E.C.H.O.

(Economic Choice Hospital Operator)

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Purpose

- Purpose
  - Figure out the injury
  - Find the best hospital for you
    - Price for injury
    - Distance
- Aim to learn from data:
  - Where the cheapest

    hospitals are on average?

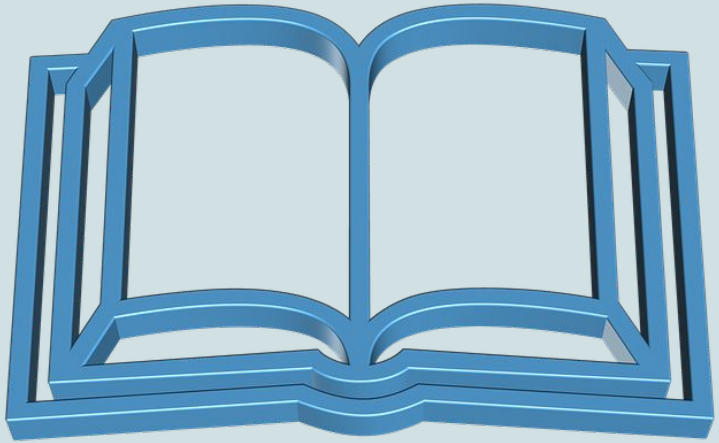
Goals

- Website
  - + Determine injury type
  - + Determine injury price
  - + Find hospital
    - > Single Search
    - > Multiple Search
      - - Calculate optimal option
    - > Show Comparisons

The database

The key attributes for the hospital are

- **Name**
- **I.D** (unique identifier)
- **Address** *street, city, state, zip* (multi-valued)
- **Average covered charges**
- **Average total payments**
- **Average medicare payments**
- **Diagnosis Related Group**



DRG

- DRG (Diagnostic Related Group)
  - +classification system
  - +divides possible diagnoses into more than 20 major body systems
  - +subdivides them into almost 500 groups
- Guide to determining injury type using DRG

Technical Details

SQL

manage database in structured manner

HTML/CSS/Javascript

webpage development

Python

Backend

Retrieve data from the website to the database

SQL

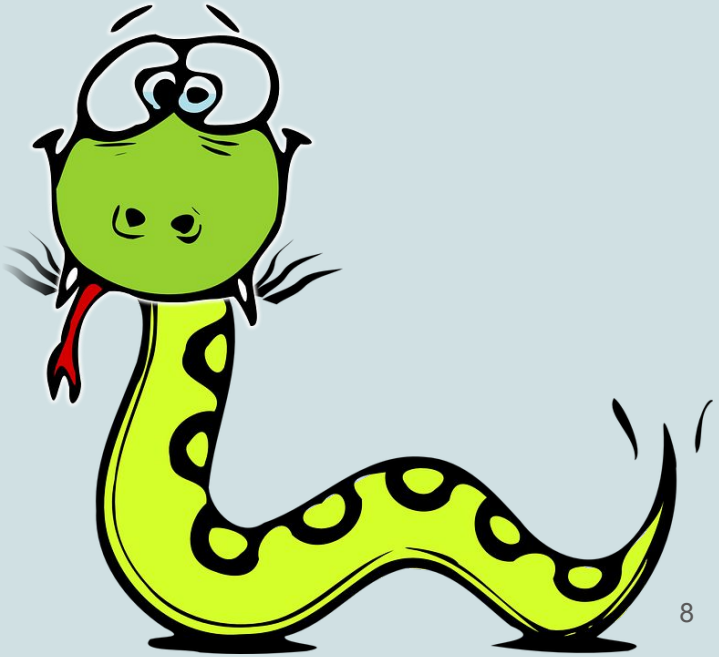
MySQL will be language used in our main database

- most used open-source relational database management system
  - can modify code
- supports user management and permissions
- less lag when used in sites with heavy traffic
- use in client-server models
  - client can access database remotely

Python

The basis for how we retrieve info from the server

- Open-source
- Most efficient with our platforms
- Raspberry Pi compatible



HTML/CSS/JS

> **webpage development**

> **Google Map API requires JS**

Efficient :

+ *Consistency*
  - change to CSS style sheet -> change to every page auto
+ *Bandwidth reduction*
  - Not all pages accessed with every visit
+ *Browser Compatibility*
  - increase website's adaptability

