Heart Health

A Kaggle based project

Spring 2016

Team members

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&
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&
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&
Ruojin Cao — Website development

Description & Process

by: Yida

Main Goal

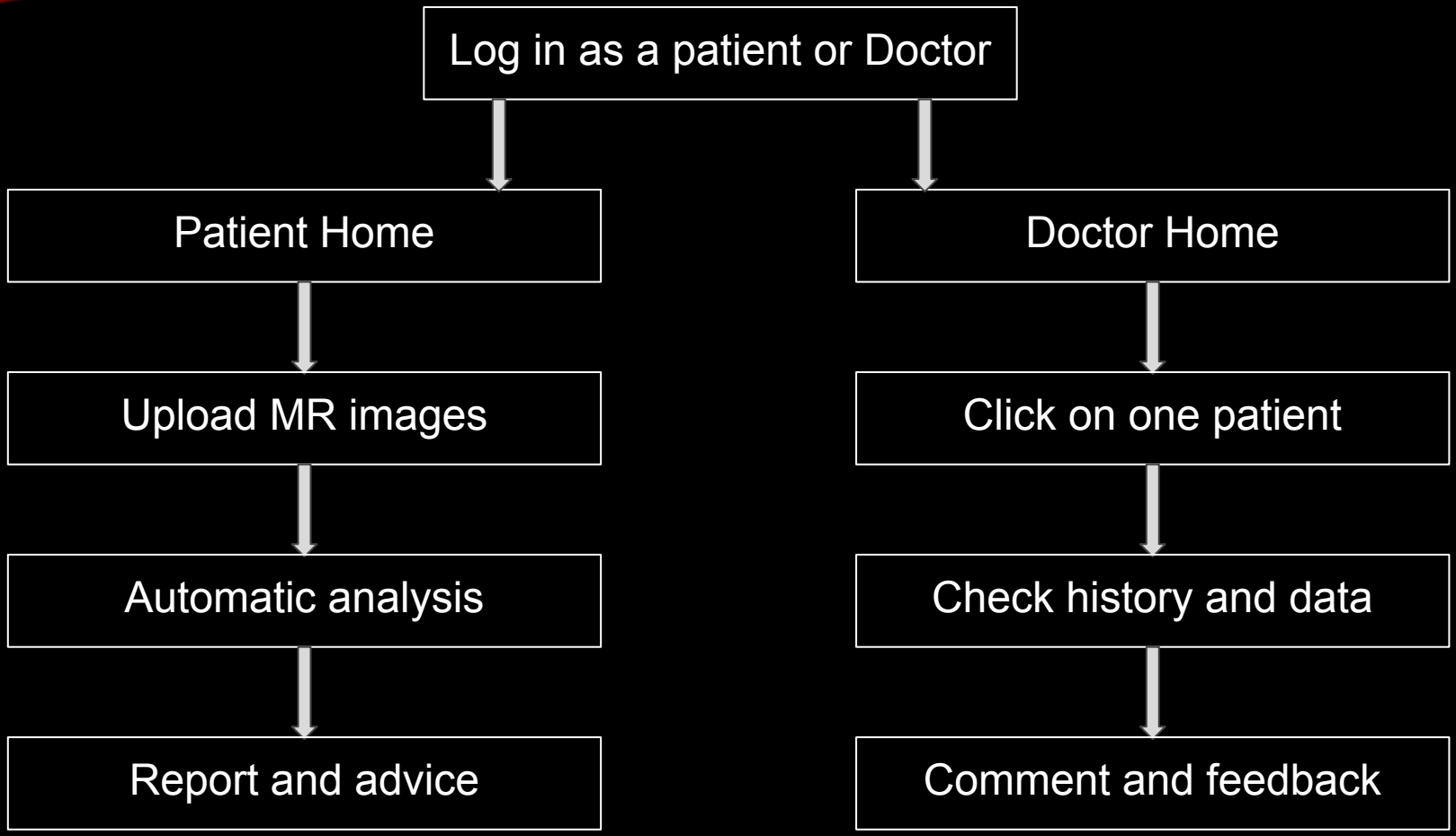
Heart Beat sample:

https://kaggle2.blob.core.windows.net/competitions/kaggle/4729/media/heartbeat_cropped.mp4

What we want to achieve:

- Accomplish an algorithm detecting the features in MR images of hearts.
- A machine learning algorithm to analyze new data based on the training set from Kaggle.
- A website where patient could upload their disease record to get a report based on the medical data provided
- Doctor could check their patients status in the system.

