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:

IL HB1442
INS CODE-BIRTH CONTROL

Summary   Bill Text   Action History   Vote History   Associated Documents

| Introduced (1/28/2019) | In Committee (4/12/2019) | Crossed Over | Passed | Signed/Enacted | Dead/Failed/Vetoed | Veto Overridden |

Introduced Session: 101st General Assembly

Bill Summary: Amends the Department of Public Health Powers and Duties Law of the Civil Administrative Code of Illinois. Provides that the Director of Public Health, if a physician licensed to practice medicine in all its branches in Illinois, shall establish a standing order complete with the issuance of a prescription for a hormonal contraceptive in accordance with the requirements of the provisions. Provides that if the Director is not a physician licensed to practice medicine in all its branches in Illinois, the Medical Director of the Department of Public Health shall establish the standing order. Amends the Illinois Insurance Code. Requires a group or individual policy of accident and health insurance or managed care plan to provide coverage for patient care services provided by a pharmacist. Makes conforming changes in the State Employees Group Insurance Act of 1971, the Counties Code, the Illinois Municipal Code, and the School Code. Amends the Pharmacy Practice Act. Provides that the definition of "practice of pharmacy" includes the dispensing of hormonal contraceptives pursuant to the standing order under provisions of the Department of Public Health Powers and Duties Law of the Civil Administrative Code of Illinois. Amends the Illinois Public Aid Code. Requires the medical assistance program to cover patient care services provided by a pharmacist for hormonal contraceptives assessment and consultation. Effective January 1, 2020.

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

R Street Institute ✔ @RSI · Apr 26, 2019

Illinois State Rep. Michelle Mussman, D–Schaumburg, has introduced HB 1442, which would make Illinois the 11th state to allow pharmacists to prescribe hormonal #birthcontrol. bit.ly/2BqL6MM #contraception #sexualhealth

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.