

Smart Healthcare App

Empowering patients.
Protecting Lives.



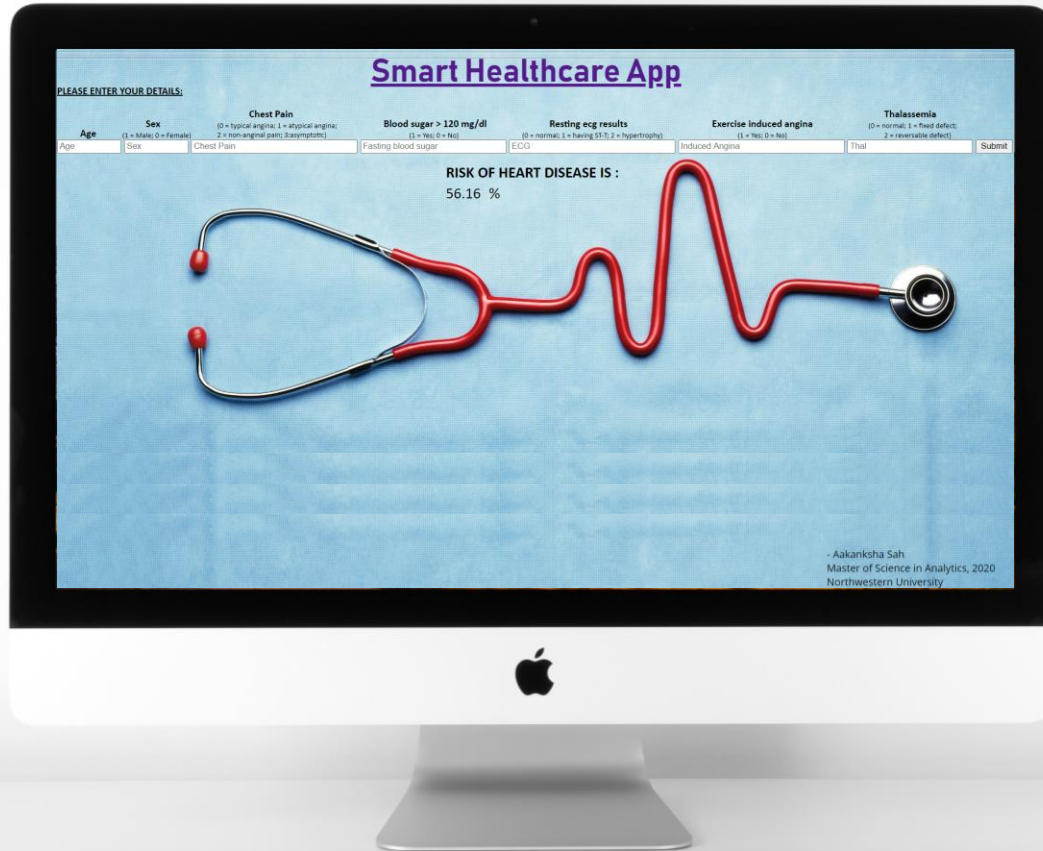
Developer: Aakanksha Sah
QA: Jing Ren

MOTIVATION

- As businesses are moving to digital across industries, the healthcare vertical is slowly playing catch-up
- People have started expecting service to reach their doorstep
- There is a latent demand for receiving non-emergency medical care from home, especially in times of the COVID-19 pandemic

VALUE CREATION & VISION

- The Smart Healthcare App will improve the lives and well-being of people by predicting their risk of potential disease conditions, from the comfort of their homes



SUCCESS CRITERIA FOR BUSINESS

- **User downloads:** In the first month, the app should see a minimum of at least 1000 user downloads and a user-base growth of ~1% for the next 3 months. (Numbers decided based on the download patterns of similar apps in the market)
- **Monthly Usage:** For the users who have downloaded the app, monthly usage should be ~2000 visits (Roughly, 2 visits per user per month)

ATTRIBUTES

DEMOGRAPHICS

Age
Sex

MEDICAL CHARACTERISTICS

- Chest pain type (4 values)
- Resting blood pressure
- Serum cholestoral in mg/dl
- Fasting blood sugar > 120 mg/dl
- Resting electrocardiographic results (values 0,1,2)
- Maximum heart rate achieved
- Exercise induced angina
- Oldpeak = ST depression induced by exercise relative to rest
- The slope of the peak exercise ST segment
- Number of major vessels (0-3) colored by fluoroscopy
- Thal: 3 = normal; 6 = fixed defect; 7 = reversable defect

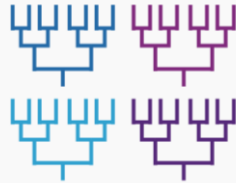
CALL-OUTS

- Sourced from Kaggle
- 16,473 rows
- Cleveland hospital database

Link to dataset: <https://www.kaggle.com/ronitf/heart-disease-uci>

MODEL
FEATURES

Random forests



70%

30%

Training-Data

Test-Data

SUCCESS
CRITERIA FOR
MODEL

- As the response variable (diagnosis) is categorical in nature, the measure for evaluating model performance would be correct classification rate (CCR). As this is real-world data and the symptom-disease relationship can be quite fuzzy, the target rate is CCR (70%)

MODEL
PERFORMANCE

ROC-AUC

88.3%

Accuracy(CCR)

75.8%

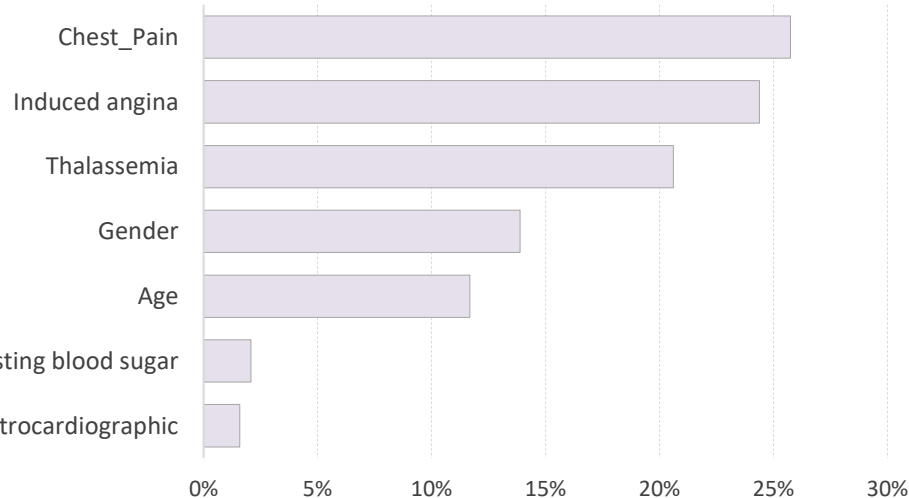
F1 Score

78%

1 INSIGHT#1

Chest pain and exercise induced angina are the most important attributes in predicting the risk of heart disease

Attribute Importance



2 INSIGHT#2

Generally people believe that anginal pains are most common in cases of heart disease, but the dataset revealed that the proportion of heart diseases is highest in cases of non-anginal pains

Chest pain type	Percentage of heart diseases
Typical Angina	23.6%
Atypical Angina	24.8%
Non-anginal pain	41.8%
Asymptomatic	9.7%

Thank You!

aakankshasah2020@u.northwestern.edu

