group 5 proposal:

We will be doing a project in healthcare about drug recalls, trends in recalls, the reason behind the recalls, and seeing if specific types of medication were recalled more frequently. By using the openFDA API by using date, drug, recalls and the reason it was recalled between specific dates. (**we agreed to take our specific dates) so overall.**

* **Value is one of the followingClass I = Dangerous or defective products that predictably could cause serious health problems or death. Examples include: food found to contain botulinum toxin, food with undeclared allergens, a label mix-up on a lifesaving drug, or a defective artificial heart valve.**
* **Class II = Products that might cause a temporary health problem, or pose only a slight threat of a serious nature. Example: a drug that is under-strength but that is not used to treat life-threatening situations.**
* **Class III = Products that are unlikely to cause any adverse health reaction, but that violate FDA labeling or manufacturing laws. Examples include: a minor container defect and lack of English labeling in a retail food.**

**RECALL FDA definition: A recall is a method of removing or correcting products that are in violation of laws administered by the Food and Drug Administration (FDA). Recall is a voluntary action that takes place because manufacturers and distributors carry out their responsibility to protect the public health and well-being from products that present a risk of injury or gross deception or are otherwise defective.**

*NEED 6-8 VISUALIZATIONS FOR THE PROJECT*

*2 VIZ. PER QUESTION:*

*\*= maybe a question: nobody work on it unless they want to\**

**Project question possibilities**

* **Which classification of drug was recalled the most overall?**

-3 seperate bar graphs with each firm as X-axis and classification as y

* **What states were drugs recalled the most from ?**
* **What firm had the most drugs recalled?**
  + (Is there a correlation?)
* **Is there a year that had more drug recalls than any other?**
* **Are there specific drug types that are recalled more than other** (diabetes, acne, headache, cough etc.)

**Possible Correlation and or stat graph about mean/median/mode/standard deviation**

* Between Drug recall iniation date and termination date

**Possible Correlation:**

**Which classification was recalled most to what firm.** (3 graphs)  
-Class I  
-Class II  
-Class III

* **Which companies(recall firms) had the most recalls**   
  -Which type of drugs did they have recalled.

(correlation)

**-How much time it takes to close a recall.**   
-who took most time to recall. Between open and termination  
Which states are impacted by recalls --

**CHRIS THINGS**

Patient death per drug recalled

Patient death per sex per drug recalled

Patient age per drug

ETC CHRIS STUFF

* **\*What reason for recall was used the most?\***

**1. What are the trends in drug recalls over time?**

* **Visualization**: A line chart showing the number of recalls by year or by month.
* **Purpose**: To identify whether recalls have increased or decreased over time. (is there any seasonal or annual trends?)

**2. Which types of medications are recalled most frequently?**

* **Visualization**: A bar chart comparing recall counts across different drug types or categories (antibiotics, pain relievers, cardiovascular drugs, acne, diabetes, headache, nausea, etc).
* **Purpose**: To identify which types of medications are more prone to recalls.

**3. What are the most common reasons for drug recalls?**

* **Visualization**: A pie chart or bar chart showing the distribution of reasons for recalls (e.g., contamination, mislabeling, adverse side effects).
* **Purpose**: To analyze the most frequent causes behind recalls and identify recurring problems in the pharmaceutical industry.

**4. Are certain manufacturers or companies responsible for more recalls?**

* **Visualization**: A horizontal bar chart showing the number of recalls by each pharmaceutical company.
* **Purpose**: To identify if specific manufacturers have a higher frequency of recalls (and whether certain companies have recurring issues.)

**5. What is the severity of the recalls (Class I, II, III) over time?**

* **Visualization**: A stacked bar chart or grouped bar chart to show the number of recalls in each class (I, II, III) over time.
* **Purpose**: To assess whether the severity of drug recalls is changing and if there is an upward or downward trend in serious recalls (Class I).

**6. What are the top recalled drugs or drug products?**

* **Visualization**: A bar chart ranking the most recalled drug names or product types.
* **Purpose**: To identify which specific drugs or drug products are involved in multiple recall incidents.

**7. Is there a correlation between recall reasons and drug types?**

* **Visualization**: A clustered bar chart that matches reasons for recall with different types of drugs.
* **Purpose**: To see if certain types of drugs are more likely to be recalled for specific reasons (e.g., contamination more common in injectables, mislabeling in over-the-counter drugs).

**8. How do recall durations vary across drug types?**

* **Visualization**: A box plot comparing the duration from the recall initiation to resolution across different drug categories.
* **Purpose**: To analyze whether certain types of drugs take longer to resolve recalls and why.

**9. Which regions of the world are most affected by these recalls?**

* **Visualization**: A geographic map showing recall distribution by region or country (if available from the data).
* **Purpose**: To identify geographic trends in where the drugs are distributed or recalled.

**10. How does recall volume relate to the size of the recalling firm?**

* **Visualization**: A scatter plot showing the size of firms (e.g., by revenue or market share, if available) versus the number of recalls they have initiated.
* **Purpose**: To analyze if larger companies are more or less likely to recall drugs compared to smaller firms.