(Foundations of Data Science)
-data science libraries (Pandas, NumPy, Matplotlib).
-basic statistics, and linear algebra. -SQL queries.
-basic data analysis tasks like summarizing, cleaning, and transforming data.

(Data Analysis & Visualization)
-Data Wrangling: Learn to clean and preprocess data using Pandas.
-Data Visualization: Create charts and dashboards using Matplotlib, Seaborn, and Tableau.
-Exploratory Data Analysis (EDA): Analyze datasets to uncover patterns and insights.
-Perform EDA on real-world datasets (e.g., Housing Prices, Retail Sales).

(Machine Learning Basics)
-Supervised Learning: Learn Linear Regression, Logistic Regression, and Decision Trees.
-Unsupervised Learning: Understand K-Means Clustering and PCA. -Scikit-learn: Implement ML algorithms, split data, and evaluate performance.
-Build projects like predicting housing prices or customer churn, Implement models using Scikit-learn and visualize results.

Data Science Learning Journey with Certifications

Months 1-2: Foundations
Core Skills: Python, Stats, SQL
Certifications:
• Google Data Analytics Professional Certificate
• Microsoft Azure Data Fundamentals (DP-900)

Months 3-4: Data Analysis
Core Skills: Data Wrangling, Visualization
Certifications:
• IBM Data Science Professional Certificate
• Tableau Data Analyst Certification

Months 5-6: Machine Learning Basics
Core Skills: Supervised/Unsupervised Learning
Certifications:
• Stanford Machine Learning (Andrew Ng)
• Python for Data Science and ML Bootcamp

Months 7-8: Advanced ML
Core Skills: Advanced Algorithms, Big Data
Certifications:
• AWS Certified Machine Learning – Specialty
• Google TensorFlow Developer Certificate

Months 9-10: Specialization
Core Skills: Deep Learning, NLP
Certifications:
• Deep Learning Specialization (Andrew Ng)
• Applied Data Science with Python Specialization

Months 11-12: Portfolio Building
Core Skills: Project Building, Interview Prep
Certifications:
• Google Cloud Professional Data Engineer
• Kaggle Competitions Certificates

(Advanced Machine Learning & Big Data Tools)
-Advanced ML Algorithms: Learn Random Forest, XGBoost, and Support Vector Machines.
-Big Data Basics: Understand Spark and Hadoop for handling large-scale data.
-Model Deployment: Use Flask or FastAPI to deploy ML models.
-Build an end-to-end project (e.g., fraud detection or time series forecasting), Deploy a model on Heroku or AWS.

(Specialization)
-Deep Learning Basics: Learn about neural networks, activation functions, and loss functions.
-Natural Language Processing (NLP): Explore text preprocessing, sentiment analysis, and text classification.
-Domain Knowledge: Focus on industries of interest (e.g., healthcare, e-commerce).
-Work on advanced projects like chatbot development or image classification, Compete in Kaggle competitions to solve real-world problems.

(Portfolio Building & Final Prep)
-Portfolio: Create a GitHub repository and a clean portfolio website showcasing your projects.
-Resume & Interview Prep: Practice behavioral interviews, data science case studies, and SQL problem-solving.
-Job Applications: Start applying for internships or entry-level roles. ***-Build a portfolio with 4-5 projects, including EDA, ML, deployment, and NLP, Publish blogs or Medium posts explaining your projects.***