Project 7: COVID-19 Using Cognos

Project Description: The project involves conducting a comprehensive analysis of COVID-19 cases and deaths data in the European Union (EU) and European Economic Area (EEA) countries. The primary objective is to compare and contrast the mean values and standard deviations of COVID-19 cases and associated deaths on a daily basis and by country within the EU/EEA region. To achieve this, the project encompasses several key tasks and objectives:

1. **Define Analysis Objectives:**
    - Clearly define the specific objectives and research questions that the analysis aims to address.
    - Determine the key metrics and statistical measures (mean, standard deviation) to be used in the analysis.
1. **Data Collection:**
    - Gather COVID-19 cases and deaths data from reliable sources such as national health authorities, the World Health Organization (WHO), or other reputable data providers.
    - Ensure the data is up-to-date, accurate, and consistent across all selected EU/EEA countries.
    - Organize and format the data for analysis in IBM Cognos.
1. **Data Exploration:**
    - Perform initial exploratory data analysis to understand the data's distribution, outliers, and trends.
    - Identify any missing or incomplete data and address data quality issues as necessary.
1. **Design Relevant Visualizations in IBM Cognos:**
    - Utilize IBM Cognos or other appropriate data visualization tools to create meaningful charts, graphs, and dashboards.
    - Visualize daily COVID-19 cases and deaths trends for each EU/EEA country.
    - Generate comparative visualizations to highlight differences in mean values and standard deviations among countries.
1. **Statistical Analysis:**
    - Calculate and compare the mean values and standard deviations of daily COVID-19 cases and deaths within the EU/EEA region.
    - Conduct country-level analyses to identify variations and patterns.
    - Employ statistical tests if necessary to determine the significance of observed

differences.

1. **Derive Insights and Recommendations:**
    - Interpret the findings from the analysis to derive actionable insights.
    - Identify factors that may explain variations in COVID-19 cases and deaths.
    - Formulate recommendations for public health interventions or further research if applicable.
1. **Report and Presentation:**
    - Prepare a comprehensive report summarizing the analysis, including key findings, insights, and recommendations.
    - Create visually engaging presentations to effectively communicate the results to stakeholders.
1. **Trend Analysis:** Determine the overall trend of COVID-19 cases and deaths in the EU/EEA region over time.
2. **Comparative Analysis:** Compare the mean values and standard deviations of cases and deaths across different countries in the EU/EEA.
3. **Identify Outliers:** Detect any outliers or significant deviations from the mean values.
4. **Impact Assessment:** Assess the impact of various measures or interventions by comparing changes in mean values and standard deviations before and after their implementation.
5. **Forecasting:** Use historical data to make predictions about future COVID-19 cases and deaths in the EU/EEA.

Data Collection:

1. **Data Source:** Obtain the COVID-19 cases and deaths data from reliable sources like the World Health Organization (WHO), European Centre for Disease Prevention and Control (ECDC), or national health authorities.
2. **Data Preprocessing:** Clean and organize the data to ensure accuracy and consistency. Handle missing values and inconsistencies in reporting.

Visualization Strategy:

1. **Line Charts:** Create time series line charts to visualize the trend in daily COVID-19 cases and deaths in the EU/EEA over a specified period.
2. **Bar Charts:** Use bar charts to compare the mean values of cases and deaths for different countries in the EU/EEA. You can also create bar charts to show the standard deviations.
3. **Heatmaps:** Generate heatmaps to visually represent the variation in COVID-19 cases and deaths across countries in the EU/EEA.
4. **Box Plots:** Use box plots to display the distribution of cases and deaths, including outliers, for a

more detailed view of the data.

5. **Overlay Charts:** Overlay line charts of mean values and standard deviations to identify patterns and variations.

Insights Generation:

1. **Identify Hotspots:** Look for countries with consistently high mean values and standard deviations, indicating regions with a severe and fluctuating COVID-19 situation.
2. **Temporal Patterns:** Analyze whether there are any specific time periods when mean values and standard deviations show significant changes, such as spikes or declines.
3. **Outlier Detection:** Investigate outliers to understand why certain countries deviate significantly from the average, which may involve exploring factors like healthcare infrastructure, government policies, or vaccination rates.