tambourinecheesecatrhino (Emma Buller, Tami Takada, Christopher Liu, Owen Yaggy)
SoftDev
P02 -- Design Doc
2022-03-07
Time spent: 60 Minutes

**Project Description:** *Moran's Maps:* **An Interactive Map of Stuyvesant**
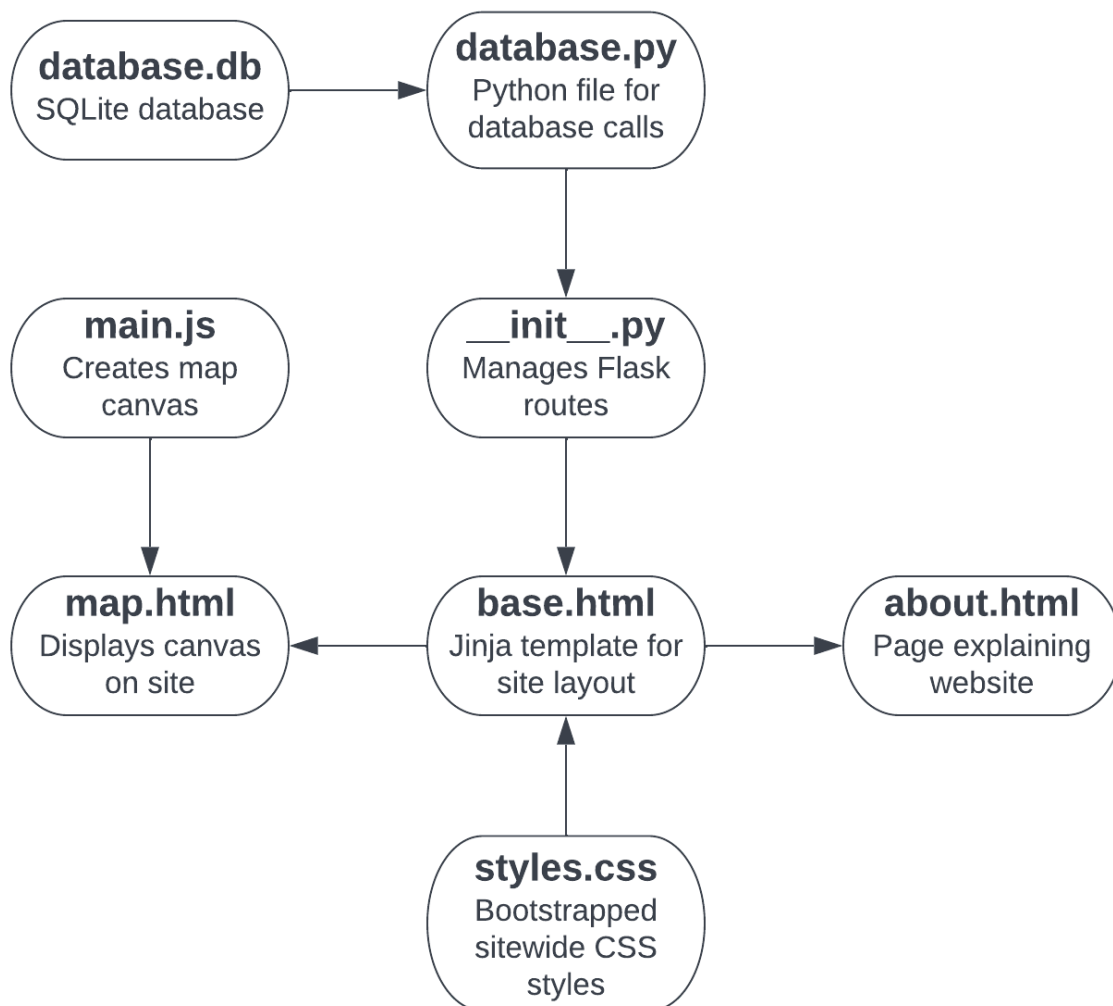
Users will have access to floor plans of the school for all floors, and they can click on various rooms to get information about those rooms. Non-classrooms will be labeled (e.g. college office), and all rooms will have the room number available to view.

