**Directions**

**Part 1**

**Answer 1**

**List of Elements for the Dashboard:**

1. **Weather Data Overview**:
   * Temperature (Max, Min, Average)
   * Precipitation
   * Wind Speed
2. **Bike Trip Data Overview**:
   * Total number of trips (by day/week/month)
   * Average trip duration
   * Trip count by location (pickup/dropoff stations)
   * Rider demographics (age group, gender, etc.)
3. **Trip Correlation with Weather**:
   * Heatmap or scatter plot showing trip count vs. weather factors (temperature, precipitation, etc.)
   * Line chart for daily bike trips against temperature or rainfall
4. **Bike Trip Trends by Time**:
   * Time of day (bar chart showing trip frequency by hour)
   * Day of the week trends (bar chart or heatmap showing trip frequency by weekday)
5. **Trip Duration Analysis**:
   * Distribution of trip durations (histogram)
   * Correlation between weather conditions and trip duration
6. **Geographical Trends**:
   * Interactive map showing bike trip density by location
   * Hotspot map for bike stations with the highest trip counts

**Answer 2**

1. **How do weather conditions (temperature, rainfall, etc.) influence bike trip frequency?**
   * **Visualization**: Scatter plot or line chart comparing the number of bike trips and weather conditions (e.g., temperature, precipitation).
2. **What are the peak hours for bike trips?**
   * **Visualization**: Bar chart showing bike trips across different hours of the day.
3. **Are bike trips more frequent during certain days of the week?**
   * **Visualization**: Heatmap or bar chart showing the number of trips per day of the week.
4. **How does trip duration vary with weather conditions?**
   * **Visualization**: Box or scatter plots showing trip duration against weather variables (e.g., temperature, precipitation).
5. **Which bike stations are the most popular?**
   * **Visualization**: Map with markers showing the density of trips at different pickup/drop-off stations.
6. **What is the average duration of a bike trip, and how does it change with weather or time of day?**
   * **Visualization**: Line chart for the average duration against time of day or weather conditions.