PATHAHEAD · FREE ROADMAP

Become a Data Scientist / Analyst from Scratch

Turn raw numbers into decisions. Go from zero to job-ready analytics in about five months — built around real datasets and portfolio-worthy reports.

20
weeks · ~10–12 hrs/wk

5
portfolio projects

4
phases · data to insight

₹0
free resources only

A free PathAhead learning resource · adjust the pace to your life — the order matters more than the dates.

THE ONE RULE

Analyze → visualize → explain

Anyone can run a chart. The skill is explaining what it means. Every project below ends in a clear insight you could present to a manager.

THE ROADMAP

Four phases, step by step

0 Foundations

Weeks 1–4

The core toolkit: Python, stats, and SQL.

WEEK 1
Python basics
Variables, loops, functions, working with files.

WEEK 2
pandas & NumPy
DataFrames, cleaning, filtering, groupby.

WEEK 3
Statistics
Descriptive stats, distributions, probability.

WEEK 4
SQL
SELECT, joins, aggregation, grouping.

1 Analysis & Visualization

Weeks 5–9

Explore data and tell its story with charts.

WEEK 5
EDA
Explore, clean, and handle missing data.

WEEK 6
Visualization
matplotlib and seaborn for clear charts.

WEEK 7
Dashboards
Plotly, Power BI, or Tableau basics.

WEEK 8
Data storytelling
Turning findings into a clear narrative.

WEEK 9 · PROJECT ▶
Analytics report
A full EDA writeup on a real dataset.

2 Statistics & ML

Weeks 10–15

Test hypotheses and build predictive models.

WEEK 10

Hypothesis testing

A/B tests, p-values, significance.

WEEK 11

Regression

Linear and logistic regression.

WEEK 12

Classification

Decision trees and random forests.

WEEK 13

Clustering

K-means and customer segmentation.

WEEK 14

Model evaluation

Metrics, cross-validation, avoiding overfit.

WEEK 15 · PROJECT ▶

Predictive model

Predict churn or price and evaluate it.

3 Tools & Delivery

Weeks 16–20

The workflow that makes you hireable.

WEEK 16

Advanced SQL

Window functions, CTEs, subqueries.

WEEK 17

Spreadsheet mastery

Pivot tables, lookups, dashboards in Excel/Sheets.

WEEK 18

Git & notebooks

Reproducible, version-controlled analysis.

WEEK 19

Communicating results

Reports and decks for non-technical people.

WEEK 20 · CAPSTONE ▶

End-to-end analysis

A full case study from raw data to recommendation.

BUILD A PORTFOLIO

Five projects that get you hired

Projects beat certificates. Do them in order — each builds on the last. Put every one on GitHub with a clear README: problem → approach → result.

Start here

1 · Exploratory Data Analysis

Pick any Kaggle dataset. Clean it, chart it, find 3 insights.

Dashboards

2 · Interactive Dashboard

Sales, sports, or COVID data in Power BI / Tableau / Plotly.

Statistics

3 · A/B Test Analysis

Analyze an experiment and state whether the result is significant.

In demand

4 · Predictive Model

Predict churn or house prices; explain accuracy and drivers.

Capstone

5 · End-to-End Case Study

Raw data → analysis → model → written recommendation.

ROLES YOU CAN APPLY FOR

Data Analyst · Data Scientist · Business Analyst · BI Analyst

TYPICAL STARTING SALARY · INDIA

₹4–12 LPA

LEARN IT

Learning resources

Every item links to the real source (clickable in this PDF).

BOOKS

- Python for Data Analysis by Wes McKinney
- An Introduction to Statistical Learning by James, Witten, Hastie and Tibshirani
- The Art of Statistics by David Spiegelhalter

COURSES

- Data Analysis with Python by freeCodeCamp (free)
- IBM Data Science Professional Certificate by Coursera
- Data Science by NPTEL (free)
- Google Data Analytics Certificate by Coursera

YOUTUBE

- Ken Jee
- StatQuest with Josh Starmer
- Data School

PRACTICE

- Kaggle
- DataCamp
- HackerRank

DO THIS TODAY

Your first step (takes 30 minutes)

1

Open Google Colab

colab.research.google.com — free, browser-based, every library ready.

2

Get a Kaggle account

kaggle.com — thousands of free datasets and community notebooks.

3

Do one EDA

Load a dataset, run .describe(), plot 3 charts. You've started.

Job-ready checklist: 3–5 solid projects on GitHub (≥1 deployed or documented) · can explain your work in an interview · comfortable with the core tools of the field · a portfolio or profile recruiters can find.

PathAhead — India's premium career guidance platform. This roadmap is a free educational resource; timelines are a guide and everyone learns at a different pace. Referenced third-party resources (Kaggle Learn, freeCodeCamp, Khan Academy, Mode SQL Tutorial, StatQuest (YouTube)) are for learning only and are not affiliated with PathAhead.