Workflow


Log in as a patient or Doctor
Patient Home
Upload MR images
Automatic analysis
Report and advice
Doctor Home
Click on one patient
Check history and data
Comment and feedback

Challenges:

- Collect image features
- Data mining methods
- Organizing database

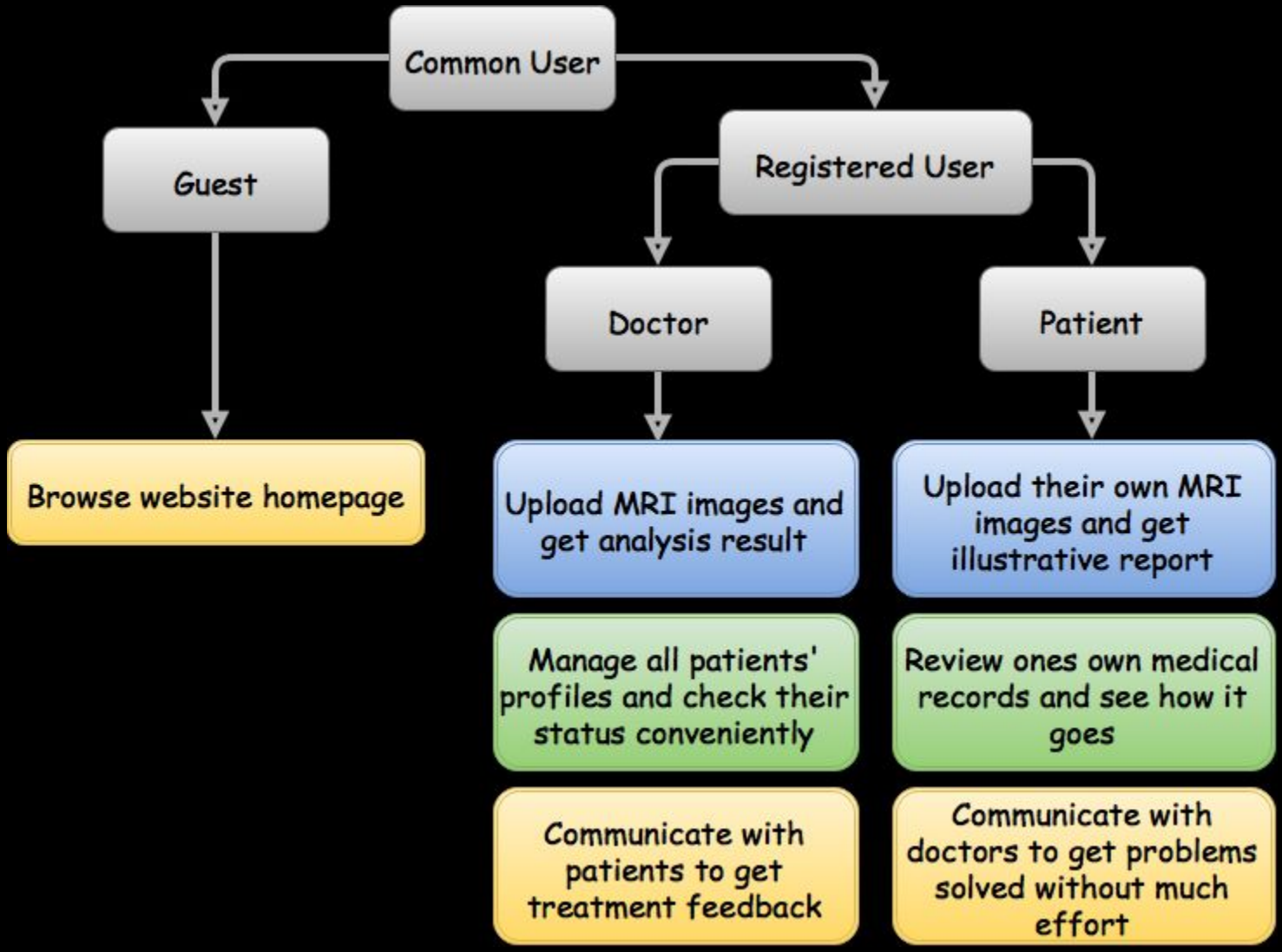
Accomplishments:

- Set up AWS
- Build up website stereotype
- Grasp the knowledge for MR image processing using python

Use Cases

by: Yixuan

Usability

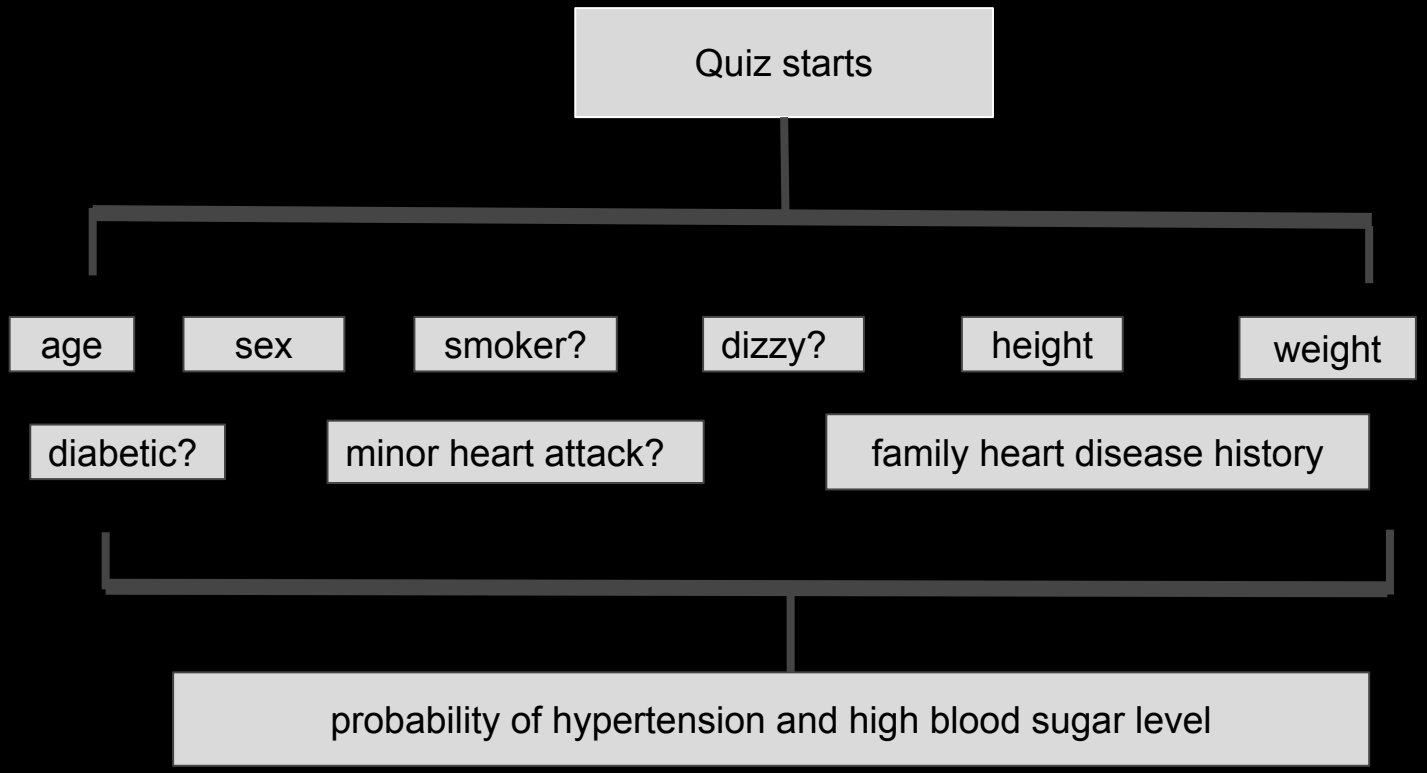

Common User
Guest
Registered User
Doctor
Patient
Browse website homepage
Upload MRI images and get analysis result
Upload their own MRI images and get illustrative report
Manage all patients' profiles and check their status conveniently
Review ones own medical records and see how it goes
Communicate with patients to get treatment feedback
Communicate with doctors to get problems solved without much effort

Data Mining

by: Ganyu

Appetizer

using big data set of patients and supervised learning to predict two of the most common factors causing heart disease



Now is the big fish!

