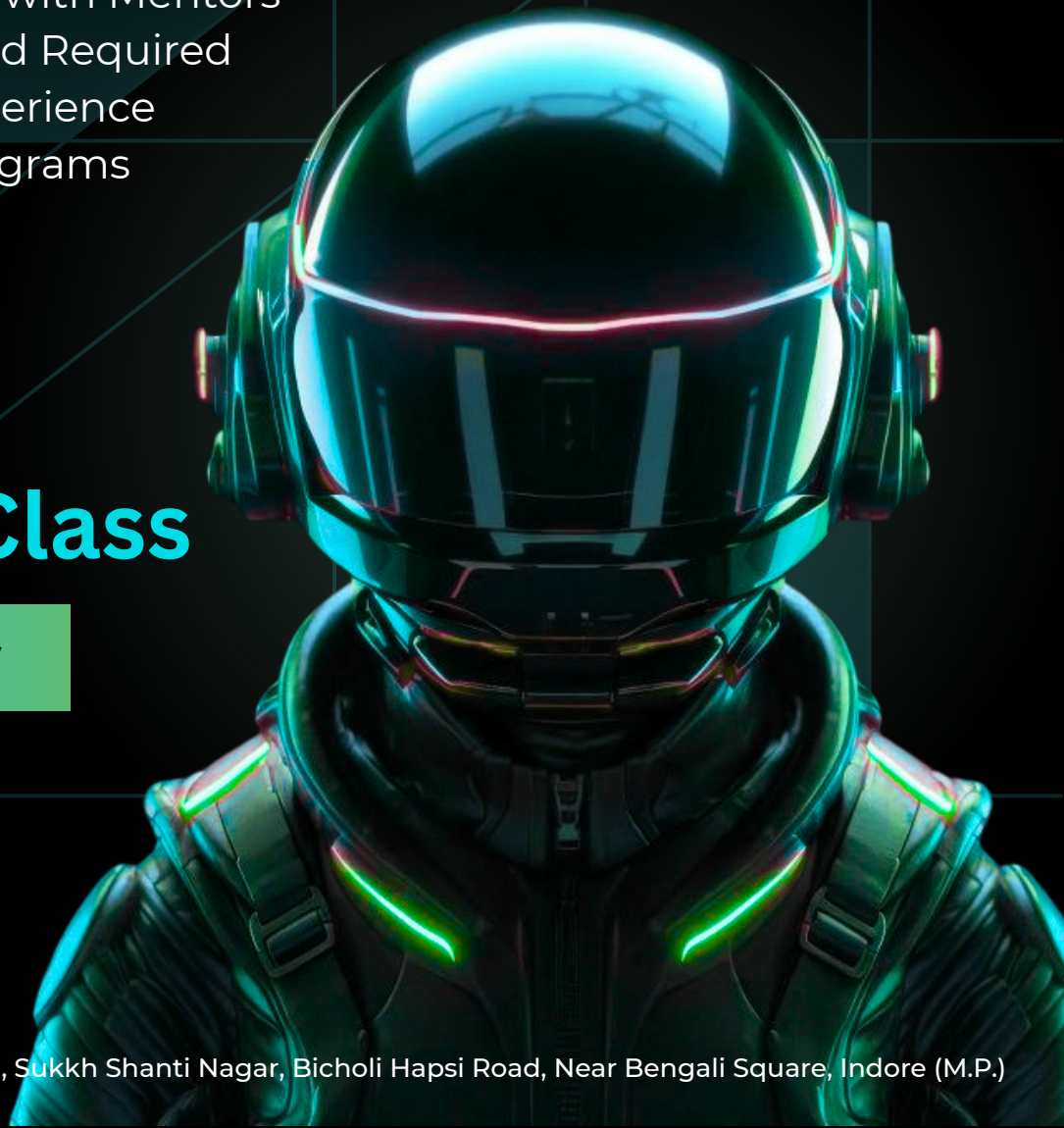


Curriculum For Data Science

- 1o1 Interaction with Mentors
- No Experienced Required
- Hands-On Experience
- Job Ready Programs

