



Evaluating Risk for CHD

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What ? – The broader and specific goals of the project.

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Specific Goals:

Get money to build a more sophisticated model and app.

Develop a model that evaluates the heart health and its risk to CHD.

What ? – The broader and specific goals of the project.



Specific Goals:

Demo our model that evaluates the heart health and its risk to CHD.

Broader Goals:

Facilitate eradication of CHD.

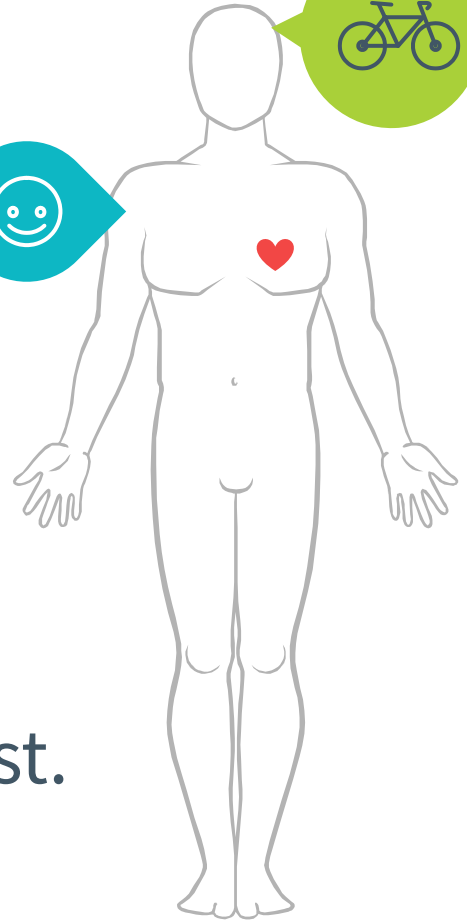
Build a template to tackle similar health issues.

Why ?



Eradicate CHD

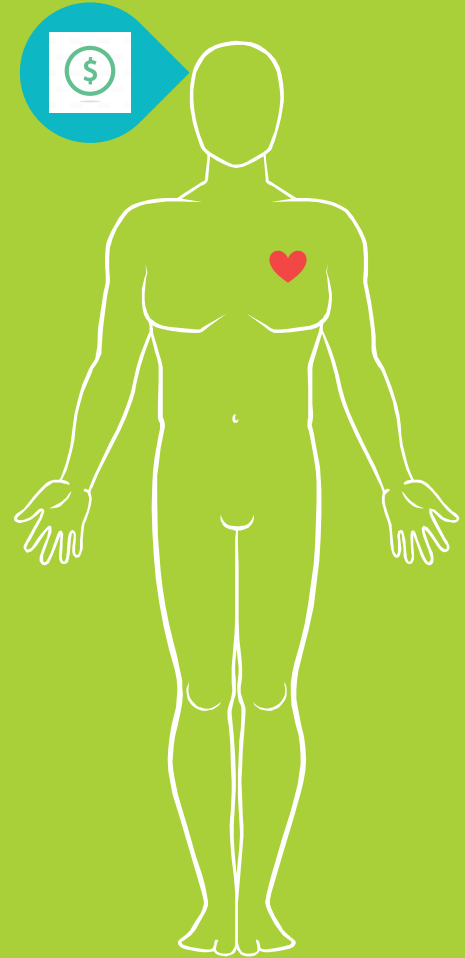
- Cut unnecessary hospital visits.
- Save money - reduce medical cost.



\$ 236 Billion
2024

\$ 12.4 Billion
2018

~ 50 Apps
Google play store



4 How ? - Data - Modeling steps

Can it be done ?

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Data:

Framingham Heart Data

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Can it be done ?

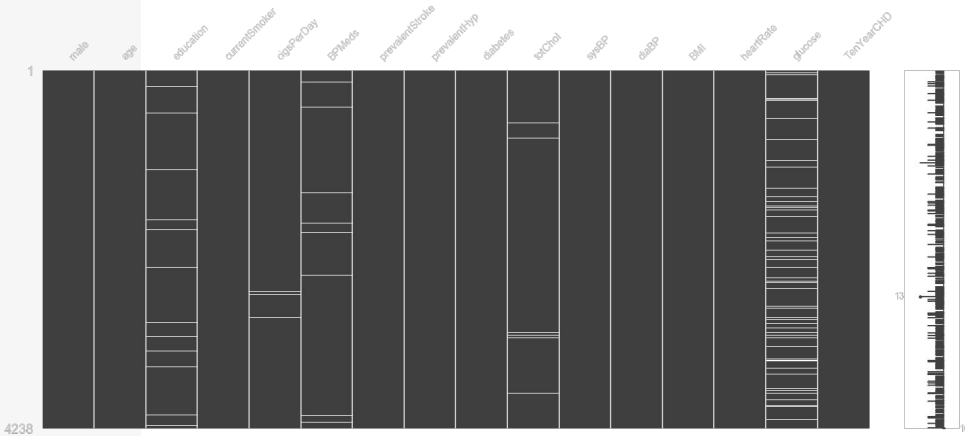
Data:

