1. Web scraping: Scrape data from a website (e.g., e-commerce, news) and perform exploratory data analysis.

2. Data visualization : Create interactive dashboards using Tableau or Power BI for a given dataset.

3. Predictive analytics: Build a predictive model for a real-world problem (e.g., predicting customer churn, sales forecasting).

4. Hypothesis testing: Test hypotheses on a dataset using statistical techniques covered in the syllabus.

5. Data cleaning and preprocessing: Preprocess a messy dataset, handle missing values, and perform feature engineering.

6. Time series analysis: Analyze and forecast a time series dataset (e.g., stock prices, weather data).

7. Sentiment analysis: Perform sentiment analysis on text data (e.g., product reviews, social media posts).

8. Recommendation system project: Develop a recommendation system for movies, books, or products.

9. Clustering project: Perform cluster analysis on a dataset to identify similar groups or patterns.

10. A/B testing project: Conduct an A/B test on a marketing campaign or website design.

11. Natural language processing project: Develop a model for text classification, named entity recognition, or machine translation.

12. Anomaly detection project: Identify anomalies or outliers in a dataset (e.g., fraud detection, system monitoring).

13. Data visualization project: Create interactive visualizations using Matplotlib or Seaborn for a specific dataset.

14. Excel-based data analysis project: Analyze a dataset using advanced Excel features (e.g., pivot tables, charts, statistical functions).

15. Data acquisition project: Collect data from various sources (e.g., APIs, web scraping) and integrate them into a unified dataset.

16. Hypothesis testing project: Conduct hypothesis testing on a real-world dataset to validate or reject a claim.

17. Data storytelling project: Create a compelling data story and visualization to communicate insights from a dataset.

18. Feature engineering project: Explore different feature engineering techniques (e.g., one-hot encoding, dimensionality reduction) and their impact on model performance.

19. Exploratory data analysis project: Perform in-depth exploratory data analysis on a complex dataset to uncover patterns and insights.

20. Expense Tracker: Develop an application that allows users to track their daily, weekly, and monthly expenses.

21. Weather App: Build a weather application that displays the current weather and forecast for a given location.

22. Currency Converter: Develop an application that converts between different currencies using the latest exchange rates.

1. Analyze the sales data of a retail store to identify the most popular products and peak shopping times. Create visualizations to present your findings.
2. Conduct a survey to understand the factors influencing students’ choice of elective courses. Use statistical methods to analyze the results and draw conclusions
3. Create a weather monitoring station that collects data on temperature, humidity, and rainfall.
4. You are a data scientist at a retail company. How would you use data-driven decision-making to improve sales during the holiday season?
5. A healthcare provider wants to predict patient readmission rates. What data extraction techniques and feature engineering methods would you employ?
6. As a marketing analyst, create a dashboard in Power BI that highlights the most effective advertising channels for different age groups.
7. An e-commerce company is testing a new website layout. Design a hypothesis test to determine if the new layout significantly increases conversion rates.
8. You are tasked with analyzing customer feedback data. How would you use SQL and Python to clean and prepare the data for analysis?
9. Predict monthly sales for the next year based on historical sales data.
10. You have a dataset containing information about customer orders. How would you explore the distribution of order values and identify any outliers?
11. Analyze monthly website traffic data to identify seasonal patterns and trends.
12. Investigate which products are frequently purchased together in an online store.
13. Handle missing values in a dataset of customer survey responses.
14. Extract keywords and sentiment from customer reviews for a product.
15. Visualize the distribution of COVID-19 cases across different regions.
16. Create new features from timestamp data (e.g., day of the week, hour of the day).
17. Test whether there is a significant difference in click-through rates between two website versions.
18. Design an informative dashboard to track sales performance over time.
19. Cluster customers based on their purchasing behavior and demographics.
20. Predict future stock prices using historical stock market data.
21. Evaluate the impact of a website redesign on user engagement.
22. Analyze patient admission data to identify patterns and optimize hospital resources.
23. Calculate engagement rates and reach for social media posts.
24. Identify potentially fraudulent transactions in credit card data.
25. Collect real-time weather data from multiple sources and create a dashboard showing the analysis
26. Identify factors contributing to employee turnover in a company.
27. Optimize delivery routes for a logistics company
28. Analyze Twitter data to understand public sentiment toward a brand.
29. Analyze electricity usage data to identify peak hours.
30. Identify factors leading to customer churn in a subscription service.
31. Monitor website load times and user interactions.
32. Investigate population growth rates across different countries.
33. Which countries are you interested in studying? List them here.
34. Where will you obtain population data for these countries? (e.g., UN reports, national statistics)
35. What time frame will you analyze? (e.g., past 10 years, specific decades)
36. What specific population metrics will you examine? (e.g., total population, birth rates, death rates)

How will you compare population growth rates between countries? (e.g., percentage change, annual growth rate)

1. What factors might contribute to differences in population growth rates? (e.g., fertility rates, migration)
2. How will you present your findings? (e.g., charts, maps, tables)