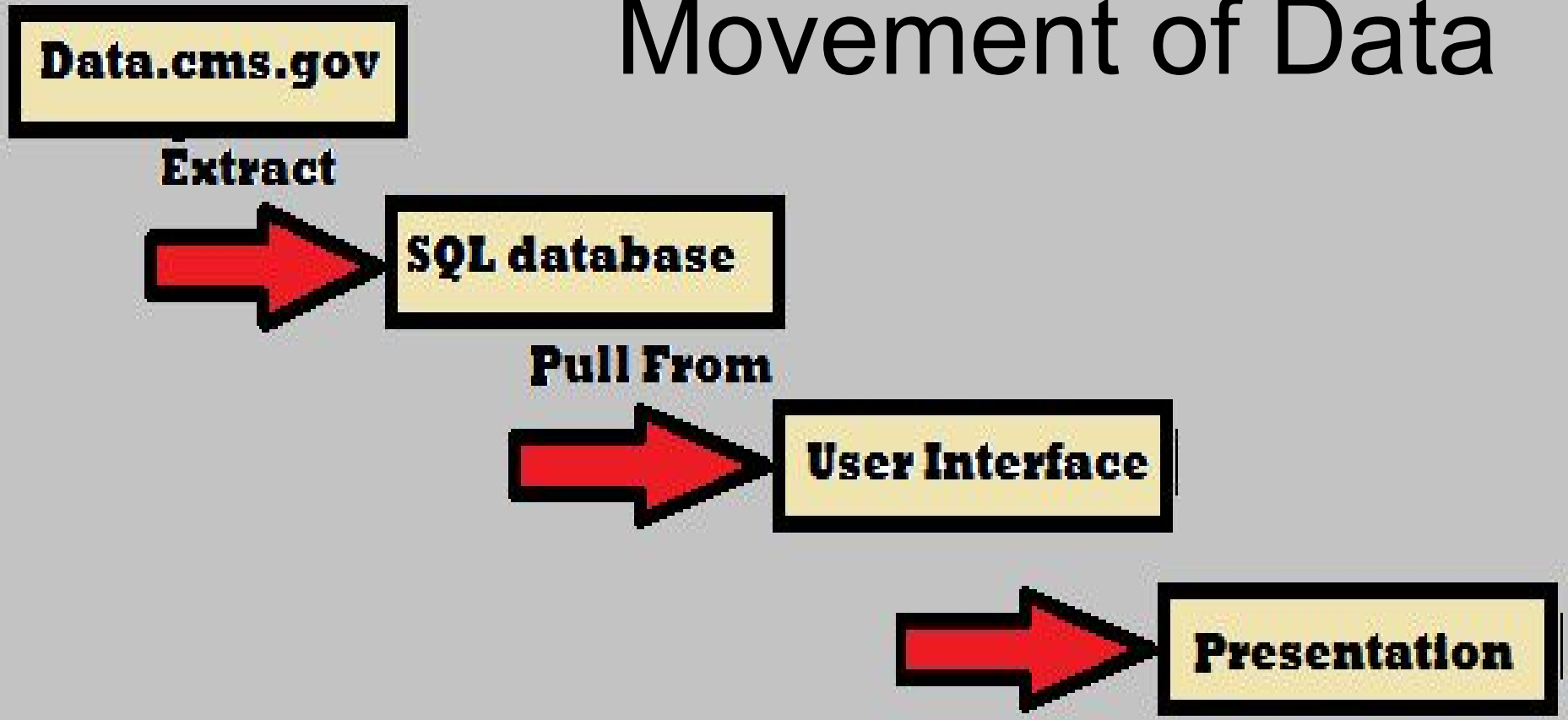
The Server

+Web server
- *program that uses HTTP (Hypertext Transfer Text Protocol) to serve the files that form web pages to users*
- *Dedicated computers and appliances may be referred to as web server*
- *Apache is the web server program being used*