Framingham Heart Data

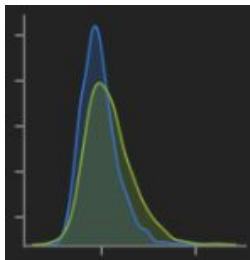
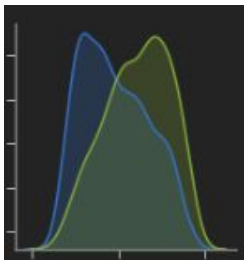
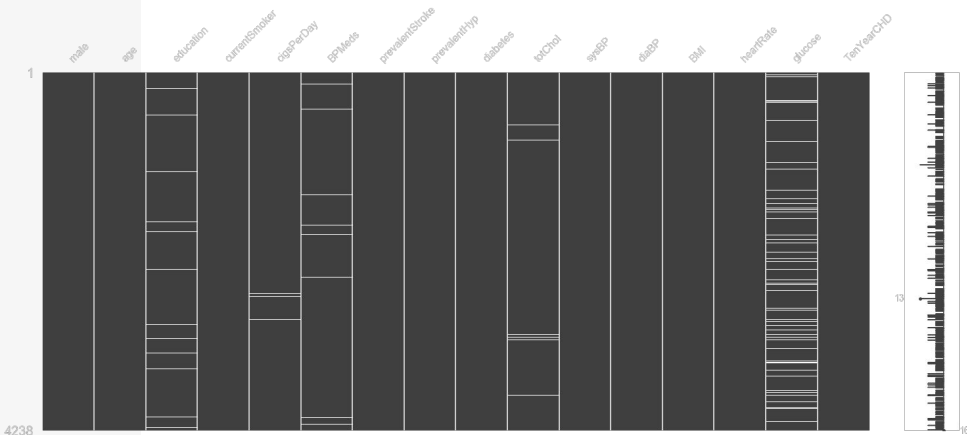
Steps:

1. EDA
2. Oversampling on training data
3. Choosing Metric - F1-score
4. Fit on vanilla Models
5. Feature Engineering
6. Ensemble models tested
7. Tuning for hyperparameters
 - a. Used GridSearchCV on LogR and RF
 - b. **Train - Validate - Test** Model adopted

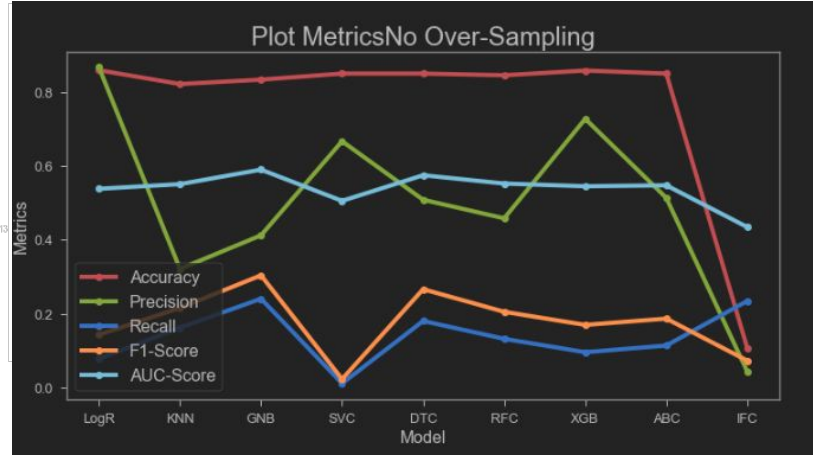
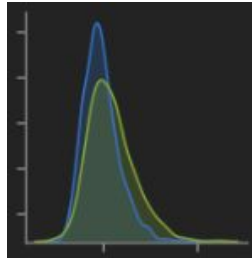
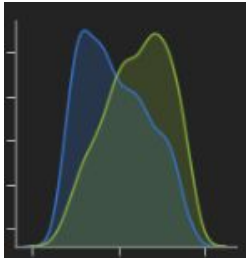
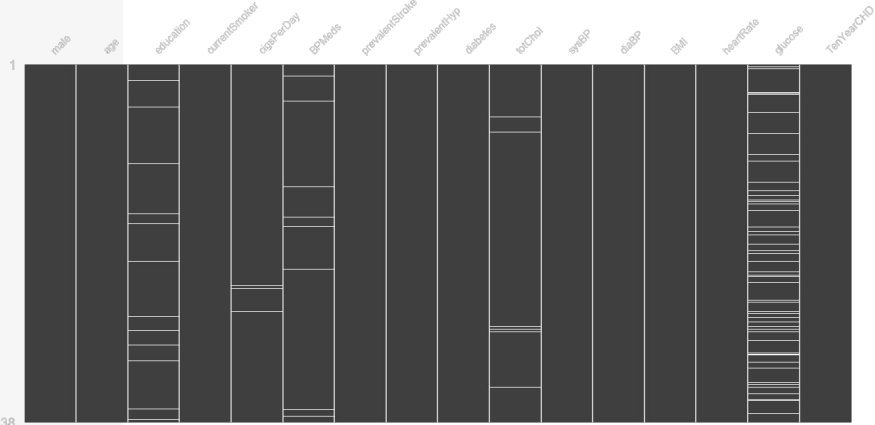
5 EDA + Model Comparison



