Project Milestone 4
Group 101-6

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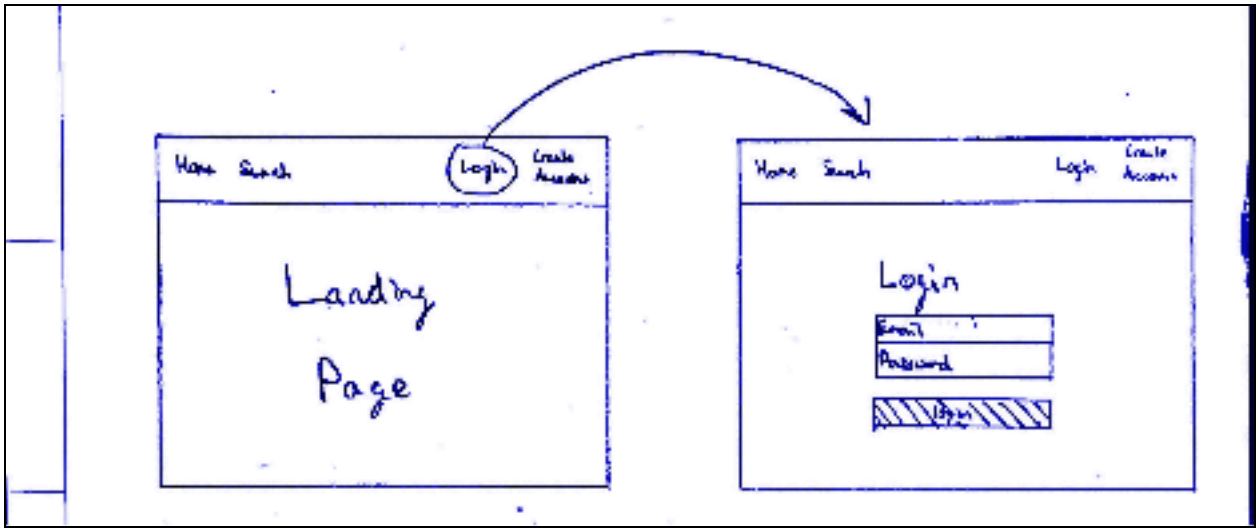
Revised Feature List:

1. Search
2. User Login
3. Account Creation/modification
4. Suggested projects display
5. Add user projects
6. Main Page design
7. Users can save projects to user profiles (Stretch)
8. Search by users (Stretch)

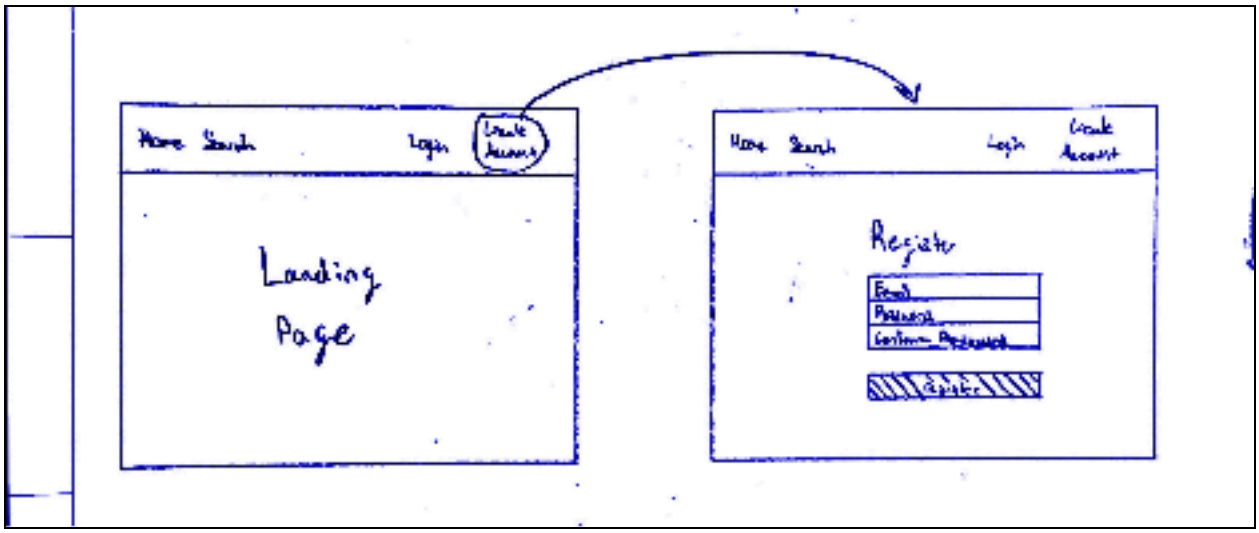
Features are listed in order of criticality. Search is totally critical to the product, without it the product is fundamentally useless. Login and account creation are also of equivalent priority, they are fundamentally useless without both being included. Suggested project display and the addition of user projects are dependent on the higher level features and functionally are at the same priority level. A functional main page has already been designed so further improvements are at the bottom of the priority list at this time. Both of the current stretch goals would be nice but are non-critical and are listed in order of difficulty of implementation.

