Software Development Final Project
Team Name: StereoIsomers

Team Members: Xing (PM), Md, Jackie, Manahal

About

Essentially the cookie clicker game where you have a giant cookie on the left hand side of the screen that the user can click to generate cookies which will be counted. Using a certain number of cookies, the user can buy items from the store which will help them generate cookies automatically on specified time intervals. Achievements will be tracked and there will be a leaderboard. This means that users must create an account, which will keep track of the cookies they have made. A weather API will be used in order to determine the theme of the page.

Program Components

API:
- OpenWeatherMap - used to determine theme for game site
  - https://home.openweathermap.org/api_keys

Flask:
- /home: has info about the game and our team
- /game: this page will be weather-themed game route
  - Will redirect to login page if not logged in
  - Displays number of cookies user has
  - Displays Cookies Per Second (CPS)
  - Displays list of upgrade buttons
  - Displays purchase/sell buttons for cookie generators
- /leaderboard: shows top 10 players with stats
- /achievements: shows your achievements
  - Will redirect to login page if not logged in
- /credits: gives credits to API and the original cookie clicker
- /login: login page
- /register: register page

JS:
- Big Cookie
  - Event listener button: each time clicked, adds cookies to "bank"
- Generators
  - Event listener buttons: each time clicked, creates generator, spends cookies from "bank"
  - Makes cookies automatically for user over time

- Upgrade buttons
    - List of Event listener buttons: clicked once, improves cookie making values
    - updateClickValue(): increases cookie click value
    - updateGenValue(): increases generator value
- Cookies per second calculator
    - Determines how many cookies made per second based on purchases and upgrades
- Achievement detectors
    - Constantly checks stats to see when achievements are accomplished

HTML:
- Bootstrap: makes site look nice
- Changes backgrounds based on weather api
- Navigation Bar: will be on every page
    - Home page
    - Game
    - Leaderboards
    - Credits
    - Achievements (if logged in)
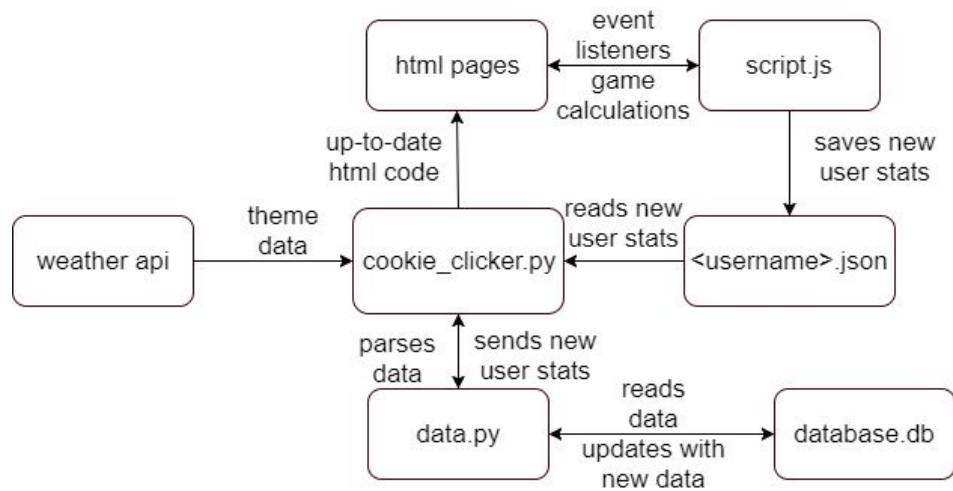   - Logout (if logged in)

Database:
- Credentials table: username TEXT | password TEXT
  For checking logins
- Achievements table: username TEXT | achievements BLOB
  For storing completed achievements. Achievements is a list of ints corresponding to achievements
- Upgrades table: username TEXT | upgrades BLOB
  To store purchased upgrades. Upgrades is a list of ints corresponding to upgrades
- Stats table: username TEXT | cookies INTEGER | cps INTEGER | generators BLOB
  To store how many cookies, how many cookies per second, and numbers of each cookie generator owned. Generators is a dictionary of int : int pairs where the first int corresponds to a generator and the next stores how many are owned
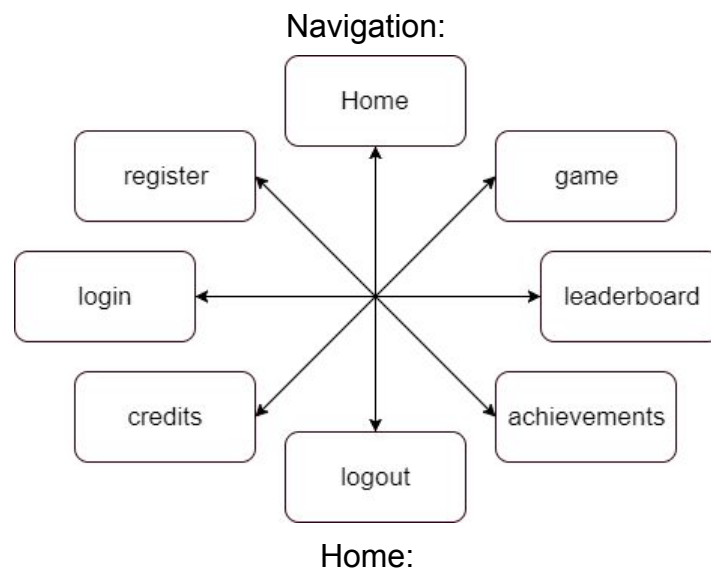
JSON Files:
- A <username>.json file is made for each new user. It stores their stats and purchases and is used to communicate between the javascript side and python/sqlite3 side.

Component Map

```
                              event
                            listeners
   html pages  <───────────>   game      script.js
                            calculations

        │                                    │
   up-to-date                           saves new
   html code                            user stats
        │                                    │
        │           reads new                ▼
  weather api  ──theme──>  cookie_clicker.py <──user stats── <username>.json
                  data

        │                 │
     parses          sends new
      data            user stats
        ▼                 │
                          ▼        reads
                       data.py <───data───> database.db
                              updates with
                                new data
```

Site Map

Navigation:

```
                    Home

      register                game


   login          ✛           leaderboard


      credits              achievements

                   logout
```

Home:

StereoIsomers

Home   Credits/APIs   Login   Register   Leaderboard

Welcome

Insert About Us Here

Login & Register:

Login

Username: [   ]
Password: [   ]

[Submit]

[Register]   [Home]

Register

Username: [   ]
Password: [   ]
Verify   [   ]

[Submit]

[Login]   [Home]

Leaderboard:

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1. mdabedin	5,000 cookies, 128CPS
2. xingtaoshi	4,500 cookies, 100CPS
...	

Credits:

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Credits:

Cookie Clicker

   stuff

OpenWeatherMap API

   stuff

Game:
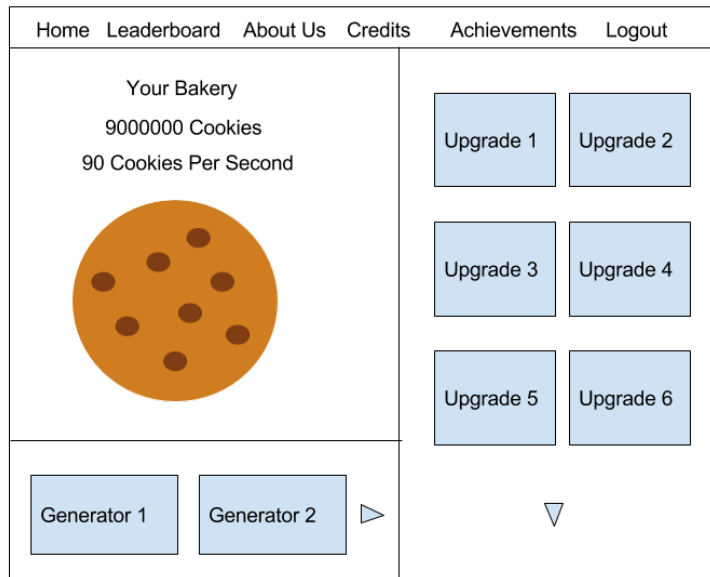
Achievements:
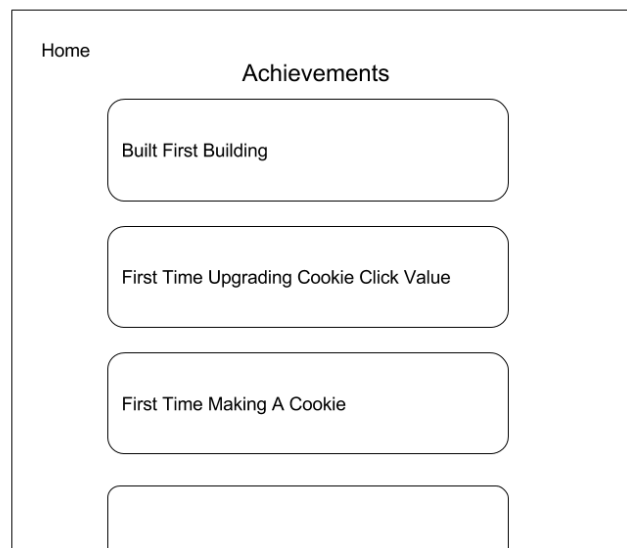
Task Division

Xing Tao:
- Project manager
- Flask routing

Md:
- Bootstrap, site designing

Jackie:
- Javascript game development

Manahal:
- Database code