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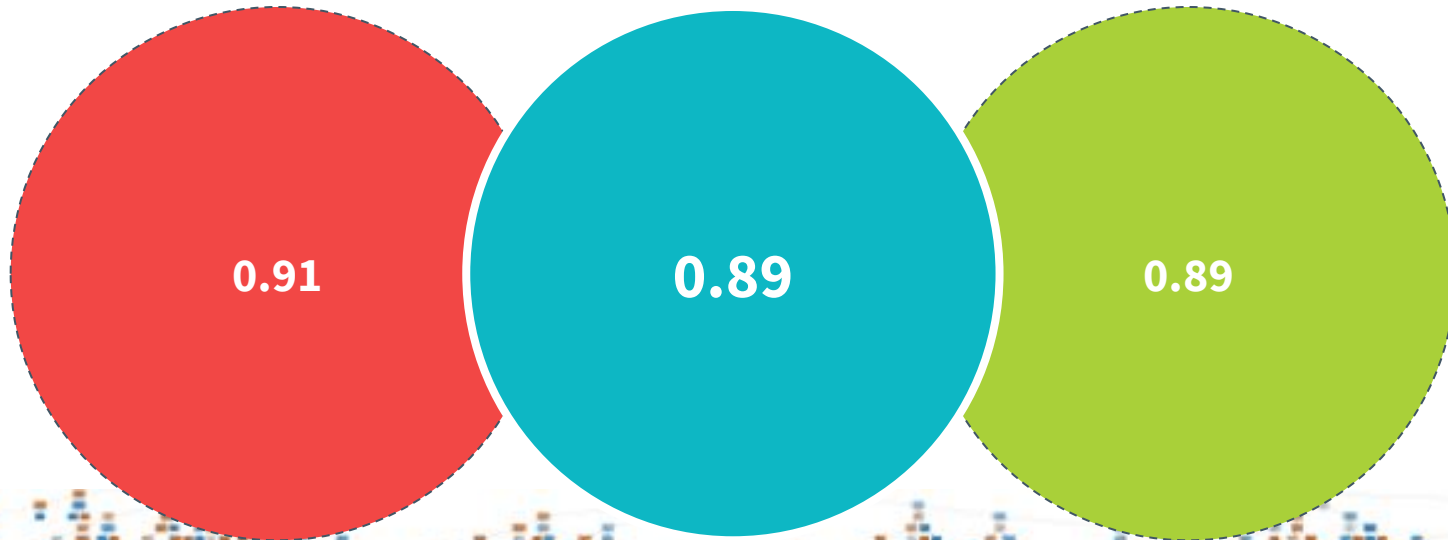
5 EDA + Model Comparison



