**Ideation Phase**

**Defining the Problem Statements**

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| **Date** | **27-09-2023** |
| **Team ID** | **720** |
| **Project Name** | **Covid 19 cases analysis** |

**Covid-19 Cases Analysis Project**

**Problem Definition and Design Thinking**

**Introduction:**

The objective of this project is to perform an analysis of COVID-19 cases and associated deaths in the EU/EEA countries using publicly available data. Specifically, we aim to compare and contrast the mean values and standard deviations of new cases and deaths reported per day across these countries. This analysis will provide insights into the spread and impact of COVID-19 in the region.

**Problem Statement:**

Objective: Analyze COVID-19 data to compare and contrast the mean values and standard deviations of new cases and deaths reported per day in EU/EEA countries.

Data: We have a dataset containing daily counts of new COVID-19 cases and deaths for each EU/EEA country.

**Key Challenges**:

1. Data Quality: Ensuring the dataset is clean, complete, and free of errors.

2. Data Preparation: Aggregating and preprocessing the data for meaningful analysis.

3. Statistical Analysis: Conducting appropriate statistical tests to compare mean values and standard deviations.

4. Visualization: Creating visualizations to present the analysis results effectively.

5. Interpretation: Drawing meaningful insights from the analysis and making recommendations if necessary.

**Design Thinking Approach**

**Empathize**:

Before diving into solving the problem, it's essential to empathize with the context and potential stakeholders. In this case, the stakeholders may include public health authorities and policymakers. Understanding their concerns and objectives is crucial.

**Actions**:

- Research the goals and objectives of public health authorities regarding COVID-19 data analysis.

- Consider the questions policymakers might have about the spread and impact of the virus.

- Identify the key variables of interest (new cases and deaths) and any additional data that might be relevant.

**Define**:

Based on our understanding of the problem and stakeholders' needs, we will define clear objectives and success criteria for our analysis.

**Objectives**:

- Compare the mean values of new cases and deaths reported per day in EU/EEA countries.

- Contrast the standard deviations of new cases and deaths.

- Provide clear and insightful visualizations of the analysis results.

**Ideate**:

Brainstorm potential solutions and approaches to analyze COVID-19 data and perform statistical comparisons.

**Actions**:

- Explore descriptive statistics techniques to calculate means and standard deviations.

- Consider hypothesis testing to assess if there are significant differences among countries.

- Think about data visualization methods such as bar charts, box plots, or heatmaps to illustrate the findings.

**Prototype:**

Create a prototype of the data analysis workflow, including data preprocessing, statistical tests, and visualization.

**Actions**:

- Clean and preprocess the COVID-19 data to prepare it for analysis.

- Perform statistical tests (e.g., ANOVA, t-tests) to compare means and standard deviations.

- Create initial visualizations to check the feasibility and effectiveness of data presentation.

**Test**

Evaluate the analysis prototype, ensuring it meets the defined objectives and provides meaningful insights.

**Actions:**

- Review the statistical results and visualizations to ensure they address the objectives.

- Collect feedback from potential stakeholders to identify any necessary improvements.

- Refine the analysis based on feedback and iterate if needed.

**Implement:**

Once the analysis prototype meets the objectives and stakeholder requirements, proceed with full implementation.

- Apply the analysis workflow to the complete COVID-19 dataset for EU/EEA countries.

**Actions:**

- Generate final visualizations and statistical reports.

- Document the analysis process and results for transparency.

**Iterate**

Continuous improvement is vital. Collect feedback and iterate on the analysis if new data or questions arise.

**Actions:**

- Monitor updates to COVID-19 data and rerun the analysis periodically.

- Update visualizations and insights to reflect the most recent data.

- Be prepared to provide additional analyses or insights as requested by stakeholders.

**Conclusion:**

In this project, we aim to analyze COVID-19 cases and associated deaths in EU/EEA countries. By following a design thinking approach, we will ensure that the analysis addresses the objectives, provides valuable insights, and remains adaptable to changing circumstances. Ultimately, our goal is to contribute to a better understanding of the COVID-19 situation in the region.