The Virtual Herbarium

Capstone 1: Project Proposal

Springboard Software Engineering Career Track

Goals: The main goal of this website is to allow users to upload images of plants to create an virtual herbarium specimen (see image below). Each user can create as many plants as they like as long as they have a photo for them. All plants can then be searched by other users and non-users.

Image: an example of a herbarium specimen. Text include taxonomy details, location of sample, a brief description of the site and specimen, and can include other info.

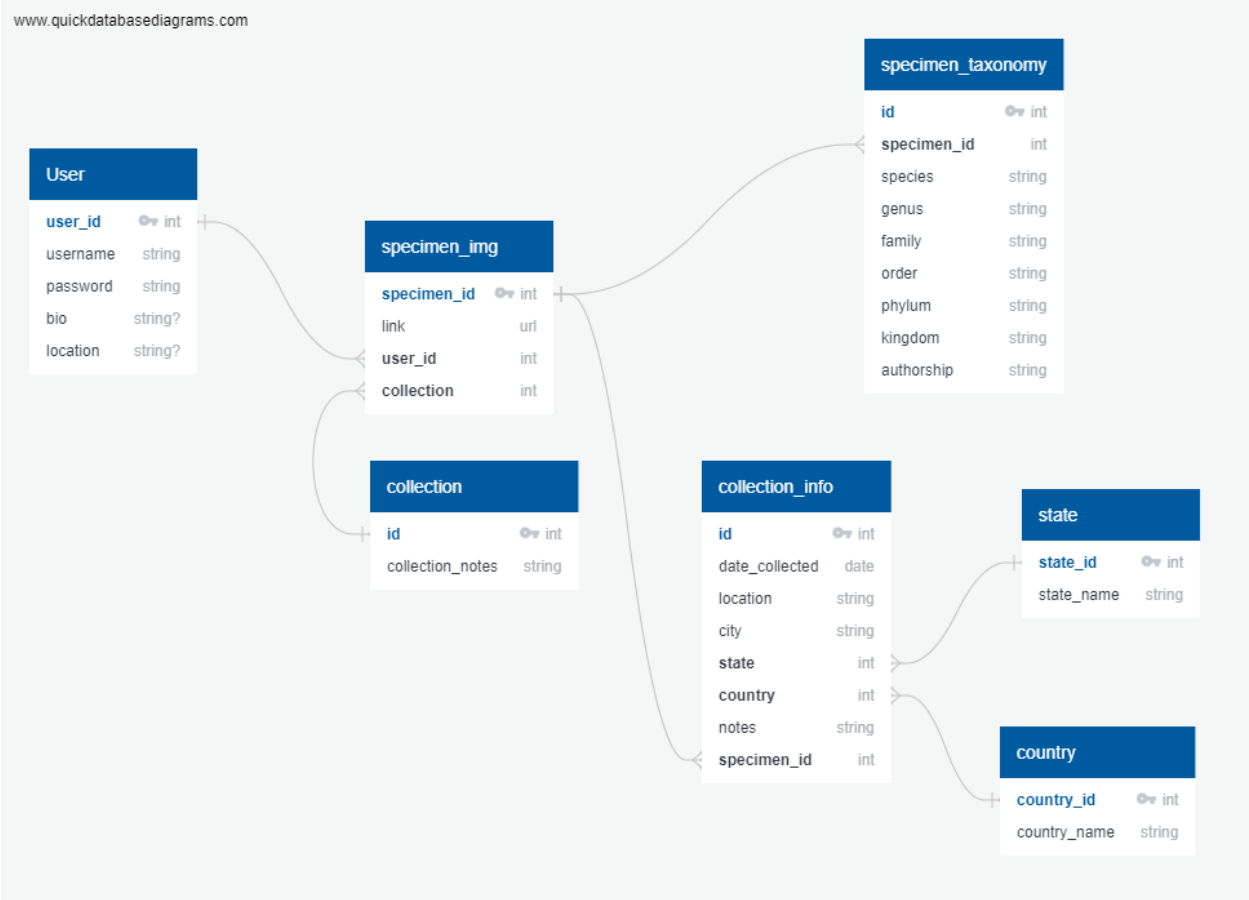
Target Users: This website would largely target hobbyist botanists, but could also include students who are working on a plant collection for a course, students who are studying plant identification, and potentially researchers if location data and accuracy are of good quality. It could be a fun project for a city park or arboretum to show all the species on their property, etc.

Data to be used: The major function of the website will be to upload photos from the user. My plan is to use the imgur API to handle uploading photos and retrieving them. Once uploaded to

imgur, the imgur image link will be stored in a database associated with the plant specimen. Another useful API would be the Global Biodiversity Information Facility's API to retrieve the taxonomy information of the species. Users would have to know the latin name of the plant, and the API could return the family, phylum, order, etc: (https://api.gbif.org/v1/species?name=Puma%20concolor).

Challenges/Considerations:

Schema: The database schema will be quite simple, but to simplify individual tables, the specimen data will be broken up to reduce repetition (especially with location and taxonomy data). This may require more work to simplify all tables. I may also add in a 'collection' table so that users can group their specimen if they choose (EG: all specimens collected at X State Park).



Imgur API: I think the photo upload functionality will be the most unknown element of this project for me. As of now, I'm only glossed over some youtube videos showing how it could be done, but that will be my biggest task I think.

Website structure: Keeping things simple, I will likely have routes for the following:

- Main page: displays all of the specimens in the database with some sort of filtering/ordering function. Specimens can be clicked on to go to specimen page.
- Specimen page: has large image of plant along with collection data similar to the example above.
- User page: User page has all of their specimens similar to the main page.
- Create/Edit user: form to create/edit user
- Create/Edit specimen: form to create/edit specimen

Extra functionality: It could be neat to include a way to download the specimen as a PDF or set up some sort of print view to neatly print out a specimen. Maybe an option to attach multiple images (close ups of seeds, flowers, etc).

New add-ons to use: I may try to use WTForms-Alchemy and Flask-login to see how they work vs what we've used in the course so far.