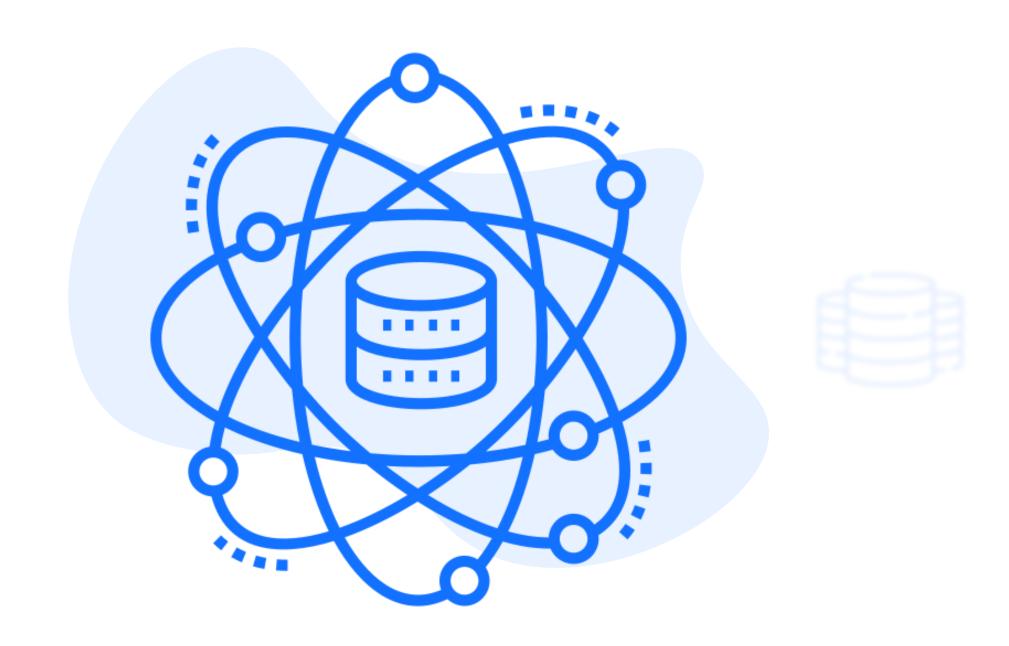
COMPLETE DATA SCIENTIST ROADMAP

Fundamentals to Projects





Why Choose Data Science Field?

- Tech industries are increasingly rely on datadriven decision-making
- Data science has become a crucial discipline for organisations across all industries.
- Building a career in data science can be challenging
- Here is a well-defined roadmap that can help you navigate this landscape and build a successful career in data science.

#1 Fundamentals

Master the fundamentals of statistics, mathematics, and programming.

- Tableau and Excel: Visual Analytics,
 Operations on data and calculations in
 Tableau, Pivot tables, Charts and Statistical
 functions
- □ SQL: Databases, Functions, filtering and subqueries, Joins, Group by and Aggregation, Indexes and Partitioning
- Python Basics: Flowcharts, Data types, Operators, Conditional statements and loops, Functions, Strings, Lists, Tuples, Dictionaries
- Matrix Algebra and Number Systems

#2 Data analysis and visualisation

Master how to analyse, interpret, and present data.

- Python libraries: Numpy, Pandas, Matplotlib, Seaborn, Data Acquisition, Web API and Beautifulsoup, Tweepy
- □ Probability and Applied Statistics: Bayes Theorem, Distributions, Descriptive Statistics, Outlier treatment, Central limit theorem, Hypothesis testing, ANOVA, EDA, Feature Engineering, Experiment Design, Regex, NLTK, OpenCV

#3 Foundations of Machine Learning and Deep Learning

Master supervised learning, unsupervised learning, and deep learning, as well as the tools and frameworks used to implement these techniques.

- Advanced Python: Time and Space Complexities, OOPS Concepts, Functional Programming, Exception Handling
- Maths for Machine Learning: Classification, Hyperplanes, Halfspaces, Calculus, Optimization, Gradient Descent and Principal Component Analysis
- Neural Networks and Machine Learning: Linear Regression, Polynomial, Bias-Variance, Regularisation, Cross Validation, Logistic Regression, Perceptron and Softmax Classification, K Means Clustering, Hierarchical Clustering

#4 Advanced Machine Learning and Deep Learning

Master Natural language processing and convolutional neural networks.

- Supervised Learning: MLE, MAP,
 Classification metrics, Imbalance Data,
 Decision Trees, Bagging, Naive Bayes
 Classifier, SVM
- Machine Learning: Clustering, GMM, Anomaly/Outlier Detection, PCA, t-SNE, Recommender Systems, Time Series Analysis
- □ Deep Learning- Neural Networks:

Perceptrons, Hidden Layers, Tensorflow, Keras, Forward and Back Propagation, Multilayer Perceptrons, Callbacks, Tensorboard, Hyperparameter Tuning, LSTM, BERT

#5 PROJECTS

Build projects to document and display your learning process:

- Use real world datasets and try to solve real world problems
- Make use of different algorithms and techniques
- Present your findings in a clear way
- Show willingness to learn from challenges be it collecting data or finding proper parameters to solve problems
- Make unique projects such as web apps, dashboards to stand out

#6 Resume Building and Mock Interviews

- Create a stellar resume with your skills and projects
- Learn in public by showing your progress and work
- Take mock interviews to understand your weak points
- Look into company specific questions and requirements