**Project Components**
- Floor plans
    - Currently have floor plans for every floor except for 8 and 10
    - 8 and 10: rough layouts based on other floor plans and data gathering
- Draw polygons around rooms in canvas as accurately as possible
    - Store vertex coordinate information in database
        - Use those stored coordinates to draw the rooms in the canvas when you select a floor
- Hover over a polygon: display information of that room
    - Detecting if mouse is in polygon: https://medium.com/javascript-fanboi/2021-044-detecting-mouse-hover-over-irregular-shapes-bc9db265ff7d (A relatively simple algorithm that works by drawing a straight line from a mouse and selects correct room based on the number of times walls from different rooms are crossed)
- Information about classrooms
    - Main rooms (college office, music rooms, etc.)
        - Other information
            - Contact Info (if it's an office)
    - We will initially collect data in a collaborative Google Spreadsheet
        - Everyone will be able to insert data they have found
            - The data everyone will be collecting will be assigned before so (Ex: Emma collects data for floors 1,2, and 3)
        - Spreadsheet will eventually be downloaded as a .csv file and will be fed into a sqlite table
    - Potential list of other information that can be displayed for classrooms (Will be formally decided after we implement basic functionality)
        - Which rooms have computers, smartboards, chalk boards, etc. (Likely)
        - Teachers that teach there (Maybe)
        - Clubs that usually take those rooms (Unlikely)
        - Room Type (English, math, etc.) (Likely)
    - Ways that we could potentially gather information
        - Looking through Talos (Maybe)

- Surveying classrooms (Likely)
- Taking pictures (Unlikely)
- Broad information about floors
    - Subject of floor
    - Major rooms (gyms, cafeteria, etc.)
- Search for rooms (EXTRA)
    - Allow user to look up rooms by room number -> display correct floor map and highlight room

**Component Map**

```
database.db          database.py
SQLite database      Python file for
                     database calls

main.js              __init__.py
Creates map          Manages Flask
canvas               routes

map.html             base.html           about.html
Displays canvas      Jinja template for  Page explaining
on site              site layout         website

                     styles.css
                     Bootstrapped
                     sitewide CSS
                     styles
```
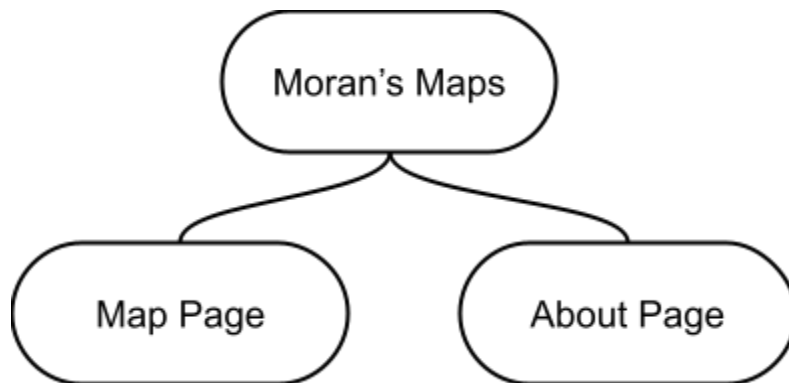
**Database Organization**

Room table

| Columns | Floor | Room | Room name | Coordinates (JSON) | Room info (JSON) |
|---------|-------|------|-----------|--------------------|--------------------|

| | | number | | | |
|---|---|---|---|---|---|
| *Example* | 1 | 101 | Classroom | {0: '0, 0'} | {'resources': ['smartboard', 'chalkboard']} |
| | 1 | 125 | Choral Room | {0: '200,200'} | {'teachers': ['Shamazov']} |

Coordinates and room info will be stored as JSON strings and will be parsed with json.loads(). For example, to find the coordinates of a given room, we can use our coordinate finding tool to select vertices and then use a form to send the information to our Python backend and store it in the database. When we're ready to display a room, we can read from our database, generate a JSON string with the required information, and pass the JSON string forward in a template.

**Front-end Sitemap**

Welcome to Moran's Maps!

| Choral Room | 1 |
| 125 | 2 |
| Room Type | 3 |
| Room | ⋮ |
| Resources | 8 |
| ⋮ | 9 |
| | 10 |

Note: we're generating our own map with canvas elements based on the floor plans we have—the floor plans themselves won't be visible.

**Tasks**

- Map making
  - Get coordinates for all rooms on all floors
  - Make maps for 8th and 10th floors
  - Get information for each room
    - Prioritize room name (for non-classrooms) and number
  - Make all of the maps look more appealing (If we have time)
- Database
  - Room information database
    - Collecting data for database
  - Displaying that Information
- HTML
  - Jinja templates for the pages
  - Needs to contain information to be passed to JavaScript
- CSS
  - Bootstrap formatting
  - Create mobile/small-screen-friendly format
- JS
  - Detect room click → display room info
  - Display different floors based on button click
  - Display the specified floor map
  - Get information from database
- Python/Flask
  - Create routes for different pages

- Connect database to website

**Why Bootstrap**
Bootstrap provides comprehensive options for styling with simple classes that all members of our group have experience with.

**Roles**
Everyone: Information Gathering
Emma: PM, HTML, CSS
Tami: Database
Chris: Javascript
Owen: Python/Flask, Javascript

**Ship Date**
2022-03-22