RF Model Results - Model Metrics

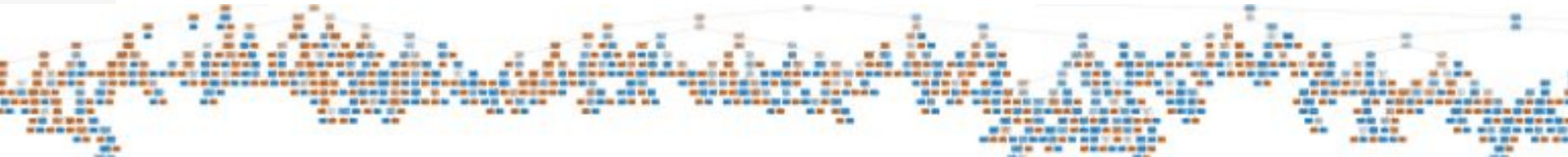
Precision - Accuracy - Recall

F1-Score: 0.89

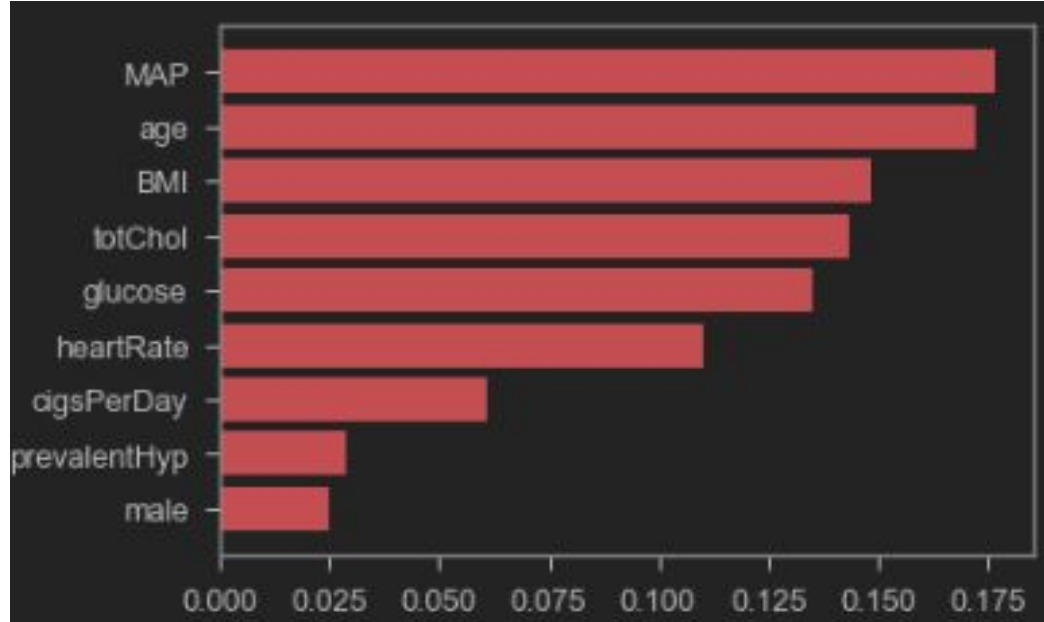


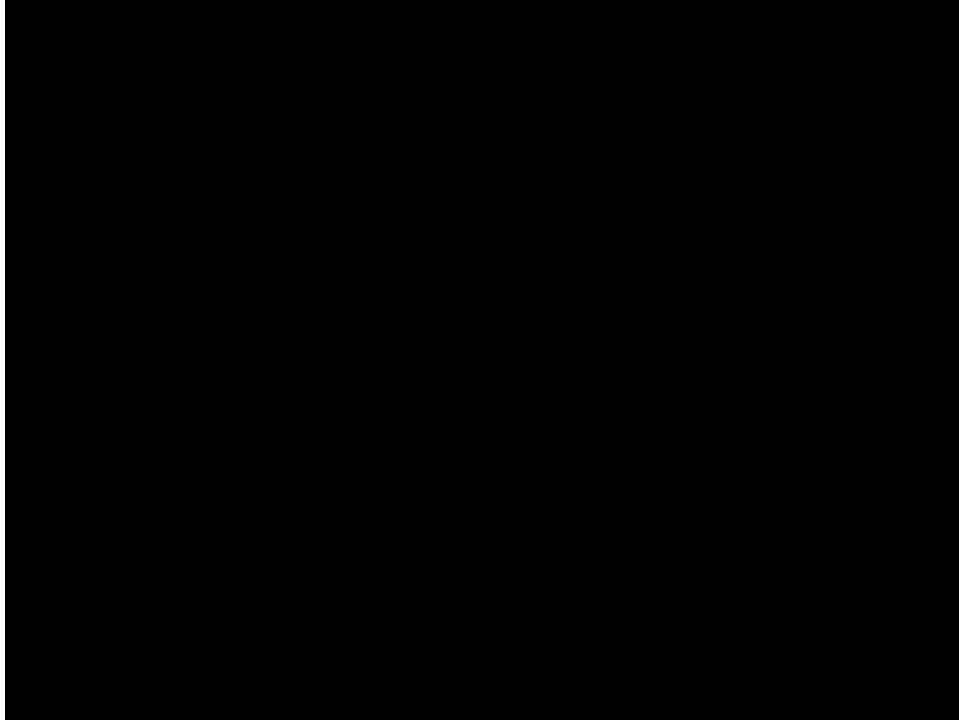
493 %

Increase in F1-Score, compared to the dummy classifier model (0.16).



RF Model Results - Major Parameters





Thank You

Questions ?

What ? – The broader and specific goals of the project.

For the client:

Cost of healthcare is extremely high in the USA - Reduce the medical cost for customers, by avoiding unnecessary medical visits.

Eradicate CHD.

For us:

Potential to tap into the lucrative health industry.

Specific Goal:

Make model app that will predict the health of the heart and any potential heart event.