+ We are going to use a raspberry pi / google web hosting

+ Like the html (web) page our database will be hosted on the pi

Movement of Data



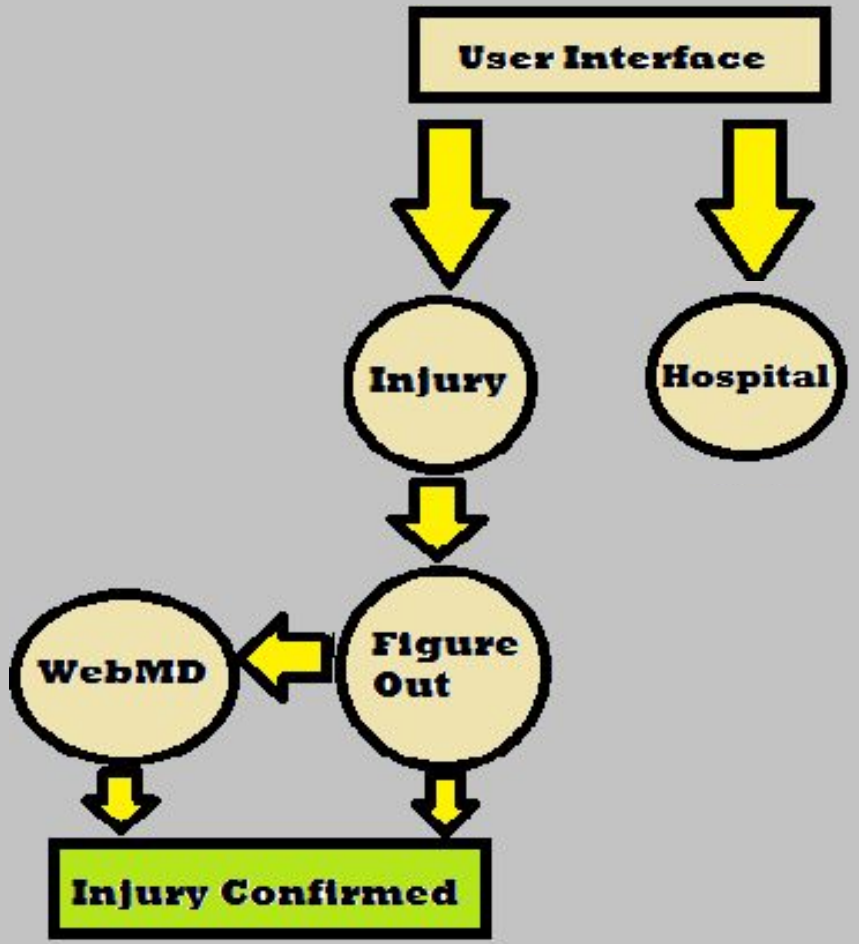
>Export options on website

> install mysql on the raspberry Pi
+create database on webserver itself
+apache -> web server program

