Sprints

# Data Analytics BootCamp Final Project

## Task 1: Patient Demographics Analysis

- **Requirements**:
  - Import and clean the patient dataset to eliminate missing values and duplicates.
  - Group data by gender, race, and age categories using Pandas.
  - Create bar charts and histograms with Matplotlib to display demographic distributions.
  - Analyze and report demographic trends, focusing on gender distribution, average patient age, and regional differences.
- **Deliverables**:
  - Python script for data manipulation and visualization.
  - Visualizations of demographic insights.

## Task 2: Hospital Admission Trends

- **Requirements**:
  - Format the date columns using `pd.to_datetime()` for accurate time-series analysis.
  - Group admission data by day, week, and month using Pandas.
  - Generate line plots to visualize hospital admissions over time.
  - Analyze and report on seasonal patterns and peak admission periods.
- **Deliverables**:
  - Time-series analysis visualization showing admission trends.
  - Report on admission patterns and peak times.

## Task 3: Patient Satisfaction Analysis using Tableau

- **Requirements**:
  - Import and prepare patient satisfaction score data for analysis in Tableau.
  - Create calculated fields to aggregate satisfaction scores by department.
  - Develop a heatmap to show satisfaction levels across departments.
  - Implement filters for dynamic data exploration by department, time, and demographics.
- **Deliverables**:
  - Interactive Tableau dashboard visualizing patient satisfaction levels.
  - Visualization highlighting satisfaction differences by department.

## Task 4: Operational Efficiency Analysis in Power BI

- **Requirements**:
  - Connect and model data focusing on `patient_waittime` in Power BI.
  - Create visualizations to analyze waiting times and surgery durations.
  - Set up filters for efficiency metrics exploration by department and time period.
  - Develop KPIs and gauges to evaluate performance against targets.
- **Deliverables**:
  - Power BI report with interactive visualizations of operational efficiency.
  - Dashboards displaying efficiency metrics which are waiting times and surgery durations.