Project Title: Public Health Awareness

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Phase 1 – Project definition and Design thinking

Project definition: The project involves analyzing data from public health awareness campaigns to measure their effectiveness in reaching the target audience and increasing awareness. The objective is to provide insights that evaluate the impact of the campaigns and inform future strategies. This project includes defining analysis objectives, collecting campaign data, designing relevant visualizations in IBM Cognos, and using code for data analysis.

Project description:

1. Define Analysis Objectives:

Clearly outline the specific goals and objectives of your data analysis. What do you want to achieve through this analysis? What questions do you want to answer?

2. Data Collection:

Gather relevant data from the public health awareness campaigns you are studying. Ensure that your data sources are reliable and comprehensive.

Data set: **https://www.kaggle.com/datasets/osmi/mental-health-in-tech-survey**

3. Data Cleaning and Preprocessing:

Clean and preprocess the data to ensure its quality. This may involve handling missing

values, removing duplicates, and standardizing data formats.

4. Data Analysis:

Utilize statistical and data analysis techniques to measure the effectiveness of the campaigns. This could include analyzing metrics like reach, engagement, click-through rates, and awareness levels.

5. Code for Data Analysis:

If necessary, use programming languages like Python or R to perform in-depth data analysis. Code can help automate repetitive tasks and conduct complex analyses.

6. Design Relevant Visualizations:

Create informative visualizations using IBM Cognos to present your analysis results effectively. Visualizations like charts, graphs, and dashboards can help convey insights to stakeholders.

7. Measure Impact:

Assess the impact of the campaigns based on your analysis. Determine what worked well and what areas need improvement.

8. Inform Future Strategies:

Use the insights gained from your analysis to inform future public health awareness campaign strategies. Recommendations should be data-driven and actionable.

9. Report and Documentation:

Document your analysis process, including data sources, methods, and results, in a comprehensive report. This report will be valuable for sharing findings with stakeholders.

10. Continuous Improvement:

- Continue to monitor the effectiveness of ongoing campaigns and iterate on your analysis and strategies to adapt to changing circumstances.

Remember to involve stakeholders throughout the project to ensure that your analysis aligns with their needs and objectives. Data-driven insights can play a crucial role in optimizing public health awareness campaigns and maximizing their impact.

DESIGN THINKING

Analysis Objectives:

1. Measure the audience reach of the public health awareness campaign, including the number of impressions and unique viewers.

2. Assess the awareness levels among the target audience before and after the campaign.

3. Evaluate the campaign's impact on changing audience behavior, such as adopting healthier habits or seeking medical advice.

Data Collection:

1. Utilize web analytics tools like Google Analytics to track website visits and user engagement.

2. Conduct surveys before and after the campaign to gather data on awareness levels and changes in behavior.

3. Collect social media engagement metrics, such as likes, shares, and comments, to assess the campaign's reach on social platforms.

4. Gather demographic data from campaign participants through registration forms or social media insights.

Visualization Strategy:

1. Create interactive dashboards using IBM Cognos that display real-time metrics, including website traffic, social media engagement, and survey responses.

2. Develop visually appealing charts and graphs to present trends and patterns in campaign data.

3. Use heatmaps to show geographic variations in audience engagement and awareness levels.

4. Build reports that provide in-depth analysis and actionable recommendations for campaign optimization.

Code Integration:

1. Implement code scripts in Python or R for data cleaning and preprocessing, ensuring data consistency and accuracy.

2. Perform statistical analysis to identify significant trends and correlations in the campaign data.

3. Use code for sentiment analysis on social media comments to gauge public sentiment towards the campaign.

4. Automate data updates and report generation processes using code to streamline the analysis workflow.

5. By following these steps, you can effectively analyze public health awareness campaign data, gain valuable insights, and make data-driven decisions to improve the campaign's effectiveness.

Python code:

```
# Import necessary libraries
import pandas as pd
```

```python
import numpy as np

import matplotlib.pyplot as plt

import seaborn as sns

from sklearn import metrics

from datetime import datetime


# Load campaign data from a CSV file (example data source)

campaign_data = pd.read_csv('campaign_data.csv')


# Data Cleaning and Preprocessing

# Handle missing data

campaign_data = campaign_data.dropna()


# Convert date strings to datetime objects

campaign_data['date'] = pd.to_datetime(campaign_data['date'])


# Calculate engagement rate

campaign_data['engagement_rate'] = campaign_data['engagements'] / campaign_data['impressions']


# Data Visualization using Matplotlib and Seaborn

# Plot time series data

plt.figure(figsize=(12, 6))

sns.lineplot(x='date', y='impressions', data=campaign_data, label='Impressions')

sns.lineplot(x='date', y='engagements', data=campaign_data, label='Engagements')

plt.title('Campaign Impressions and Engagements Over Time')
```

```python
plt.xlabel('Date')

plt.ylabel('Count')

plt.legend()

plt.show()


# Calculate and display summary statistics

summary_stats = campaign_data.describe()


# Statistical Analysis

# Perform t-tests or other statistical tests to measure campaign impact


# Machine Learning Models (if applicable)

# Train predictive models to forecast campaign performance or audience behavior


# Export results to a report or dashboard

summary_stats.to_csv('summary_statistics.csv', index=False)


# Code for IBM Cognos integration (if applicable)

# Export data to a format compatible with IBM Cognos

# Use Cognos tools to create informative dashboards and reports


# Code for survey data analysis (if applicable)

# Load and analyze survey data to measure changes in awareness levels


# Additional code for specific analysis objectives
```

```
# Code documentation and comments

# Document your code thoroughly to explain the steps and calculations




# Code for automation (if necessary)

# If you have recurring data updates, schedule scripts to run periodically
```