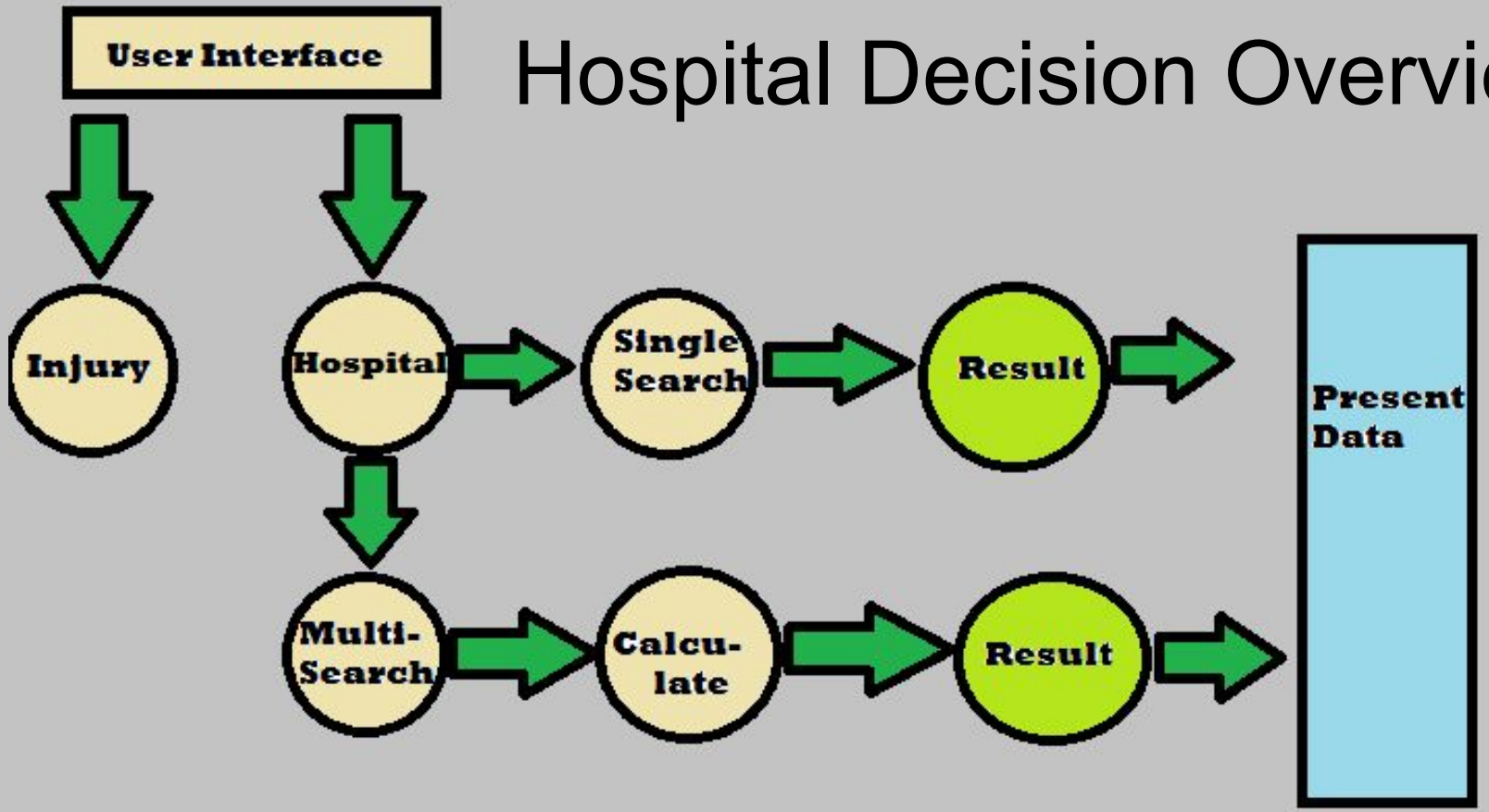
> Python
+send information to the web page