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BASICS TO BRILLIANCE

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Data Analytics Fundamentals

- Understanding What Data Analytics Is!
- Types of Data Analytics
- Role of Data Analyst in Modern Orgs
- Overview of Analytics Tools & Technologies

Python Programming Basics

- Python Syntax, Data Types, Loops, Functions
- Working with Lists, Dictionaries, Tuples
- File I/O and Basic Scripting
- Writing Clean, Readable Code

Data Manipulation in Python

- Reading and Writing CSV/Excel Files
- Filtering, Merging, Grouping, Aggregation
- Handling Missing Values and Outliers
- NumPy for Array Ops & Performance

Data Cleaning & Handling

- Identifying Missing or Inconsistent Data
- Techniques to Handle Missing Data
- Removing Duplicates & Outliers
- Type Conversion & Formatting
- Best Practices in Excel & Pandas

ETL Process

- Extracting Data from APIs, Databases, Excel
- Normalization, Aggregation, etc
- Automating ETL Using Python & Power Query
- Data Integration from Multiple Sources

Statistics & Probability for DA

- Descriptive vs Inferential Statistics
- Probability & Distributions (Normal, Binomial)
- Hypothesis Testing (T-test, Z-test, ANOVA)
- Correlation & Regression

DBM & SQL Querying

- Introduction to RDBMS & SQL
- Data Types, Tables, Primary/Foreign Keys
- Data Filtering, Sorting, and Aggregation
- SQL Joins, Constraints & Modeling
- Data Modeling Basics
- Hands-On Queries on Real-World Datasets

Data Visualization Techniques

- Principles of Effective Data Visualization
- Charts: Bar, Line, Pie, Area, Histogram, Box, Heatmaps
- Selecting the Right Chart for the Right Metric
- Using Power BI & Matplotlib for Dashboarding

Data Visualization in Python

- Plotting with Matplotlib: Bar, Line, Area, Pie
- Advanced Visuals with Matplotlib
- Customizing Plots: Themes, Colors, Annotations
- Telling Stories Through Charts

Business Intelligence Reporting

- Introduction to BI Tools (Power Bi)
- Connecting Data Sources & Preparing Reports
- Creating Interactive Dashboards with Filters
- Defining and Tracking KPIs
- Publishing and Sharing BI Reports

Exploratory Data Analysis (EDA)

- Understand the context before diving into the data.
- How to interpret business goals and convert them into data questions
- Understanding stakeholders' expectations
- Identifying KPIs and key success metrics
- Selecting relevant datasets for analysis

Uni-Bi-Multivariate Analysis

- Get deep insights from raw data.
- Frequency tables, histograms, box plots
- Scatter plots, correlation heatmaps, grouped bar charts
- Pair plots, multivariate boxplots, pivot tables

EDA Documentation

- Tell compelling stories with your data finding
- Generating EDA reports with insights & visuals
- Writing narratives in Jupyter Notebooks
- Highlighting key patterns & actionable output
- Insights for technical + non-technical stakeholders

ML Pipeline Setup & Data Splitting

- Introduction to Machine Learning & its types
- Splitting data: train-test, validation strategies
- Setting up ML pipelines (preprocessing + modeling)
- Handling categorical data for ML models

Supervised Learning

- Regression Models:
 - Linear Regression
 - Polynomial Regression
- Classification Models:
 - Logistic Regression
 - K-Nearest Neighbors (KNN)
 - Decision Trees

Unsupervised Learning

- K-Means Clustering (with elbow method)
- Hierarchical Clustering (Dendrograms)
- Principal Component Analysis (PCA)
- When and why to use unsupervised learning

Model Evaluation & Optimization

- Evaluation Metrics:
 - Regression: MAE, MSE, RMSE, R²
 - Classification: Accuracy, Precision, Recall, F1, Confusion Matrix, ROC-AUC
- Cross-validation (K-Fold)
- Interpreting feature importance and coefficients

Projects & Data Presentation

- Define a real-world business problem
- Collect or use given datasets (Kaggle)
- Apply full EDA, Modeling & Evaluation
- Document project in Jupyter Notebook
- Present findings using data storytelling techniques

That's All About Data Science!

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