# Project Outline

## Client needs

The health inspector is looking for an application which will be able to replace his current physical filing system, which is hard to navigate and does not give a complete view of the current state of the town's public health. It would allow him to search the food code for violations based on keywords and save information about restaurants, water wells and septic tanks within the Sunderland and Leverett area. It would also be able to store the information he puts into food inspection forms, and search for that information based on keywords or restaurant name. A similar system would be put in place for the wells and septic tanks of both towns, because their filing system is equally unnavigable, and data frequently gets lost. As part of a long term plan, the client would also like to be able to see information about well locations and water quality laid out on a map. The application needs to be user friendly enough to be used by computer beginners, secure enough that sensitive data can be stored on it and reliable enough that it can be trusted to hold records of legal documents and serve them up correctly.

Ultimately, the health inspector would like to have an app which is able to integrate all of these functionalities seamlessly. It would have a section for filling out food inspection forms, a section for filling out septic and well forms, and a section for viewing and searching relevant health codes. The implementation would be hidden from the client so that he would be able to interact with food, well and septic forms in the same manner. He would be able to search based on past violations and restaurant names and be served all of the information immediately. Violations which show up next to a restaurant would be symlinked to their search results in the health code, allowing him to review the details of a violation immediately, which would save him a lot of extra work. The subprojects we see arising from this main project are searching the food code for key words, creating a map of wells and their water quality, creating an application allowing access to food inspection data, and creating an application with access to well/septic data.

# Project proposals

1. Searching the food code for keywords
2. Creating a map of wells and their water quality
    a. Creating a map of wells
    b. Display information about each well
3. Creating an application allowing access to food inspection data
    a. Creating an input form which he can use remotely
    b. Creating search functionality for finding inspection reports
4. Creating an application allowing access to well/septic data
    a. Creating an input form which he can use remotely
    b. Creating search functionality for finding data on each well and septic tank

## 1. Searching the food code for keywords

This application would allow the client to search the food code for keywords so that they can find references to certain sections of the food code quickly. The client could either type in the keywords or click on the tags of common keywords to start the search. The application would also allow the client to search for multiple keywords at the same time. Since the food code is huge and the client might just want to search in certain chapters or sections, the application would allow the client to choose the chapters or sections that they would like to search for.

**Use cases:**

- User performs a search on a set of keywords
- User performs a search on a tagged section of a document

## 2. Creating a map of wells and their water quality

This application would display a map of the Sunderland and Leverett area with markers for each well. For every well on the map, it would have the most recent report on the quality of that well's water as well as any past reports for that well. The client would be able to organize these reports to see the history of each well's water quality, and see on the map where potential spread of contamination may have occurred between nearby wells by examining the report data. This project would be an application with a database

for water quality reports of all the wells and a map interface to visualize these wells and their locations.

**Use case:**

- User creates a map of wells
- User views a map of wells
- User enters a new well into the map

### 2A. Creating a map of wells

This project would concentrate on creating a system for storing the locations and comparative water qualities of all wells in a certain area. It would have to have an easy input method so that it could be used by someone unfamiliar with databases.

**Use case:**

- User enters well information about Leverett
- User enters well information about Sunderland

### 2B. Display information about each well

This project would display a map of the Sunderland and Leverett area to the client. It would be able to render the information in a form that the client would be able to understand easily, and show enough information that he would be able infer trends about which areas provide water which is safe to drink.

**Use case:**

- User views all of the wells in Leverett
- User views all of the wells in Sunderland

## 3. Creating an application allowing access to food inspection data

This project would be an application which makes it easier for the client to organize and search his health inspection information. Over the course of the project, we would set up a system where the client would be able to search inspection reports and information about restaurants within the Sunderland and Leverett area. We would need to include information such as the the restaurant's name, address, previous violations, and the last

time each was updated. Searching these restaurants in the application would pull up any reports in the database which were filed for that particular restaurant.

**Use case:**

- Viewing food inspection data
    1. User opens application
    2. User searches a specific restaurant
    3. Restaurant inspection records are pulled up
    4. User opens the most recent health inspection report
    5. That inspection report is pulled up

## 3A. Creating a remote input form

This project would involve creating an application with which the client would be able to write health inspection data to the database. This would end up being information the inspector collected while he was on duty. Since he may not have access to a reliable connection, he would need to be able to store data locally and sync with the database when he reestablishes a connection. It would need to have a user friendly UI, so he could start using it in the field right away; it could be based on the physical forms he is already using.

**Use case:**

- Creating form remotely
    1. User receives inspection data from food inspection/well inspection/septic inspection
    2. User interacts with the application to store received data

## 3B. Creating search functionality for finding inspection reports

Once we have enough data in the database, we will need to search it to find relevant information. Searching by violations, locations and frequency of violations would help the health inspector with his job immensely, as he would have access to all of this information immediately.

**Use case:**

- User searches based on violations
- User searches based on location

- User searches based on violation frequency

## 4. Creating an application allowing access to well/septic data

This project would be an application which makes it easier for the client to organize and search information on wells and septic tanks in Sunderland and Leverett. The client would be able to look up wells by location and see a list of any water quality reports for that location. He would also be able to do the same for septic tank reports, finding information on the amount drained and tank capacity. These reports would be stored in a database accessed by the application, and the client would be able to search through them by keywords in each report similar to the food inspection application.

**Use case:**

- User views well/septic data
- User edits well/septic tanks data
- User deletes well/septic tanks data
- User sorts the data by time or location

### 4A. Creating a remote input form

This project would involve creating an application with which the client would be able to write well/septic data to the database. This would end up being information the inspector collected while he was on duty. Since he may not have access to a reliable connection, he would need to be able to store data locally and sync with the database when he reestablishes a connection. It would need to have a user friendly UI, so he could start using it in the field right away; it could be based on the physical forms he is already using.

**Use case:**

- User inputs information about wells and septic tanks

### 4B. Creating search functionality for well/septic data

Once we have enough data in the database, we will need to search it to find relevant information. We would most likely need to be able to search for wells and septic tanks based on their location and the time it was last updated.

**Use case:**

- User searches for information about wells and septic tanks