1.3 – DESIGNING A DATA RESEARCH PROJECT

PROJECT MANAGEMENT PLAN: PREPARING FOR INFLUENZA SEASON

STAKEHOLDER COMMUNICATION

MEETINGS (WITH ALL STAKEHOLDERS, VIRTUAL OR IN PERSON)

- At the start of the project, a meeting will be held with all relevant stakeholders. This meeting will go over the business requirements. This meeting will allow all stakeholders to ask any questions or obtain clarification on the goal of the project.
- At week 5, a meeting will be held to go over the interim report.
- At week 10, a video presentation will be provided regarding the results of the analysis.

CALLS:

- Calls will be conducted weekly with key stakeholders on the status of the project and answer/ask any questions that there may be.

WRITTEN COMMUNICATION:

- Starting on week three, weekly emails and newsletters will be sent out to respective stakeholders on the project progress.

EMERGENCY CONTIGENCY PLAN

- Any urgent issues are communicated via email with a follow-up call scheduled within 48 hours.

SCHEDULE AND MILESTONES

WEEK 1:

Starting with Requirements

- Create a list of the data questions you need to answer for your analysis

Designing a Data Research Project

- Design your data research project
- Formulate a research project

WEEK 2:

Sourcing the Right Data

- Describe the data sets you have access to for your project
- Explain the relevance and limitations of each data set to your project

Data Profiling & Integrity

- Create a data profile for each of the data sets in your analysis
- Include information on data types, data integrity issues (accuracy and consistency), any cleaning you conducted, as well as summary statistics in each profile

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WEEK 3:

Data Quality Measures

- Implement additional data quality measures to your data profiles related to completeness, uniqueness, and timeliness

Data Transformation & Integration

- Integrate data from two sources into one cohesive data set using data transformations

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WEEK 4:

Conducting Statistical Analyses

- Calculate the variance and standard deviation for key variables
- Identify variables with a potential relationship and test for a correlation

Statistical Hypothesis Testing

- Formulate a statistical hypothesis regarding an outcome of interest around two groups in your data
- Conduct hypothesis testing and interpret the results

WEEK 5:

Consolidating Analytical Insights

- Create an interim report consolidating the findings of your analysis

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WEEK 6:

Intro to Data Visualization

- Explain how data visualizations can be used in your project
- Install Tableau

Visual Design Basics & Tableau

- Create a data visualization design checklist
- Explain how the visualizations in a given example can be improved
- Connect your project data to Tableau

WEEK 7:

Composition & Comparison Charts

- Create a pie, bar, or column chart, as well as a treemap in Tableau
- Use your visualization design checklist to design your chart

Temporal Visualizations & Forecasting

- Create a time forecast for a variable and display it in Tableau
- Use your visualization design checklist to design your chart

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WEEK 8:

Statistical Visualizations: Histograms & Box Plots

- Create visualizations that look at the distribution of a variable
- Use your visualization design checklist to design your charts

Statistical Visualizations: Scatter Plots & Bubble Charts

- Create visualizations that look at the correlation between variables
- Use your visualization design checklist to design your chart

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WEEK 9:

Spatial Analysis

- Map a variable and justify your spatial visualization choice (heat, density, or choropleth)
- Use your visualization design checklist to design your chart

Textual Analysis

- Create a word cloud using qualitative data
- Use your visualization design checklist to design your chart.

WEEK 10:

Storytelling with Data Presentations

- Create a narrative to communicate your research findings and insights in relation to your research goals
- Publish your analysis as a Tableau Storyboard

Presenting Findings to Stakeholders

- Record a video presentation for your stakeholders

PROJECT DELIVERABLES

- During week 5, an interim report will be presented to all stakeholders.
- At the end of week 10, a video presentation will be presented to all stakeholders regarding the results of the analysis.

AUDIENCE DEFINITION

- Medical agency frontline staff (nurses, physician assistants, and doctors)
- Hospitals and clinics using the staffing agency's services
- Influenza patients
- Staffing agency administrators

CONTEXT

WHEN IS FLU SEASON?

- According to the CDC, flu viruses typically circulate during the fall and winter, which is considered flu season. Flu activity often begins to increase in October, and it typically peaks between December and February, although it can last as late as May. Due to the COVID pandemic, the timing and duration of flu activity has been less predictable.

WHICH STATES HAVE THE HIGHEST AMOUNT OF INFLUENZA DEATHS?

- According to the CDC, in 2020, the top 5 states with the highest influenza/pneumonia deaths was California (6,062), New York (4,756), Texas (2,541), Florida (3,191), and Illinois (2,428).
- If we look at the death rates per 100,000 total population, the top 5 states are Mississippi (25.1), Tennessee (18.5), New York (18.2), Arkansas (18.1), and West Virginia (17.9)

WHICH STATES HAVE THE MOST RESIDENTS IN VULNERABLE POPULATIONS?

Adults 65+

- According to the Population Reference Bureau (PRB) the top 5 states with the highest population of adults 65+ (in thousands) is California (5,976), Florida (4,638), Texas (3,874), New York (3,370), and Pennsylvania (2,448).
- If we look at the percentage based on the state's population, the top 5 is Maine (21.8%), Florida (21.3%), West Virginia (20.9%), Vermont (20.6%), and Delaware (20.0%).

Children under 5

- According to the Children's Defense Fund, the top 5 states with the highest population of children under 5 is California (2,441,300), Texas (2,024,126), Florida (1,143,183), New York (1,140,442), and Illinois (760,619).

WHAT IS THE FLU-SHOT RATES FOR EACH STATE?

- According to the CDC, the during the 2020-21 flu season, the vaccination rate for children 6 months to 17 years was 58.6% and the vaccination for adults greater than 18 was 50.2%. Half of the total U.S population (52.1%) greater than 6 months was vaccinated during the 2020-21 flu season.

- Kaiser Family Foundation (KFF) has the flu shot rates for each state and could be utilized for this project.

HYPOTHESIS

- If a person is older than 65, then they are at a higher risk of influenza mortality.
- If a person received an influenza shot, then they are less likely to develop serious complications.
- If a state has a high vulnerable population, then medical facilities are at risk of an overwhelming amount of flu-related issues.

DATA WISHLIST

- Vulnerable population counts by state
- Flu shot rates by state
- Flu-related hospitalizations by state
- Flu-related deaths by state
- Hospital staffing by state