Naan Mudhalvan
Data Analytics With Cognos
Phase-1

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1) Analysis:

1. Measure Audience Reach:
- Objective: Quantify the extent to which the campaign reached the target audience.
- Metrics:
    - Total impressions: The number of times campaign content was displayed.
    - Unique reach: The number of distinct individuals who saw the campaign.
    - Engagement rate: The percentage of reached individuals who interacted with the content (likes, shares, comments).

2. Assess Awareness Levels:
- Objective: Evaluate the effectiveness of the campaign in increasing awareness about the public health issue.
- Metrics:
    - Pre-campaign vs. post-campaign awareness levels: Conduct surveys or analyze search trends to measure changes in awareness.
    - Social media sentiment: Analyze sentiment in social media comments related to the campaign to gauge public sentiment.

3. Evaluate Campaign Impact:
- Objective: Determine whether the campaign led to behavioral changes or contributed to improving the public health issue.
- Metrics:
    - Behavioral changes: Measure changes in specific behaviors related to the campaign's message (e.g., increased vaccination rates, healthier lifestyle choices).
    - Health outcome indicators: Monitor relevant health indicators (e.g., disease incidence, hospital admissions) to assess the campaign's impact.

4. Analyze Audience Segmentation:
- Objective: Understand how different demographic groups responded to the campaign.
- Metrics:
    - Demographic breakdown: Analyze campaign engagement and awareness levels by age, gender, location, and other relevant demographics.
    - Tailor messaging: Use insights to refine future campaign targeting and messaging.

5. Track Conversion and Call to Action:
- Objective: Measure how effective the campaign was in encouraging the audience to take desired actions (e.g., sign up for health programs, get vaccinated).
- Metrics:
    - Conversion rate: The percentage of individuals who took the desired action after interacting with the campaign.
    - Click-through rate (CTR): Measure the effectiveness of campaign calls to action.

6. Assess Cost-effectiveness:
- Objective: Evaluate the cost-effectiveness of the campaign in achieving its objectives.
- Metrics:
    - Cost per impression (CPI): Calculate the cost incurred for each impression generated by the campaign.
    - Cost per conversion (CPC): Calculate the cost incurred for each desired action taken as a result of the campaign.

7. Measure Long-term Impact:
- Objective: Determine if the campaign's effects endure over time.
- Metrics:
    - Long-term behavioral change: Monitor whether the campaign's impact on behavior change persists.
    - Sustained awareness: Assess whether the campaign's awareness gains are maintained in the long term.

8. Gather Qualitative Feedback:
- Objective: Collect qualitative feedback from the audience to understand their perceptions and opinions about the campaign.
- Metrics:
    - Conduct focus groups or interviews to gather in-depth insights.
    - Analyze user-generated content (e.g., social media comments, blog posts) for qualitative feedback.

Data Collection:

1. Engagement Metrics:
- Sources: Social media platforms (Facebook Insights, Twitter Analytics), website analytics tools (Google Analytics), email campaign tools.
- Methods: Collect data on likes, shares, comments, clicks, impressions, click-through rates, and time spent on campaign content.

2. Audience Demographics:
- Sources: Social media insights, website analytics, third-party data providers.

- Methods: Use built-in analytics tools to gather demographic information such as age, gender, location, and interests of the campaign's audience.

3. Awareness Surveys:
- Sources: Conduct online surveys through platforms like SurveyMonkey or Google Forms, or offline surveys at specific events.
- Methods: Design and distribute surveys to measure baseline and post-campaign awareness levels. Include questions related to campaign recall and effectiveness.

4. Health Outcome Data:
- Sources: Public health records, hospitals, clinics, government health agencies.
- Methods: Obtain data on health outcomes relevant to the campaign's objectives, such as vaccination records, disease incidence rates, and relevant health statistics.

5. Media Monitoring:
- Sources: Media monitoring tools and services.
- Methods: Monitor traditional media channels (TV, radio, newspapers) for mentions of the campaign and gather data on reach and sentiment.

6. Digital Analytics Integration:
- Use code (e.g., Python) to integrate and preprocess data from various sources, ensuring data consistency and accuracy.

7. Data Privacy Considerations:

- Ensure compliance with data privacy regulations (e.g., GDPR, HIPAA) when collecting and handling personal health-related data.

2) Visualization Strategy:

1. Define Our Dashboard and Report Objectives:
   - We'll start by clearly defining the objectives of our dashboards and reports. What insights do we want to convey to our audience, such as campaign performance, audience demographics, or geographic impact?

2. Prepare Our Data:
   - We'll ensure that our data is clean, organized, and stored in a format that Cognos can easily access, like a structured database.

3. Choose Relevant Visualizations:
   - We'll select appropriate chart types and visualizations based on our objectives and the nature of our data. Cognos offers various visualization options, including bar charts, line charts, maps, and more.