using machine learning algorithm to detect heart disease from MRI images

1. Feature Extraction from MRI image.

2. Design data learning algorithm to train feature datas which is suitable for valued label.

3. Tradeoff between machine learning algorithm accuracy and image feature accuracy to best fits testing label

Development

by: Shuo

Develop Tools

Could Platform: 

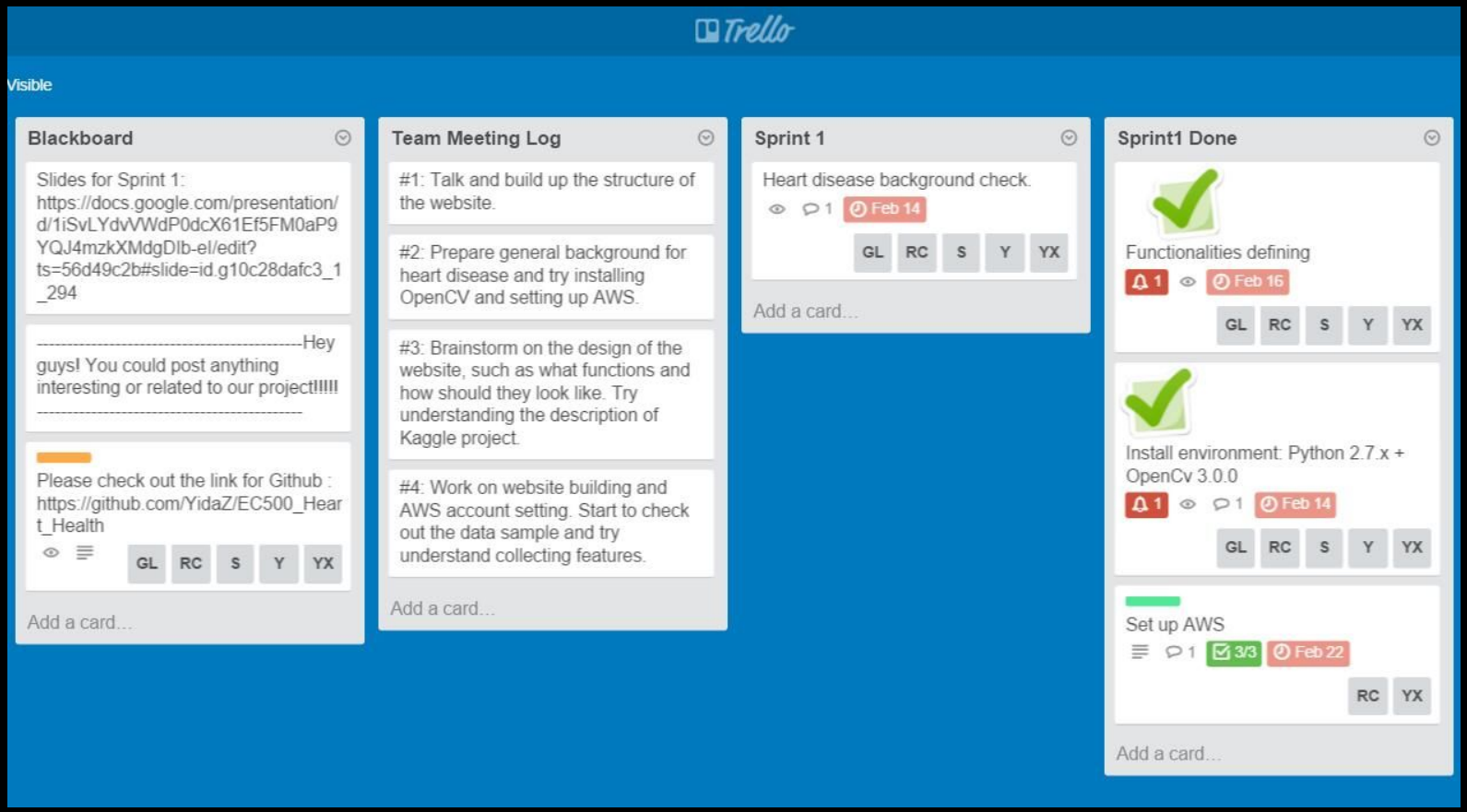
Web Design: 

Image Detection: 

Trello Board

Trello Board:

https://trello.com/b/ktE47DHw/heart-health



Demo

http://52.36.104.200/heart/index.html

by: Ruojin

Thank you!