

Project 4 Proposal – Group 12

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1. Introduction

Why do you want to explore this as a group?

We decided to work on heart attack prediction using machine learning and Tableau because of the growing need for accurate and data-driven healthcare solutions. Machine learning allows us to analyze complex clinical and demographic data, uncovering patterns that can improve early prediction and intervention for heart attack risks. By integrating this with Tableau, we can create intuitive and interactive visualizations that make the insights from machine learning models accessible to healthcare providers and decision-makers. This combination offers a powerful approach to enhancing heart disease prevention, ultimately improving patient outcomes.

Dataset:

1. heart_2022_no_nans :
<https://www.kaggle.com/code/alibinkashif/heart-disease-indicators-eda/input?select=2022>
2. heart_2020_cleaned
<https://www.kaggle.com/code/alibinkashif/heart-disease-indicators-eda/input?select=2020>
3. US_GeoCode.csv: <https://simplemaps.com/data/us-zips>
4. world_country_and_usa_states_latitude_and_longitude_values.csv :
add Guam and Virgin islands:
<https://www.kaggle.com/datasets/paultimothymooney/latitude-and-longitude-for-every-country-and-state>

2. Tools:

- HTML
- JAVA

- Tableau
- Machine Learning

3. High Level Questions (What are you going to predict?)

- What factors indicate the highest likelihood for heart disease
- Can we use a machine learning model to accurately predict based on health factors whether someone has or is likely to get heart disease
- What are the key demographic factors (age, gender, ethnicity) that significantly influence heart attack risk?
- How do lifestyle factors (smoking, physical activity, diet) and medical history (diabetes, hypertension) correlate with heart attack occurrences in different demographic groups?

4. Inspiration

Tableau Public examples

- <https://public.tableau.com/app/search/vizzes/heart%20attack>
- <https://public.tableau.com/app/profile/adrian.tan2691/viz/HeartAttackDistributions/Demographics>
- <https://www.quantizeanalytics.co.uk/tableau-healthcare-dashboard-examples/>

Recommend code tab on Kaggle datasets

- <https://www.analyticsvidhya.com/blog/2022/06/machine-learning-for-heart-disease-prediction/>
- <https://www.analyticsvidhya.com/blog/2022/02/heart-disease-prediction-using-machine-learning-2/>

- f) <https://www.analyticsvidhya.com/blog/2022/02/heart-disease-prediction-using-machine-learning/>
- g) https://github.com/g-shreekant/Heart-Disease-Prediction-using-Machine-Learning/blob/master/Heart_disease_prediction.ipynb
- h) <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10378171/>

5. Visuals

- HTML:
 - a. Sunburst Chart
 - b. Map
 - c. Line Chart
 - d. Bar Chart

Tableau:

- a. Map
- b. Pie chart
- c. Horizontal bar
- d. Packed bubbles
- e. Dual combination.

6. Colors - Autumn

- a. Orange
- b. Red
- c. Brown

7. Roles and Responsibilities

- a. HTML,: Stephen Ferrier
- b. JAVA
- c. Tableau
 - i. 1 tableau: Sam Hoeman
 - ii. 2 tableau: Isbelis Castro
- d. Machine Learning: Gavin Plemon

8. Github link

<https://github.com/Isbelis/Heart-Attack-Challenge/tree/main/Resources>