

**PREPARING & ANALYSING DATA:
1.3 DESIGNING A DATA RESEARCH PROJECT**

**PROJECT MANAGEMENT PLAN
By UIJIN HWANG**

1. STAKEHOLDERS:

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

2. STAKEHOLDER COMMUNICATION

- **MEETINGS:** An initial meeting will be held with stakeholder representatives to discuss and define the project plan, deliverables, schedule, outcomes, etc.
- **CALLS:** A by-weekly call will be held to update stakeholders on project progress, to address any questions or problems arising from the weekly email updates.
- **EMAILS:** Emails will be sent weekly to all stakeholders to update project progress.
- **CONTINGENCY:** In the case of an emergency, an email will be sent out to all stakeholders notifying them of the problem and to schedule a time to have a call or meeting to gather more data and/or find a solution.

3. SCHEDULE & MILESTONES

WEEK 1- STARTING WITH REQUIREMENTS

- State problem and create questions for your analysis

WEEK 2- DESIGNING A DATA RESEARCH PROJECT DATA

- Design data research project
- Collect relevant data
- Formulate a hypothesis

WEEK 3- DATA PROFILING AND INTEGRITY

- Create a data profile for the datasets in your analysis
- Explain the relevance and limitations of each dataset to your project
- Explain any data integrity issues, any cleaning that was conducted and summary statistics for each profile

WEEK 4- DATA QUALITY MEASURES, TRANSFORMATION AND INTEGRATION

- Implement additional data quality measures to your data profiles related to completeness, uniqueness and timeliness
- Integrate data from different sources into one cohesive dataset using data transformations

WEEK 5- CONDUCT STATISTICAL ANALYSIS AND STATISTICAL HYPOTHESIS TESTING

- Calculate the variance and standard deviation for key variables
- Identify variables with a potential relationship and test for a correlation.
- Formulate a statistical hypothesis regarding an outcome of interest around groups in the data
- Conduct the hypothesis testing and interpret the results

WEEK 6- CONSOLIDATING ANALYTICAL INSIGHTS (DELIVERABLE)

- Create and interim report consolidating the findings of the analysis

WEEK 7- INTRO TO DATA VISUALIZATION, VISUAL DESIGN BASICS AND TABLEAU

- Explain how data visualizations can be used in the project
- Create a data visualization checklist
- Explain how visualizations can be improved
- Connect project data to Tableau

WEEK 8- COMPOSITION AND COMPARISON CHARTS, TEMPORAL VISUALIZATIONS & FORECASTING

- Create a pie, bar or column chart as well as a tree map in tableau
- Use your visualization design checklist to design your charts
- Create a time forecast for a variable and display it in Tableau
- Use your visualization design checklist to design your charts

WEEK 9- STATISTICAL VISUALISATIONS: HISTOGRAMS & BOX PLOTS, STATISTICAL VISUALISATIONS: SCATTER PLOTS & BUBBLE CHARTS

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

WEEK 10- SPATIAL AND TEXTUAL ANALYSIS

- Map a variable and justify the spatial visualization choice
- Use visual design checklist to design a chart
- Create a word cloud using qualitative data and use the visual design checklist to design a chart

WEEK 11- STORYTELLING WITH DATA PRESENTATIONS AND PRESENT FINDINGS TO STAKEHOLDERS (DELIVERABLE)

- Create a narrative to communicate your research findings and insights in relation to your research goals
- Publish your analysis as a Tableau Storyboard
- Record a video presentation for stakeholders

4. CONTEXT

- When is flu season?
Flu season tends to fall in the fall & winter months – generally October to March.
However, this varies by state, and tends to be dependent on the climate.
- Which populations are most at-risk for the flu?
 - 1) Children aged between 6 months to 5 years
 - 2) Adults 65 and older
 - 3) Individuals with chronic medical conditions
 - 4) Women during pregnancy
 - 5) Health-care workers.
- What are the best prevention methods avoiding the flu?
 - 1) Influenza vaccine
 - 2) Avoid sick people
 - 3) Practice personal hygiene
- Which states have the highest and lowest rate of flu vaccination?
When it comes to states with the highest vaccination rates, New England states top the 2020-21 list — Massachusetts (66.5%), Rhode Island (66.4%), Connecticut (62.3%), New Hampshire (60.7%) and Vermont (59.9%)
On the flip side, Southern states have the lowest flu vaccination rates in the U.S. Florida (41.7%) and Mississippi (42.1%) are at the bottom.
- Which states have the highest and lowest number of vulnerable populations?

5. HYPOTHESES

- If more people aged 65 and older receive the flu vaccination, then the mortality rate will be lower than previous years.
- If states with a higher proportion of vulnerable populations, then the mortality rate will be lower than previous years.
- If more younger and middle aged people receive the flu vaccination, then the virus will spread less, which might lower the mortality rate, comparing to previous years.

6. DATA WISHLIST

- Flu mortality rates per state, broken down by age group
- Vaccination rates per state, broken down by age group
- Proportions of hospitalization due to flu related illnesses per state
- Current hospital and clinic staffing levels per state