

P05 Design Document

404NotFound

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Overview

As successful students and productive members of society, it is important for us to improve ourselves and for us to keep on learning throughout life. It therefore is crucial to be able to access these resources that will allow us to become better selves (I.e., textbooks). However, sometimes it is extremely difficult, time consuming, inefficient and oftentimes costly for us to obtain these keys to success. 404NotFound aims to solve this problem by crawling and scraping through the web for you to compile an all in one, one step textbook archive where you will be able to find all your textbooks in minimal time, maximum efficiency, all in one search! Through our application you will be able to find your textbooks, save them to your account and download them to your local device. All for free !!! (This application is for educational purposes, please don't copyright us)

Components

Front End:

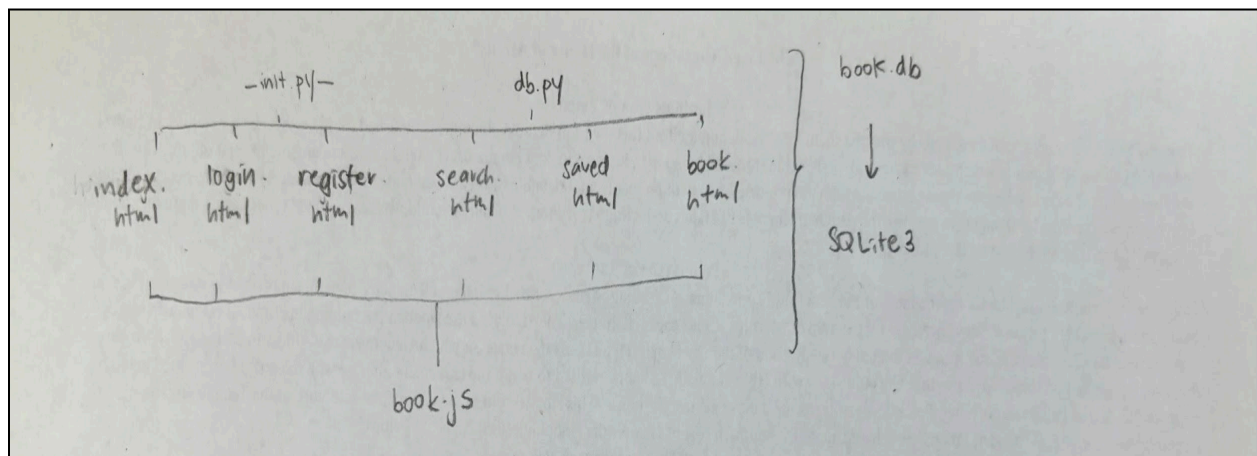
- index.html
 - Landing page, features site introduction and buttons to redirect. Displays a clean UI with buttons to log in, register, or search textbooks.
- login.html
 - Users will be able to log into their existing accounts found within the database. Uses hashed passwords.
- register.html
 - Users will be able to register a new account. Necessary to use the website, otherwise access is restricted.
- search.html
 - Users will be able to search for different textbooks. This will prompt the middleware to search and scrape for that textbook.
- saved.html
 - Users will be able to get a list of different textbooks that they have saved to easily access them for future reference.
- book.html

- Users will be able to view specific textbooks and ask questions within the pdf. For instance, page 475 can be retrieved so the user can take a screenshot of a question and. This will also display an AI generated answer.
- upload.html
 - Users if logged in will be able to upload pdfs of limited size. 404NotFound is not responsible for any pdfs uploaded by users.
- solutions.html
 - Users will be able to have a text input and image input to generate solutions using the Gemini API.

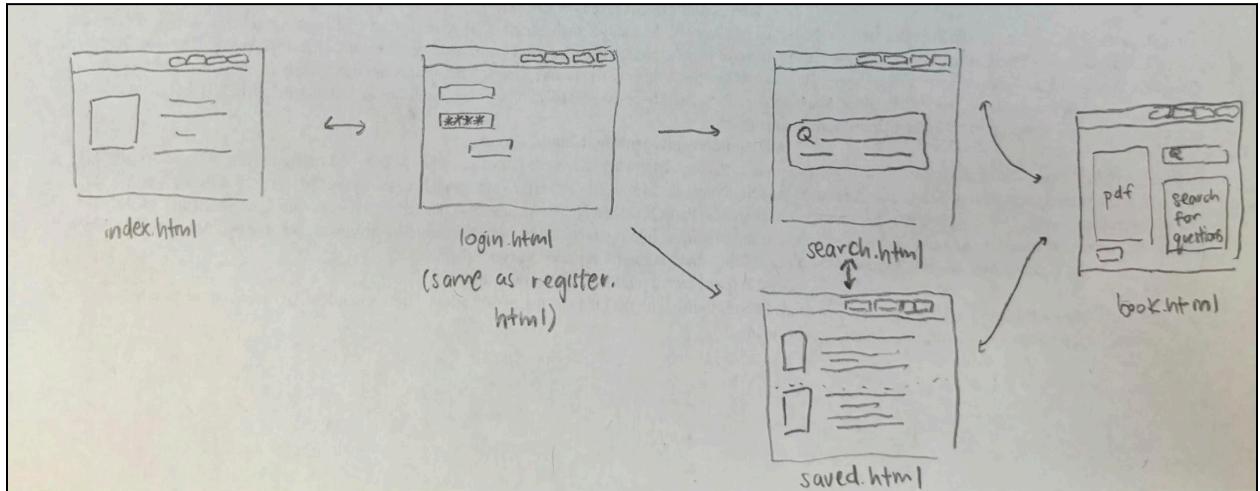
Back End:

- database.db:
 - Database that will store user accounts, favorite content, questions, answers, etc. Handles all logic in SQLite3.
- main.js:
 - Facilitates javascript functionalities that will be needed for the APIs. JS is also faster than python, meaning it would be better for our purposes.
- __init__.py
 - Renders website through flask and manages the entire directory of the website. Adds a functionality for camera access / pdf upload / question upload.
- db.py
 - Database methods that are separated from **init.py** to maintain a clean working environment.

Component Map



Site Map



Database - SQLite3

users:

username	password	ID
TEXT	TEXT	UNIQUE INT

saved:

user	pdf	ID
TEXT	TEXT	UNIQUE INT

pdfs:

title	pdf_data	ID
TEXT	BLOB	UNIQUE INT

questions:

content	ID	Textbook_ID
BLOB	UNIQUE INT	INT

answers:

content	ID	Question_ID
BLOB	UNIQUE INT	INT

APIs

Gemini API:

We will be using this API to generate solutions for problems that users may ask related to the content of the textbook. Once the user asks a question, we will use this API to generate an AI solution to their question.

Frontend Framework - Tailwind

We believe that Tailwind will be the best option for us to help achieve the site that we have envisioned because of its unparalleled capabilities in customization.

- Utilize tailwind for buttons in user interface, page sections, and prebuilt page designs.
 - This will ensure consistent design throughout the entire website and create an appealing user experience.
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Libraries/Modules/Packages

- BeautifulSoup4 (bs4)
 - Python library used for web scraping due to its simple methods for navigating, searching, and modifying the parse tree.
 - Only works on static websites.
 - Pikepdf
 - A pdf tool that has a variety of powerful tools. In this project, it will be mainly used to compress pdfs.
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Task Assignments

TASK	PMJZ	DMC	DDH	DKL
Flask Setup	X	X	X	
Database Organization		X		
HTML Templates	X		X	X
Front-end (Tailwind+CSS)			X	X
Front-end (JS)	X		X	X
API Configurations		X		X
Web Scraping	X			
Final Testing and Bug Fixing	X	X	X	X