Frontend Design:

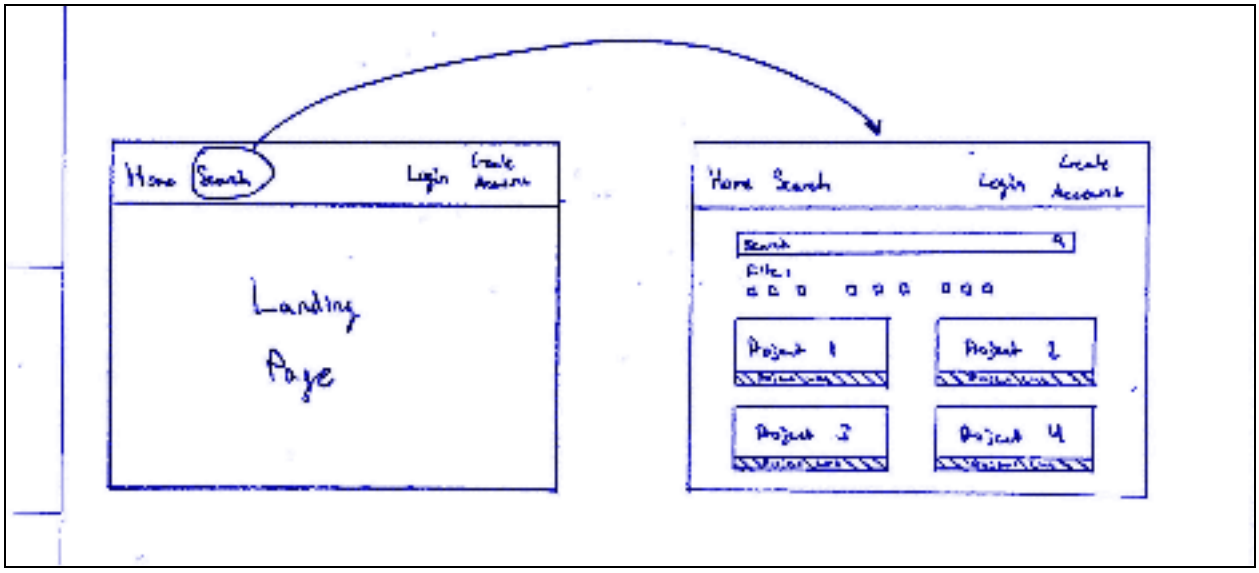
The first three diagrams involve clicking a link on the navigation bar starting from the Landing (Home) Page. In practice, the Search Page, Login Page, and Register Page can be accessed from any page the user is on, as the navigation bar will appear on all pages. The Landing Page could also be accessed from any page using the navigation bar.