4. Design Our Dashboard Layout:
   - We'll plan the layout of our dashboard, thinking about how to arrange visualizations, filters, and text elements for the best clarity and user experience.

5. Connect Our Data:
   - We'll connect Cognos to our data source(s) using the available connectors for databases, spreadsheets, or web services.

6. Model Our Data:
   - We'll create data models to define how data elements relate to each other. This step is crucial for creating interactive dashboards.

7. Visualize Our Key Metrics:
   - We'll make sure to prominently display key metrics, like reach, awareness levels, and behavioral changes, using clear and visually appealing charts and graphs.

8. Incorporate Geographic Analysis:
   - We'll use maps and geographic visualizations to show the campaign's impact in different regions, utilizing Cognos' built-in mapping capabilities.

9. Implement Interactive Filters:
   - We'll add interactive filters, allowing users to explore data by adjusting parameters like date ranges, demographics, and campaign channels.

In our project, we will leverage code to enhance various aspects of the analysis. Here's how we can utilize coding to improve our analysis:

1. Data Cleaning:

We will use code to automate and improve the data cleaning process. By doing so, we ensure data quality and consistency. This involves:

- Handling Missing Data : We will write code to identify and handle missing values, either through imputation or removal, ensuring that our analysis isn't compromised due to missing information.

- Standardizing Formats : Code will be employed to standardize data formats, such as dates and currency, making it easier to work with the data.

- Removing Duplicates : We'll write code to identify and remove duplicate records or entries, preventing redundant information from skewing our results.

- Outlier Detection : Using statistical techniques and coding, we will identify and address outliers that could otherwise distort our analysis.

- Data Validation : Code will be used to validate data integrity and check that the data conforms to predefined criteria, ensuring that our analysis is based on reliable data.

2. Data Transformation:

Data transformation is crucial for preparing our data for analysis. Code will help us automate and improve this process by:

- Aggregating Data : We will use code to aggregate data, summarizing it to create meaningful insights. For instance, we can calculate daily, weekly, or monthly averages or totals for engagement metrics.

- Creating Derived Variables : Code will allow us to generate new variables based on existing data, helping us capture additional insights or compute complex metrics.

- Data Reshaping : If needed, we can reshape the data using code. For example, we can pivot tables or merge datasets to facilitate specific analysis tasks.

- Normalization : We will employ code to scale or normalize variables, ensuring that comparisons are fair, especially when dealing with data from different sources or with varying units of measurement.

- Feature Engineering : Code can be used to create new features that are relevant for analysis, such as calculating engagement rates or generating categorical variables from continuous data.

3. Statistical Analysis:

Statistical analysis forms the core of our project. We will use code to conduct various analyses, including:

- Hypothesis Testing : Code will be employed for hypothesis testing (e.g., t-tests, chi-squared tests) to determine the statistical significance of differences between groups, such as before and after the campaign.

- Regression Analysis : We'll use code to perform regression analysis (e.g., linear regression, logistic regression) to model relationships between variables and identify factors influencing campaign success.

- Time Series Analysis : Code will help us analyze temporal trends and seasonality in campaign data, enabling us to make informed decisions about timing and scheduling.

- Machine Learning : If appropriate, we can implement machine learning algorithms for predictive analysis, such as predicting audience reach or campaign impact based on historical data.

- Sentiment Analysis : Code can be used to perform sentiment analysis on comments or feedback data, allowing us to gauge public sentiment toward the campaign.

- A/B Testing : Automation through code will streamline the process of conducting A/B tests to compare the effectiveness of different campaign variations.

4. Automation:

We will use code to automate various tasks to ensure efficiency and reproducibility, including:

