PROJECT 2: Drawnet

Pd 9 | Chillin in the Front Seats: Jenny Gao, Kevin Li, William Soe, Max Zlotskiy

DESCRIPTION

Drawnet is a website where users can play a game similar to Pictionary. Users first choose what they want to draw from a list of nouns (using Oxford Dictionaries API). They are then led to a program like Paint, where they draw the object they chose and submit that drawing. Clarifai API is then called to guess what the drawing is. The score is the confidence level of the Clarifai API. The higher the score the better. Users have the option to edit the drawing (up to five times) if they want to improve their score or if the API can't guess the word the user chose based on the image drawn. If the API can't guess the drawing despite those five tries, the user gets a score of 0.

APIs USED

- **Clarifai**
    - https://clarifai.com/developer/guide/#getting-started
    - Tries to identify the subject of an image (eg. apple, fish, train)
    - Returns a confidence level measuring how confident the AI is that it guessed the correct object
    - Documentation:
        - https://clarifai-python.readthedocs.io/en/latest/index.html
- **Oxford Dictionaries API**
    - https://developer.oxforddictionaries.com/
    - Returns a list of nouns that the user can choose from to draw.

PROGRAM COMPONENTS

FRONT END (Bootstrap or Foundation?)

- *stylesheet.css*
    - Additions to Foundation styling
- *home.html*
    - Description of the project and option to login/create account
- *base.html*
    - Logout/Profile header
- *choose.html*
    - Extends base.html
    - 30 buttons with nouns from the Oxford Dictionaries API
- *paint.html*
    - A canvas where the user will paint their image

- ■ 10 colors, medium thickness brush, and an eraser tool
  - ○ A button to submit their drawing to be graded by the google API
  - ○ Will have the word the user is painting written out in bold above the canvas as a reminder
- **score.html**
  - ○ extends base.html
  - ○ shows confidence level for current drawing
  - ○ gives user option to play again
- **profile.html**
  - ○ extends base.html
  - ○ shows past scores and best/worst drawing
- **paint.js**
  - ○ Implements canvas with features that let the user draw with various pens and colors
  - ○ converts the drawing into an image, which is sent to the API via flask or stored in the database

BACK END

- **app.py**
  - ○ See "Routes" section for details
  - ○ **isnull(usrn, pwd, conf_pwd):** checks to see if user filled out form incorrectly
  - ○ **add_session(usr, pwd):** if the form is filled out correctly and the credentials can be authenticated in the database, creates a session
- **imageAPI.py**
  - ○ *Sends image to Clarifai and returns information about its guesses*
  - ○ *Clarifai Python Library*
  - ○ **get_top10results(image):** *returns the first 10 guesses returned in the json of the Clarifai response in a dictionary. The key is the guess, the value is the confidence level of Clarifai.*
  - ○ **is_correct(image, topic):** returns the score of a person's drawing if the person's drawing matches a guess from Clarifai, else returns no value
- **dictionary.py**
  - ○ *gets nouns from Oxford Dictionaries API*
  - ○ **build_objects():** *creates a list of nouns for the user to draw from the dictionary API*
  - ○ **random_list():** *returns a list of random objects from the build_objects method that can be chosen by the user to draw*
- **db.py**

- **update_best_score(username, score, image)**: *updates the best score and also updates the image*
- **update_worst_score(username, score, image)**: *updates the worst score and also updates the image*
- **validate_login(username, password):** *checks credentials*

ROUTES

- **Home Page ("/")** - *renders "index.html"*
  - Explains how the website works
- **Create Account ("/account/create")**
  - asks for username and password, will redirect to login on success
- **Login ("/account/login")** - *renders "login.html"*
  - Login or create an account
- **Choose Word ("/draw/new")**
  - This page will give the user about 30 words to choose from to base their drawing on. They will all be nouns. Upon clicking one, the user will be brought to the drawing page.
- **Canvas ("/draw/canvas")** - *renders "paint.html"*
  - paint program for user to create drawings
- **Score ("/draw/score")** - *renders "score.html"*
  - shows score for current drawing
  - User has two options: 1) draw another image, leads back to **"/draw/new"** route, or 2) edit drawing, leads back to **"/draw/canvas"** route
- **Profile ("/account/profile")** - *renders "profile.html"*
  - Shows past scores and the user's two best and worst drawings
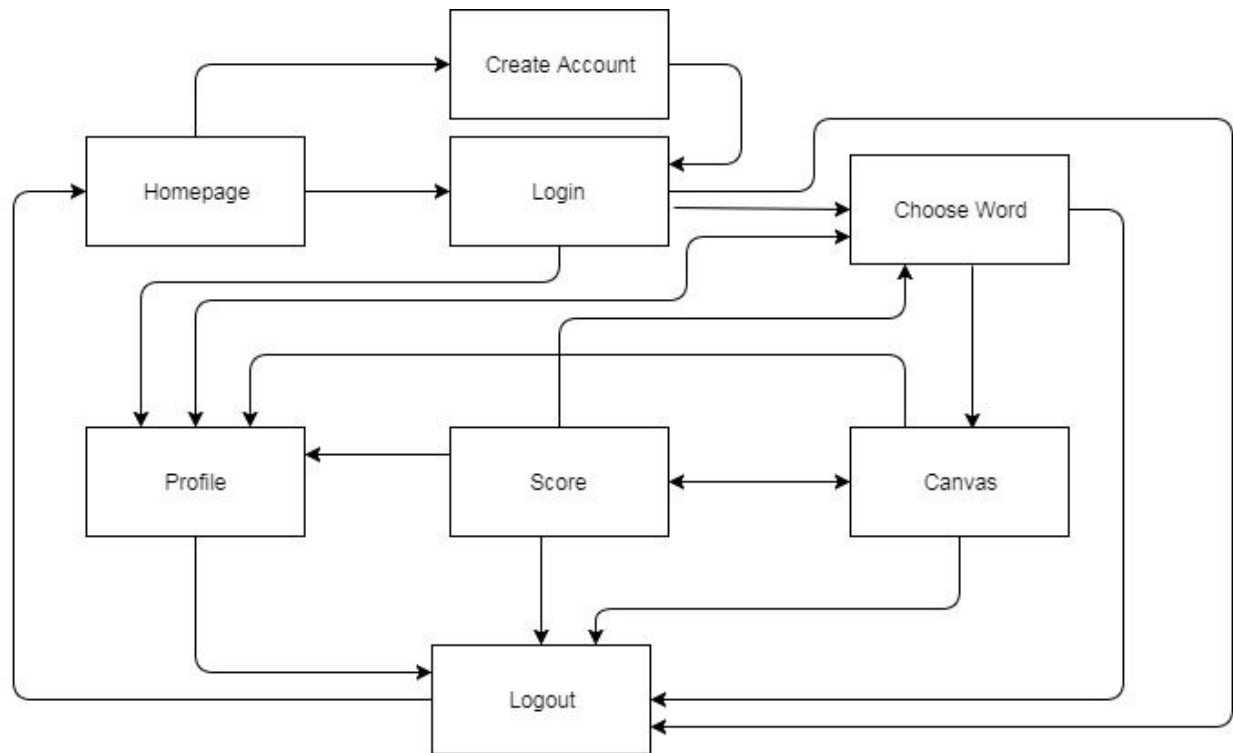- **Logout ("/account/logout")** - *redirects to "/"*
  - Logs out account

DATABASE SCHEMA

Profile DB

Column Name	Type	Example
username	STRING PRIMARY KEY	drawbot5000
password	STRING	12345
best score	INTEGER	50
Image of best score	STRING	[image file as data uri]

worst score	INTEGER	0
Image of worst score	STRING	[image file as data uri]

SITEMAP

TASK ASSIGNMENT
Project Manager: Jenny Gao
Bootstrap/Foundation: Kevin Li
Canvas: Kevin Li, Max Zlotskiy
Database: Max Zlotskiy
API: William Soe
Flask/HTML (besides canvas)**:** Jenny Gao

Tasks:
- CSS/Bootstrap - Kevin
- Oxford Dictionaries API => generate list of choices (nouns) - William
- Canvas (Javascript) - Kevin/Max
- Save image file in folder and upload saved image to Clarifai API - William
- Save score and image to database- Max
- HTML files/Flask app (past scores, best/worst drawings, score, etc.) - Jenny