

AI Powered Data Analytics Project Details

There will be 2 mini and 4 major projects we are covering in our course

1. Rides Data Analysis – Final Project

Objective:

Analyze ride-sharing data to uncover patterns, improve customer satisfaction, and enhance operational efficiency.

Key Tasks:

- Explore ride data to identify peak usage hours, popular routes, and revenue trends.
- Analyze user demographics to tailor marketing efforts.
- Use clustering techniques to group users based on their riding habits.
- Build visualizations to present findings to stakeholders.

Outcome:

Provide actionable insights to optimize pricing strategies, improve driver allocation, and increase customer retention.

2. Airbnb Data Analysis – Final Project

Objective:

Perform an in-depth analysis of Airbnb listings to understand host behaviors, guest preferences, and pricing trends.

Key Tasks:

- Analyze location data to identify the most lucrative neighborhoods.
- Study the impact of amenities and reviews on pricing.
- Evaluate seasonal trends in bookings.
- Build dashboards for visual representation of insights.

Outcome:

Help hosts and platform managers make data-driven decisions to enhance profitability and guest satisfaction.

3. Telecom Customer Churn Analysis – Final Project

Objective:

Predict customer churn and recommend strategies to retain high-value Customers.

Key Tasks:

- Perform exploratory data analysis (EDA) to identify churn indicators.
- Build and evaluate machine learning models (e.g., logistic regression, decision trees) to predict churn.
- Conduct segmentation analysis to profile at-risk customers.
- Suggest actionable retention strategies based on findings.

Outcome:

Develop a framework for reducing churn and improving customer loyalty for telecom companies.

4. IPL Data Analysis – Classroom Project

Objective:

Analyze IPL match and player performance data to gain insights into team strategies and player contributions.

Key Tasks:

- Perform EDA on match results, player statistics, and team performances.
- Identify trends such as winning probabilities and factors affecting match

Outcomes:

- Visualize player and team statistics using plots and dashboards.
- Conduct sentiment analysis on fan opinions during IPL seasons (optional).
- Provide comprehensive insights into IPL dynamics, helping fans and analysts understand the game better.

5. Healthcare Analytics Capstone Project – Hospital Performance Analysis.

Data Source:

- Public Healthcare Datasets from:
 - [Kaggle Healthcare Datasets](#)
 - [HealthData.gov](#)

Context:

Healthcare organizations generate large amounts of patient and hospital data every day. Analyzing this data helps hospitals improve patient care, reduce operational delays, and optimize costs.

A potential business question could be:

“What factors influence hospital performance and patient outcomes?”

The insights from this analysis can help hospitals, doctors, and healthcare administrators make better operational and treatment decisions.

Objective:

As a Data Analyst, you need to analyze healthcare and hospital data to identify trends, improve operational efficiency, and generate business insights.

Below are some of the analysis ideas to start with:

- How has the number of patient admissions changed over time?
- Which diseases are most commonly diagnosed?
- Which departments generate the highest revenue?
- What is the average patient stay duration?
- Which age groups visit hospitals the most?
- Which doctors handle the highest number of patients?
- What are the peak hospital admission periods?
- Is there a relationship between treatment cost and patient recovery?

Key KPIs

- Total Patients

- Total Admissions
- Average Length of Stay
- Bed Occupancy Rate
- Patient Recovery Rate
- Department-wise Revenue
- Average Treatment Cost
- Doctor-wise Patient Count
- Most Common Diseases
- Patient Satisfaction Score

Recommended Tools

- Excel
- SQL
- Power BI / Tableau
- Python
- ChatGPT / Copilot

Suggested Dashboard Pages

Executive Dashboard

- Overall KPIs
- Admissions & Revenue Trends

Patient Analytics

- Disease Analysis
- Age Group Analysis
- Recovery Trends

Hospital Operations

- Bed Occupancy
- Department Performance
- Doctor Performance

Expected Outcomes



By completing this project, students will learn how to:

- Analyze healthcare datasets
- Create dashboards and KPIs
- Identify trends and patterns
- Generate actionable business insights
- Improve healthcare decision-making

Note: Schema and column details can be obtained from the healthcare datasets mentioned above. Students are encouraged to perform:

- *Data Cleaning*
- *KPI Creation*
- *Dashboard Development*
- *Insight Generation*

6. Capstone Project 5 – Brazilian E-Commerce Dataset Objective:

Perform exploratory analysis and come up with various insights from the dataset which include KPIs, Purchase trends, Customer demographics, Order patterns, Product reviews, Payment methods, Seller sales and Overall sales patterns etc.

Key Tasks:

- What is the average transaction value?
- Most bought customer categories
- Trend of sales over the day, week and month
- Number of products bought by each customer

Outcomes:

Its features allow viewing an order from multiple dimensions: from order status, price, payment and freight performance to customer location, product attributes and finally reviews written by customers.