Parts:
1. Simple HTML site - GRAPHDB
2. Script to run queries
3. Connect script to site - GRAPHDB

GraphDB
https://www.youtube.com/watch?v=0Z12oMX7prM&t=183s

Sample Query:
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX Food_Recall:
<http://www.semanticweb.org/owner/ontologies/2020/2/Food_Recall#>
select ?consumer_ID where {
        ?consumer_ID rdf:type Food_Recall:consumer
} limit 100

Template
Question:
Query:
Return:
How it answers:

What symptoms did consumers who were male and above 50 have?
1. Just return symptoms
2. How that answer relates to that question

Jose
Simple. - How many people under age of 18. Simple
Question: Which products caused reactions for people under 18? // better but more criteria still needed.
Which products during a time period possibly led to the hospitalization of individuals in an age range and were recalled in that same time period?

Query: WIP

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX Food_Recall: <http://www.semanticweb.org/owner/ontologies/2020/2/Food_Recall#>
select ?mishap ?recall ?product where {
    ?mishap Food_Recall:date_created ?mdate.
    FILTER(?mdate > 20100000 && ?mdate <20130000)
    ?mishap Food_Recall:has_outcome Food_Recall:Hospitalization.
    ?mishap Food_Recall:has_product ?product.
    ?mishap Food_Recall:corresponding_consumer ?consumer.
    ?consumer Food_Recall:age ?age .
    FILTER (?age >60)

    ?recall Food_Recall:report_date ?rdate.
    FILTER(?rdate > 20100000 && ?rdate <20130000)
    ?recall Food_Recall:has_product ?product.
} limit 100
```

Return:
How it answers:

Ann

Question: **Which food company and their product caused convulsions in consumers on 06/04/2014?**


```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX Food_Recall: <http://www.semanticweb.org/owner/ontologies/2020/2/Food_Recall#>
select ?company ?product
where{

    ?foodRecall Food_Recall:report_date ?date.
    ?foodRecall Food_Recall:has_product ?product.

    ?foodRecall Food_Recall:recalling_firm ?company.
    ?mishap rdf:type Food_Recall:food_mishap.

    ?mishap Food_Recall:date_created ?date.
    ?mishap Food_Recall:has_product ?product.

    ?mishap Food_Recall:has_reaction ?reaction.
    FILTER(?date = 20140604 && regex(str(?reaction), "convulsion", "i") )
}
```

company		product
1 Food_Recall:Borden_Dairy_Co_Of_Cincinnati_Llc		Food_Recall:VITAMIN_D

Amish

Question:

What reactions did female consumers under the age of 50 experience due to ingestion of a recently recalled Costco product?

Query:

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX Food_Recall:
<http://www.semanticweb.org/owner/ontologies/2020/2/Food_Recall#>
select ?consumer ?symptoms
where {
    ?mishap Food_Recall:has_product ?product_brand.
    ?mishap Food_Recall:has_reaction ?symptoms.
    ?mishap Food_Recall:corresponding_consumer ?consumer.
    ?product_brand Food_Recall:product_brand_name ?brand_name.
            ?consumer Food_Recall:age ?age.
    ?consumer Food_Recall:gender ?gender.
    FILTER(regex(?brand_name, "costco", "i") && regex(?gender, "M") && (?age < 50))

}
```

Results:

	consumer	⬍	symptoms	⬍
1	Food_Recall:20082		Food_Recall:DIARRHOEA	
2	Food_Recall:20082		Food_Recall:MALAISE	
3	Food_Recall:27707		Food_Recall:DIZZINESS	
4	Food_Recall:27707		Food_Recall:DIARRHOEA	
5	Food_Recall:27707		Food_Recall:VOMITING	
6	Food_Recall:27707		Food_Recall:ASTHENIA	
7	Food_Recall:27707		Food_Recall:FEELING_ABNORMAL	
8	Food_Recall:27707		Food_Recall:VISUAL_DISTURBANCE	
9	Food_Recall:20621		Food_Recall:SYNCOPE	
10	Food_Recall:20621		Food_Recall:DIARRHOEA	
11	Food_Recall:20621		Food_Recall:ABDOMINAL_PAIN	
12	Food_Recall:20621		Food_Recall:ABDOMINAL_PAIN_UPPER	
13	Food_Recall:20621		Food_Recall:FLATULENCE	
14	Food_Recall:20621		Food_Recall:DIARRHOEA_HAEMORRHAGIC	

Mike

Questions:

The number and average age of the consumers who experienced a life threatening outcome after consuming a product which resulted in the corresponding product getting recalled.

Queries:

select ?product ?outcome (count(?consumer) as ?consumer_count) (avg(?age) as ?average_age)
where {
    ?mishap rdf:type Food_Recall:food_mishap.
    ?mishap Food_Recall:has_product ?product.
    ?mishap Food_Recall:has_outcome ?outcome.
    ?mishap Food_Recall:corresponding_consumer ?consumer.
    ?consumer Food_Recall:age ?age.
    ?recall rdf:type Food_Recall:food_recall.
    ?recall Food_Recall:has_product ?product.
    filter (?outcome=Food_Recall:Life_Threatening)
} group by ?product ?outcome

Result:

product	outcome	consumer_count	average_age
:DOLE_BANANA	:Life_Threatening	2	32
:VITAMIN_C	:Life_Threatening	29	58
:VITAMIN_B	:Life_Threatening	24	66
:VITAMIN_D	:Life_Threatening	174	64.724
:SILK_SOY_MILK	:Life_Threatening	2	48
:FOLIC_ACID	:Life_Threatening	15	57.8
:SKIM_MILK	:Life_Threatening	37	2
:VITAMIN_A	:Life_Threatening	2	79
:B_12	:Life_Threatening	3	62
:MINUTE_MAID_FRUIT_PUNCH	:Life_Threatening	1	23
:CHOBANI_GREEK_YOGURT	:Life_Threatening	38	70
:FLAX_SEED	:Life_Threatening	3	55
:BUTTER_BRICKLE	:Life_Threatening	1	9
:GREEN_TEA	:Life_Threatening	1	47
:STARBUCKS_COFFEE	:Life_Threatening	1	47
:CRANBERRY_TRAIL_MIX	:Life_Threatening	1	56
:NO_SALT	:Life_Threatening	2	4
:MAENG_DA	:Life_Threatening	1	35
:HERBAL_TEA	:Life_Threatening	1	49
:ICED_TEA	:Life_Threatening	4	35
:HOT_CHOCOLATE	:Life_Threatening	1	27

Yuhui

What kind of products will lead to Loss of Consciousness(or other reactions) among children and elders?

Query:
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX Food_Recall: <http://www.semanticweb.org/owner/ontologies/2020/2/Food_Recall#>
select ?product ?age ?reactions
where {
   ?mishap Food_Recall:has_reaction ?reactions.
   ?mishap Food_Recall:has_product ?product.
   ?mishap Food_Recall:corresponding_consumer ?consumer.
   ?consumer Food_Recall:age ?age.
   FILTER(regex(str(?reactions), "LOSS_OF_CONSCIOUSNESS", "i") &&(?age < 18 ||
?age>80))
}
ORDER BY ?age