

# Data Science Roadmap

## Phase 1: Learn the Fundamentals

- **Mathematics & Statistics** – Probability, linear algebra, calculus.
- **Python & R** – Core programming languages for data science.
- **Data Structures & Algorithms** – Learn sorting, searching, trees, and graphs.

## Phase 2: Data Manipulation & Processing

- **NumPy & Pandas** – Handling large datasets.
- **Data Visualization** – Matplotlib, Seaborn, Plotly.

## Phase 3: Databases & Big Data

- **SQL** – Querying relational databases.
- **Big Data Technologies** – Apache Spark, Hadoop.

## Phase 4: Machine Learning

- **Supervised Learning** – Linear regression, decision trees, SVM.
- **Unsupervised Learning** – Clustering, dimensionality reduction.
- **Deep Learning** – TensorFlow, PyTorch, CNNs, RNNs.

## Phase 5: Model Deployment

- **Flask & FastAPI** – Deploying ML models as web services.
- **MLOps** – Automating ML pipelines using Kubernetes, Docker.