>HTML/CSS
+to create the webpage

Injury Decision Overview

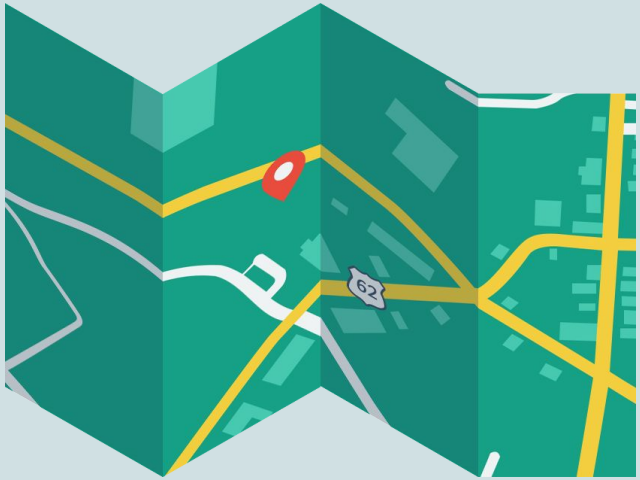


Hospital Decision Overview

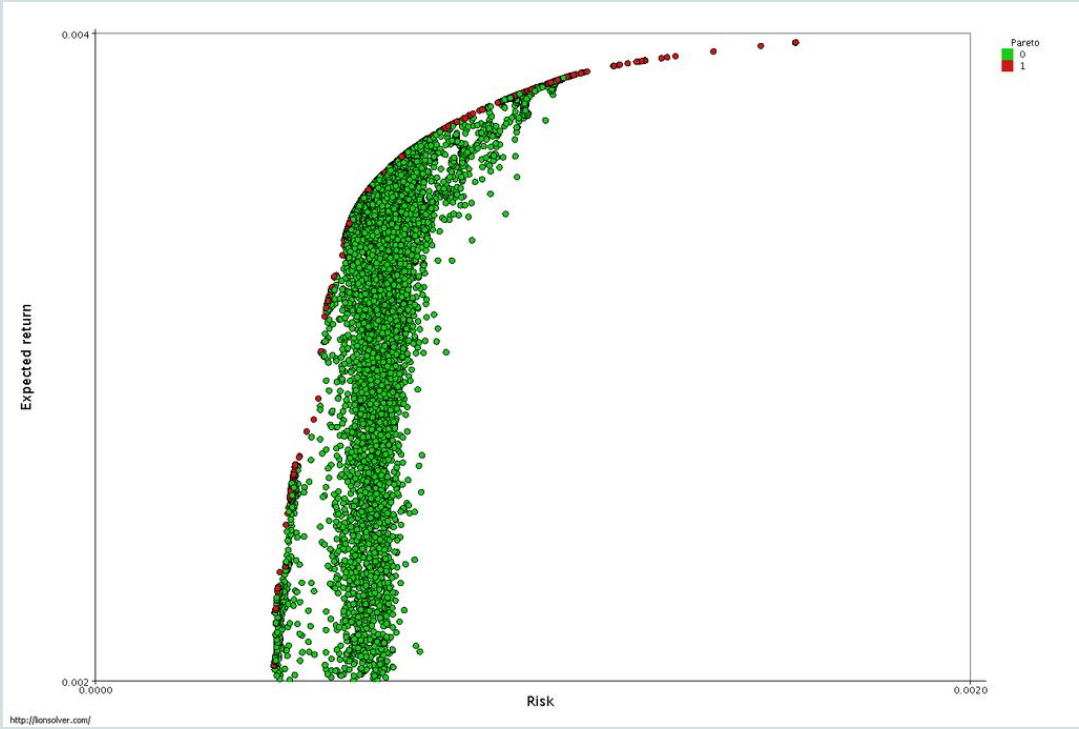


Nearest Hospital

- Calculate Distance between current location and hospitals
- Use google maps API (HTML, Javascript)
  - Incorporate distance into it



Multiple Criteria Decision Analysis



>Multiple criteria needs to be evaluated when making decisions.

In our case mainly:

1) Price
2) Distance

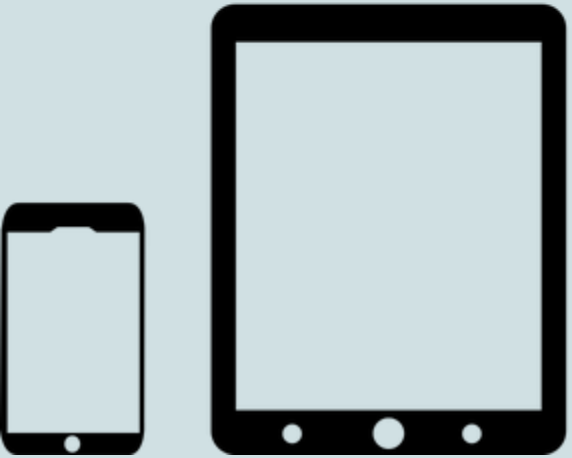
> Decision making algorithm (python)

Info Presentation

- Aim: Which regions/states have Cheaper hospitals?
  - Form a conclusion
  - Add it on the website front page
    - Verbally
    - Graph
    - chart
- Results
  - List format
  - Considering graphs & charts

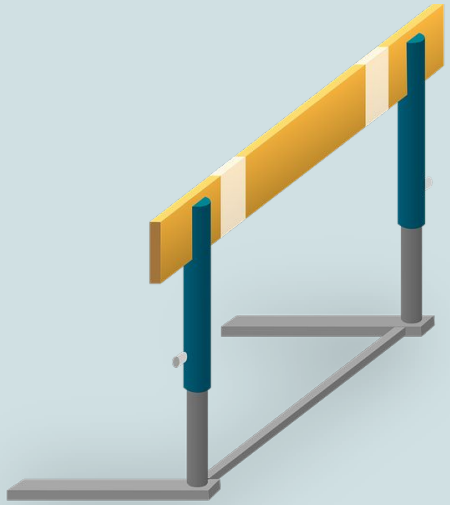
Platforms

1. Web application
2. Server



Project Challenges

- Reading data into database
- Calculating distance/adding the map
- Implementing the decision making algorithm
- Presenting the results in charts/graphs



Conclusion

- ➔ Operates a database of the most economic choice of American hospitals
- ➔ More feasible healthcare options for the average joe
- ➔ More info @ https://github.com/jcycsci/ECHO-Sorting-Application
- ➔ Comments/Questions?