Ayush Pradhan

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github.com/ayushpradhan-dev/Data-Science-and-Analysis-Projects

Personal Profile

A highly motivated data professional with expertise in data science, analytics, and financial modeling. I have experience leveraging machine learning, statistical analysis, and business intelligence tools to extract actionable insights and support data-driven decision-making. My projects have involved building predictive models, optimizing data pipelines, and designing visual analytics dashboards that translate complex data into meaningful business strategies. With a strong foundation in both technical skills and economic principles, I am eager to apply my expertise in data-driven problem-solving in dynamic environments, whether in consulting, finance, or technology sectors.

Education

King's College London

September 2024 – Present (Expected 2025)

- Degree: MSc Data Science
- Modules: Statistics for Data Analysis | Computer Programming for Data Scientists | Machine Learning | Pattern Recognition, Neural Networks and Deep Learning | Databases, data warehousing and information retrieval | Big Data Technologies | Data Visualization

Royal Holloway, University of London

September 2019 – July 2022

- Degree: BSc Financial and Business Economics
  Grade: First Class Honours
- Key Modules:
  Quantitative Methods | Microeconomics | Macroeconomics | Corporate Finance | Financial Markets and Institutions | Financial Economics | Industrial Economics | Industrial Growth and Competition

Skills

- **Programming & Data Analysis:** Python (Pandas, NumPy, matplotlib, scikit-learn, TensorFlow), R (Tidyverse, ggplot2), SQL (advanced queries, CTEs & Window Functions), Git version control.
- **Machine Learning & AI:** Supervised and Unsupervised Learning (SVM, K-means, kNN, Tree-Based-Methods), Neural Networks (MLP, CNN, RNN).
- **Data Engineering & Management:** Relational databases (MySQL), NoSQL (MongoDB), Data Warehousing, Cloud Computing (AWS), ETL Pipelines.
- **Business Intelligence & Data Visualization:** Familiar with Tableau and Power BI, experienced in R ggplot2, Matplotlib, and dashboard development for data storytelling.
- **Statistical Analysis:** EDA, A/B Testing, Regression Models (Piecewise, Locally Weighted, Logistic), Hypothesis Testing, Bayesian Statistics.
- **Financial & Economic Modeling:** Market Trend Analysis, Financial Data Interpretation, Time-Series Forecasting, and KPI Analysis.

Projects / Applied Coursework

Retail Sales Analysis & Report:

- **Objective:** Assessed the impact of a new store layout on sales to provide data-driven recommendations.
- **Implementation:** Conducted Exploratory Data Analysis (EDA) using histograms, scatter plots, and boxplots. Built a multiple linear regression model in R, controlling for store type and staff turnover.
- **Results:** Identified key factors influencing sales trends and provided actionable insights for store optimization.

COVID-19 Data Analysis & Visualization:

- **Objective:** Analyzed COVID-19 case trends over time to understand infection patterns and regional variations.
- **Implementation:** Queried a public API to collect real-time COVID-19 data, processed it into Pandas DataFrames, and applied rolling averages. Created dynamic visualizations to display infection trends.
- **Results:** Highlighted significant changes in case numbers over time, identifying periods of rapid spread and decline, which could support public health decision-making.

Natural Language Processing (NLP) on Wikipedia Data:

- **Objective:** Extracted insights from Wikipedia text data on ACM Turing Award winners using NLP techniques.
- **Implementation:** Scraped data using WikiData APIs, applied tokenization, stemming, lemmatization, stopword removal, analysed bigrams and trigrams.
- **Results:** Identified linguistic patterns and created word frequency visualizations using Matplotlib for comparative analysis.

Handwritten Digit Classification Using Convolutional Neural Networks:

- **Objective:** Built a deep learning model to classify handwritten digits.
- **Implementation:** Developed a CNN model using TensorFlow/Keras with convolutional, pooling, dropout, and dense layers. Applied hyperparameter tuning and batch normalization to improve performance.
- **Results:** Achieved high classification accuracy of 99.70%, demonstrating the power of CNNs in image recognition tasks.

Certifications

Google Data Analytics Professional Certificate

Oct 2023 – Jan 2024

- Gained hands-on experience in data aggregation, cleaning, and organization with SQL and R to identify trends and relationships within data.
- Fluency with data visualization tools in tableau and R using the ggplot2 package to communicate findings.

The Data Science Course: Complete Data Science Bootcamp, Udemy

March 2024 – May 2024

- Applied K-means clustering for market segmentation and data standardization.
- Studied Bayesian inference, probability distributions, combinatorics, and both descriptive and inferential statistical methods.