“Duke Research Hub” Project Milestone 1

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A brief description of our application

Our group is building a Research LinkedIn page. Our goal is to connect students to research opportunities by providing them up to date information that they need in order to determine which lab to research in. We will be developing a query system that would allow students to look for projects Labs have posted, or look for research labs to directly contact. Each Lab page will have information about what wor the lab does, the website, PI email (Grad Recruiter), and much more. We will also try to develop a profile page that will allow students to directly apply to labs. Lab managers will have the ability to send out projects to the public and directly to students who have skills they need based on tags students identify themselves under in their profile.

Plan for Obtaining Data & Populating Database

Currently Duke has built out a platform called Muser. Muser does a similar concept simply with Biology majors. We have spoken to them and a member of administration, and they are willing to give us test data to use to populate the website. Later on, we will use web scraping libraries such as BeautifulSoup in Python to obtain projects currently posted on department websites. In the long run, we hope that Duke faculty and student researchers will populate the database by creating their own entries for projects.

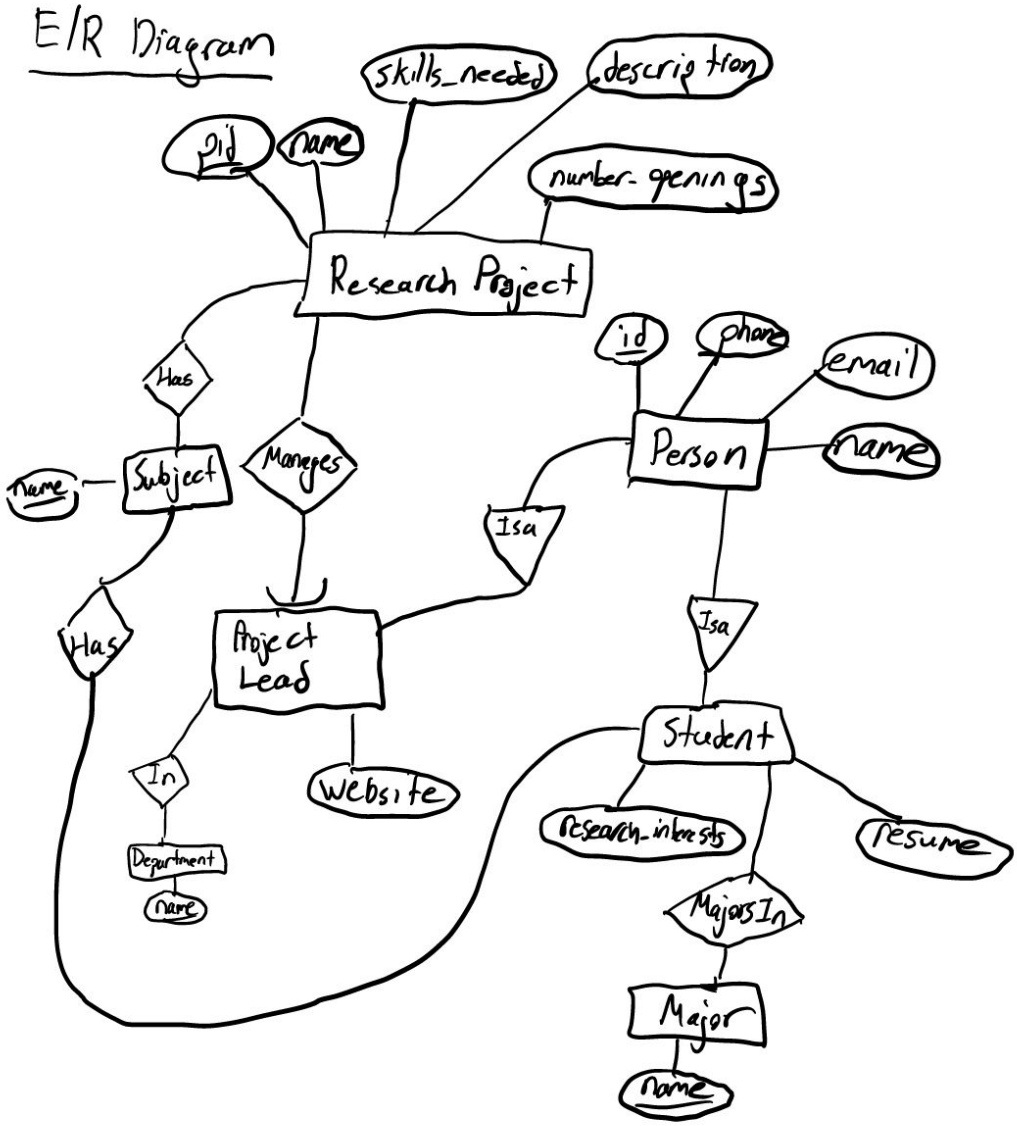
Assumptions

The data will be biased towards the preferences and needs of the biology department. The data we will be using will not have names (we will make that up ourselves) of the students nor their resumes, but it will have this information (year, experience, interests, etc).

We will have a good sample size of data (90 students) . While we wished we had more, I believe this is a great data set to start off with.

For labs, we will be coordinating with the Neuroscience department to populate the page with lab projects. We have spoken to Muser, and they will ask labs who have posted on their platform to see if we can use their sample projects on our website.