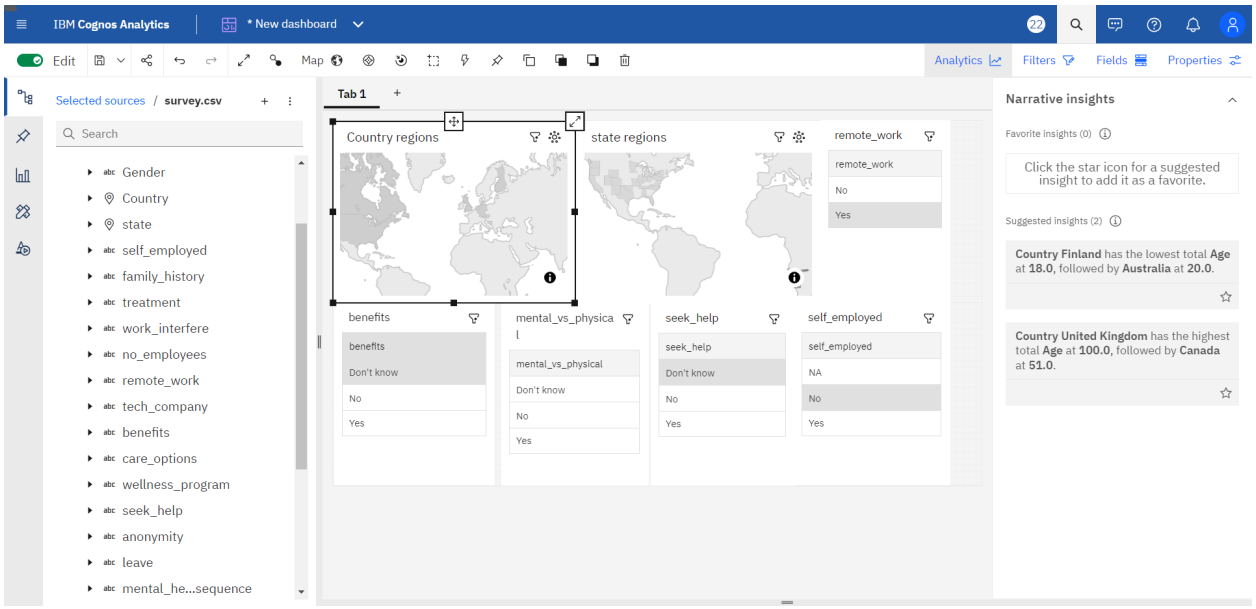
- Data Updates : Set up scripts to automatically fetch and update data from various sources on a regular basis, ensuring that our analysis remains current.

- Report Generation : Automate the creation of reports and dashboards, guaranteeing that stakeholders have access to the latest insights without manual intervention.

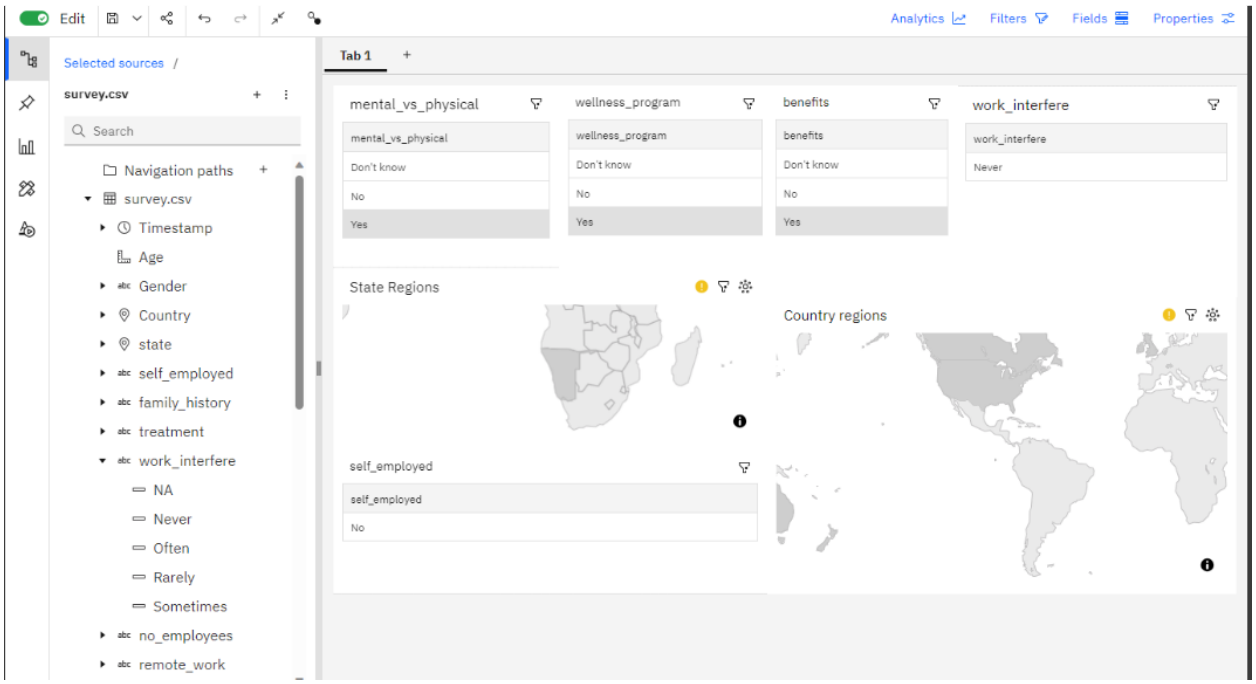
- Workflow Automation : Code will help create workflows that streamline the entire analysis process, from data collection to visualization, ensuring consistency and efficiency in our approach.

By integrating code effectively into these aspects of our analysis, we collectively enhance data quality, streamline data preparation, perform advanced statistical analysis, and automate repetitive tasks. This collaborative effort will result in more insightful and actionable results as we evaluate public health awareness campaigns and inform future strategies for greater impact.

Shivani's Dashboard:



Shyamala's Dashboard:



Shyamala’s Dashboard Analytics: