FINAL PROJECT

Lens

Pd 9 | Projection of Despair in Four Stages
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WHAT DOES IT DO?

Our project is an active lens diagram generator. You will be able to adjust the object distance, object height, concave vs convex lens, and focal length and watch the light vectors and image vector respond to these changes. Numbers will be displayed as well. The user will be able to zoom in, zoom out, and pan the diagram. Users who are logged in will have their sessions saved. The session is sharable for users who are logged in through the link. Only the owner can edit. These diagrams will also be able to be downloaded as images.

Stretches - Viewing other people's profiles, adjusting the concavity of the lens visualization to match the actual focus, drawing picture for object and having the image match it.

COMPONENTS

HTML files

See 'Files' section for details

Stylesheets

Bootstrap's as well as our own

Python files

See 'Files' section for details

SQLite Database

See 'Database Schema' for details

FILES

base.html

login/logout button, profile button, lens button, and homepage button on a toolbar, and footer with team info

home.html

Explains how to use the program and is the hub for viewing projects

profile.html

Displays owned diagrams, username, and option to change password

login.html

Form for login and creation of accounts

diagram.html

For viewing images and lens

style.css

To make the website look good

diagram.js

Provides needed functionality

ajax.js

Uses ajax calls

bootstrap.min.css/bootstrap.min.js

Incorporating Bootstrap

__init__.py - Flask app, handles front-end navigation and operations

- **is_loggedin(username, password)** - checks if the current user is logged in
- **add_session(username, password)** - creates a session cookie for the current user with valid credentials or returns error message
- **logout()** - Deletes a session key of a user if one is logged in
- **root()** - provides functionality for the home.html for the root route
- **login()** - provides functionality for the /login route
- **profile()** - provides functionality for the /profile route
- **diagram()**-provides functionality for the /lens route
- **changepass()** - handles changing password
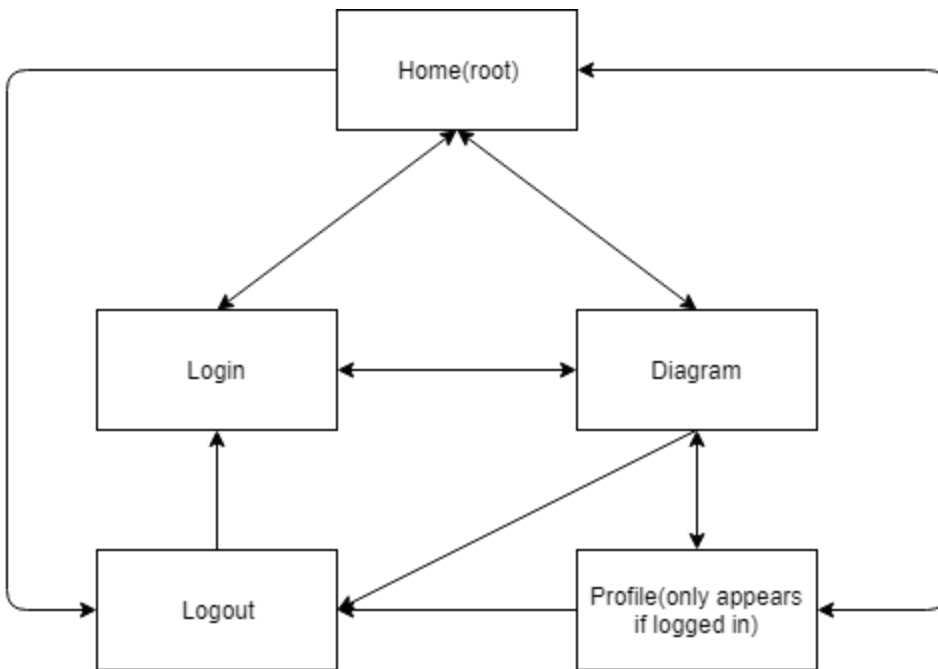- **save()** - handles saving diagrams, ajax

db_builder.py - builds the database

db_func.py - handles the database, including adding lens saves as well as user account information

- **encrypt_password(password)** - Returns SHA-256 version of password
- **login(username, password)** - Logs user in if username and password are correct
- **create_account(username, password)** - Creates a new entry in users table
- **does_username_exist(username)** - checks if username already exists
- **change_password(username, old_password, new_password)** - changes password to new_password if old_password matches the account password
- **does_hash_exist(hashcode)** - Checks if a hashcode exists
- **create_new_hash()** - creates the new hashcode
- **create_session(username, o_dist, o_height, focus, sign)** - Creates a new session with a unique hashcode identifier
- **get_session**(**hashcode**) - returns all information in a dictionary about the session
- **get_owned_sessions(username)** - returns hashcode identifiers of all owned sessions

- **update_session(hashcode, o_dist, o_height, focus, sign)** - updates data in session
- **check_hash(username, hashcode)** - makes sure user owns that diagram
- **get_user_sessions_details(username)** - gets user's sessions and details
- **get_sessions_details(sessions)** - given sessions, gets details

SITEMAP

DATABASE SCHEMA

Users

id	username	password*
0	user	pass123
1	user3	awd
2	user1	yeet

*SHA-256 Encrypted

Sessions

hash_id*	id	o_dist	o_height	focus	sign
123456789	4	32	5	3	-1

123456788	2	900	300	-90	1

*Adler32 used to generate

TASK ASSIGNMENTS
James: Flask, HTML, CSS, Javascript, Database
Max: Project Manager, apache
Angel: Wildcard
Connie: Database, Ajax, Flask

TIMELINE:
- Setting up Apache - May 19th
- Database Functionality - May 24th
- HTML Templates - May 24th
- Lens MVP Diagram - May 24th
- Downloadable diagram - May 25th
- Profile functionality - May 26th
- Saving sessions - May 28th
- Styling - May 28th
- Complete lens Diagram - May 28th
- Finished - June 6th