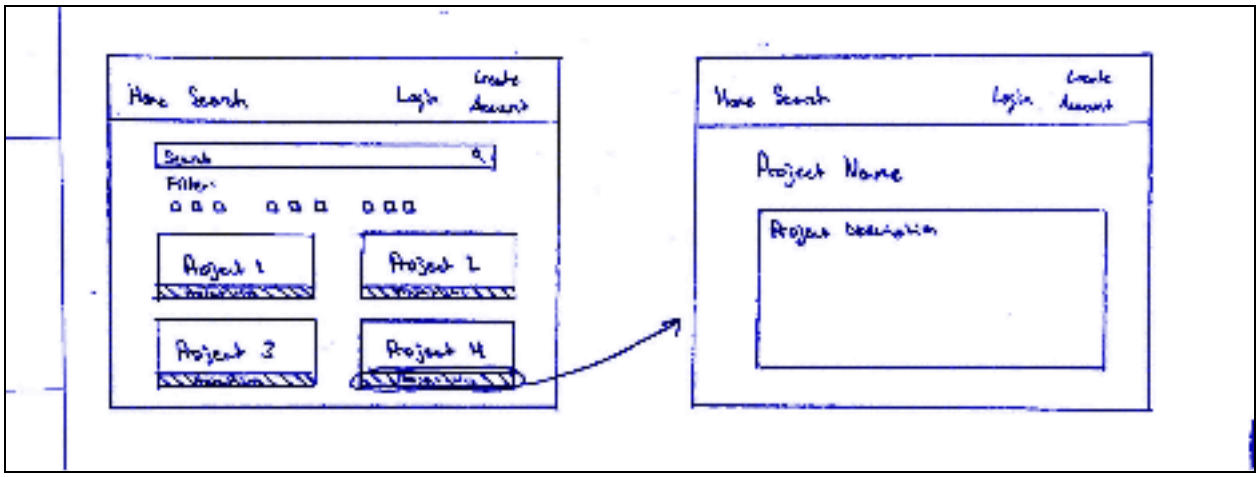
From the Landing Page, the Login Button can be clicked and the user will be taken to the Login Page. On the Login Page, the user can enter their Email and Password associated with their account. Clicking the Login Button at the bottom of the page will then log the user in.



From the Landing Page, the Create Account Button can be clicked and the user will be taken to the Register Page. On the Register Page, the user can enter an Email and Password that will be associated with their account. The user would then need to Confirm Password before clicking the Register Button and registering their account.

