# Issue to Impact

## Overview - mission, what we did

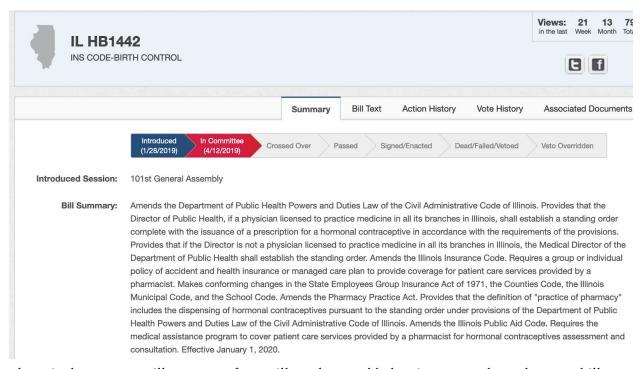
The goal of our project is to increase participation in democracy by making issue advocacy easy and quick for everyday people. We accomplish this by providing a platform that allows a user to search for active legislation by topic and provides all the information needed to gain a basic understanding of the legislation and contact their reps. We aggregate information from the Illinois General Assembly website, mentions on Twitter, the contact information for relevant representatives based on the user's location, and a generic template for what to write/say. Users can also search for their representative and get back basic information about their record.

## Why we did what we did

The Illinois General Assembly website is difficult to navigate and the information found there can be difficult to understand.



There are some great resources helping large organizations track legislation, but these can be difficult to navigate for political non-experts because they provide so much information that you often have to aggregate yourself. They often also require a paid subscription. Twitter can help make legislation easily understandable. The examples below demonstrate this:



Above is the HB1442 Bill Summary from BillTrack50, and below is a tweet about the same bill.



We wanted to put understandable information on legislation and representatives in one place to make issue advocacy easier.

## Structure of the Software

#### **User Interface:**

(Django requires a variety of files to work, the most important/modified are listed, the files in which the bulk of our custom UI code is written are bolded)

**itoiUI/filters.py** -> Contains the queries and filters necessary for querying and filtering the bills and tweets tables

**itoiUI/find\_rep\_contacts.py** -> Contains the queries and filters necessary for calling the APIs necessary to gather rep contact information

**itoiUI/get\_rep\_info.py** -> Contains the queries necessary for getting data from the rep table itoiUI/manage.py -> Contains the code necessary to run the Django app

itoiUI/static (folder) -> Contains static files necessary to render the user interface and template **itoiUI/bills/views.py** -> Contains the code necessary to use query functions to return data from the databases and render the information to the user interface

itoiUI/bills/urls.py -> Contains redirect URLs

itoiUI/bills/base.html -> Contains the base JavaScript references and CSS template references and Bootstrap links to load necessary files and jQuery prereqs

**itoiUI/bills/index.html** -> Contains the primary Django template used for the UI itoiUI/itoiUI/settings.py -> Contains the settings necessary to run the Django app

## Backend:

**main.py** the entry point for the application. Calls Leg\_Scraper.py and get\_twitter\_data modules to get and process data, and generates the sql database used by the front end.

Legislation and Representative data:

**legislation**/**Leg\_Scraper.py** -> main entry point for legislation and bill data. Calls scraper.py and process.py to scrape and process bill and rep data. Calculates rep statistics.

**legislation**/**scraper.py** -> module that consists of functions to scrape the Illinois General assembly website for information on bills and representatives.

**legislation**/**process.py** -> module that consists of functions to manipulate bill and rep data including outputting data as csv files.

## Twitter data

get\_twitter\_data/search\_bills.py -> uses bill numbers from legislation data to call standard\_twitter\_search.py, and processes output into json file

get\_twitter\_data/rep\_twitter\_search.py -> call standard\_twitter\_search.py with reps twitter handles, and processes output into json file

**get\_twitter\_data/standard\_twitter\_search.py** -> module responsible for calling the twitter standard search api and handling twitter rate limiting

**get\_twitter\_data/process\_twitter.py** -> module responsible for processing the output from the twitter search api call into csvs to be put into the main sql database.

make\_database/csv\_to\_sql\_db.py -> script that takes csv files from legislation scraper and twitter search and creates the sqlite3 database used by the front end.

## Issues, improvements for the future, and what we learned

Representative Twitter Analysis

Categorizing is hard

The third section of our project was representative analysis. In this section we aimed to include a Twitter analysis looking at which topics the representative tweeted most about and statistics about the representative's legislation sponsorship record (number of bills sponsored, pass rate etc). While we were able to provide the statistics, categorizing tweets, and mapping these categories to bill topics proved very difficult.

We tried several things.

First, we created a mapping from committees to topics to categorize bills that had been assigned a committee. We then tried to aggregate the most salient words in the bills to get a set of keywords by topic which we could use to categorize tweets and bills not assigned to a committee. Categorization using this method was unsuccessful because there wasn't that much overlap between keywords in bills and tweets.

We also generated a table mapping bill number to hashtags and user mentions in the tweet. The idea was to use this table to find popular hashtags and user mentions for each topic, and use these to categorize the representatives tweets. Unfortunately, due to the limited amount of Twitter data we were able to obtain, this did not work. (You can see the work for this analysis in rep\_analysis/analyse.py and also in get\_twitter\_data/process\_twitter.py).

In the end, we chose to only categorize bills that had been assigned a committee to determine a representative's top bill sponsorship topic.

## User Interface

Visualization in Django

We had hoped to do more visualization of our data in Django, but ran into trouble with the variety of charting libraries Django uses and lack of easy reactive data to chart mechanism. We chose not to try and code the visualizations in pure JavaScript, but this would be something we would investigate more in the future.