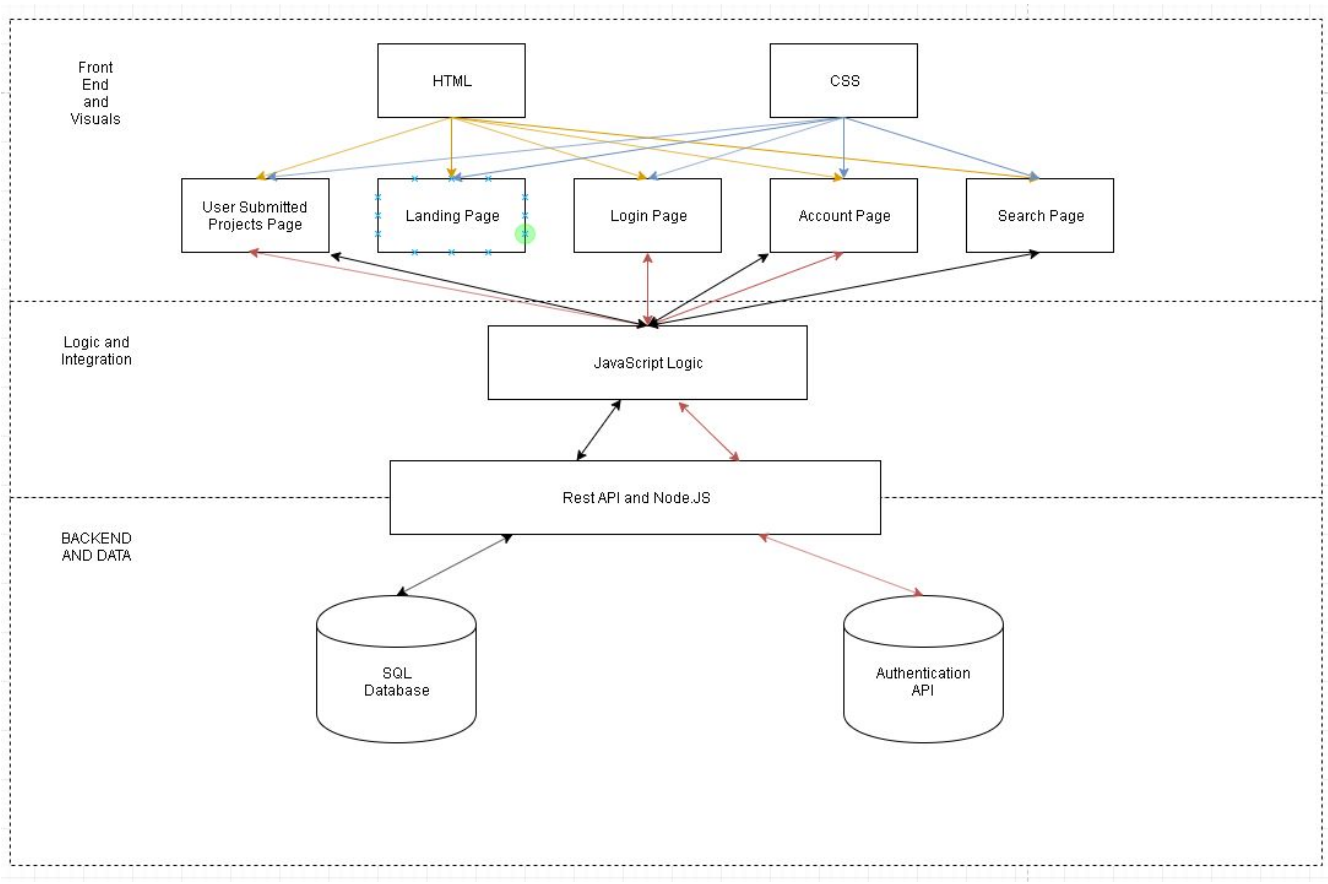


From the Landing Page, the Search Button can be clicked and the user will be taken to the Search Page. On the Search Page, there is a search bar that the user can use to search for a project. There is also a row of filters the user can edit to filter through all the projects. In the body of the search page are the Project Cards. In each Project Card there are also Project Links that the user can click to get a description of the project.



From the Search Page, the user can click on one of the Project Links to be taken to the Project Description Page. In the Project Description Page, there is the Project Name and a description of the project in the body of the page.

Architecture Diagram:



All planned for local host only using relational paths between pages.

Web Services:

We have not decided if we need web services. We plan to use localhost and handle requests with Node.js. If we do use web services, we would probably have one for safe storage of login information (most likely Google accounts if we use an API). We may look into an API for file upload that can be accessed by an internal link (like /files/custom_project.pdf) if a user-created project has no external link.

If we use a username/password API, the data passed to a username/password API would be the username and password, either in encrypted or decrypted state. Input from the login form would be sent to the API, encrypted, and sent back to the server to either be added to the database (for new users) or checked against the database (to verify existing users). In the case of a Google Accounts API, the inputs would be username and password, and the output would probably be a valid / invalid response.

If we have a file upload API, the input would be a file that a browser knows how to open, and the output would be a filename, which would be turned into a file path and stored in the “link” part of the project database.

Database Design:

The Database is designed using PostgreSQL as the DBMS technology. We are currently using four tables; skills, interests, users, and projects.

The skills table is an array that contains strings that are used to describe the projects that users can search for. The skills table contains the following:

Key	Name
1	HTML
2	CSS
3	Database
4	HTTP Server
5	API Access
6	Oauth
7	Error Handling
8	NONE
9	JavaScript
10	SQL
11	Swift
12	Kivy
13	IOS Dev
14	Android Dev
15	Systems
16	NONE
17	Password Cracking

18	Kali Linux
19	SQL Injection
20	XSS
21	Buffer Overflow Attacks
22	Python
23	Text Classification
24	Statistical Inference
25	Algorithms
26	Tensorflow
27	CNN
28	Computer Vision
29	Image Classification
30	Instagram API
31	Keras
32	Sklearn
33	Vowpal Wabbit
34	Twitter API
35	Scrapy

The Interests table is also an array of strings that allows users to specify their interests in projects. Users tag interests into their profile so that the search mechanic can match users with projects that incorporate their interests. The skills and interests arrays are used to help users find projects that they would most likely be interested in and be able to use as ideas. The interest database contains the following:

Key	Name
1	Web Dev
2	Blog

3	Databases
4	Automation
5	Authentication
6	NONE
7	API Usage
8	Mobile Dev
9	Ethical Hacking
10	Penetration Testing
11	Machine Learning
12	Data Science

We also use a user database in order to store the information for each user. The purpose of this is to allow users to log in and also tie skills and interests to their profile, so that they are able to find projects that match their qualifications. The users table looks as follows:

User (string)	Password(string)	Skills array of ints	Interests array of ints
John Smith	hunter27	[1,2,3,4]	[1,4,6,7]

The projects table is to allow for the storage of these projects that users are searching for. It provides the corresponding skills and interests, and includes links to the projects so that users can see and learn more about them.
Projects.

Project title(string)	description(string)	Skills(array of ints)	interests(array of ints)	link(string)
Sample	Sample project	[1,3,4,6]	[2,4]	http://link.com