Database Design



Relational Schema

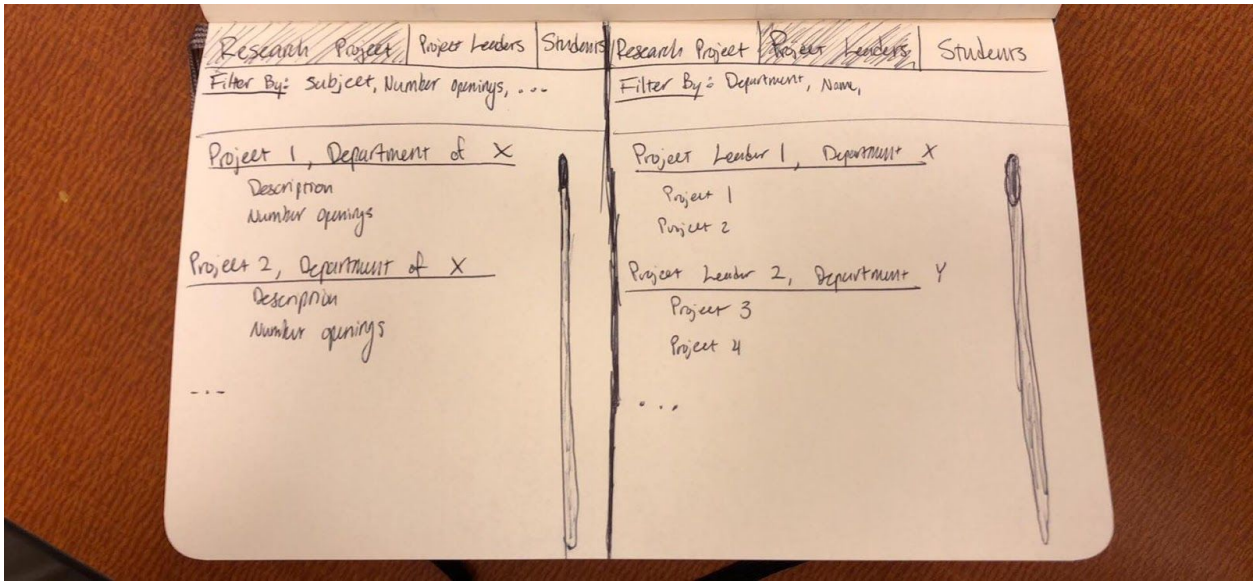
Person(id, name, phone, email)
LeadInfo(id, website)
LeadDept(id, department)
StudentInfo(id, research_interests, resume)
StudentSubject(id, subject)
StudentMajor(id, major)
ProjectInfo(pid, name, num_spots, date_posted, description, skills_needed)
ProjectSubject(pid, subject)

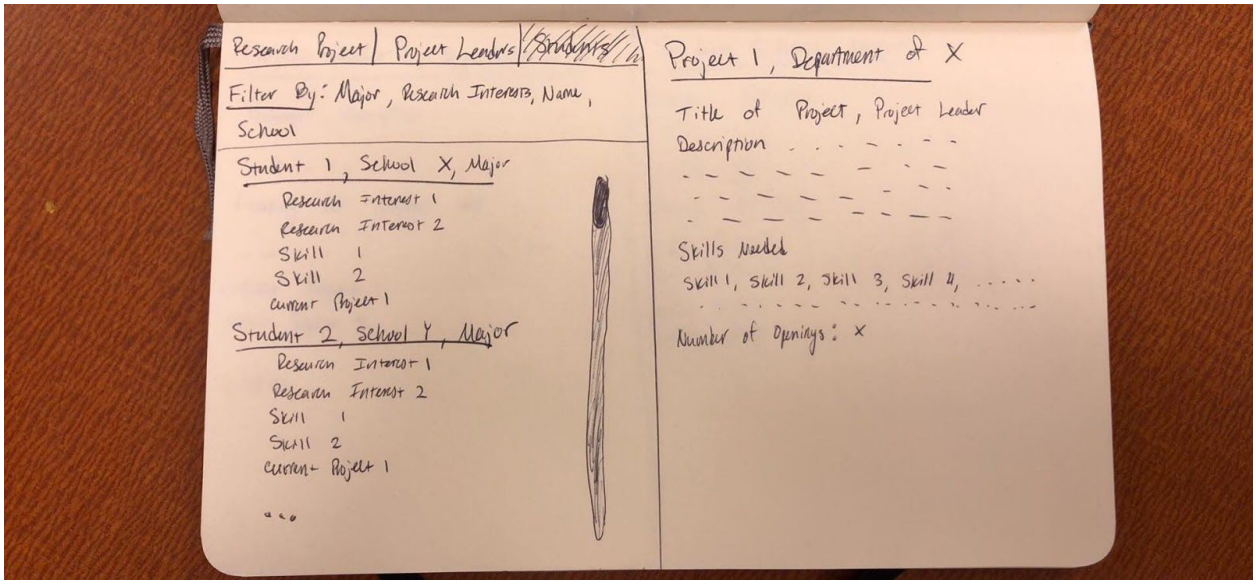
Manages(pid, research_lead_id)

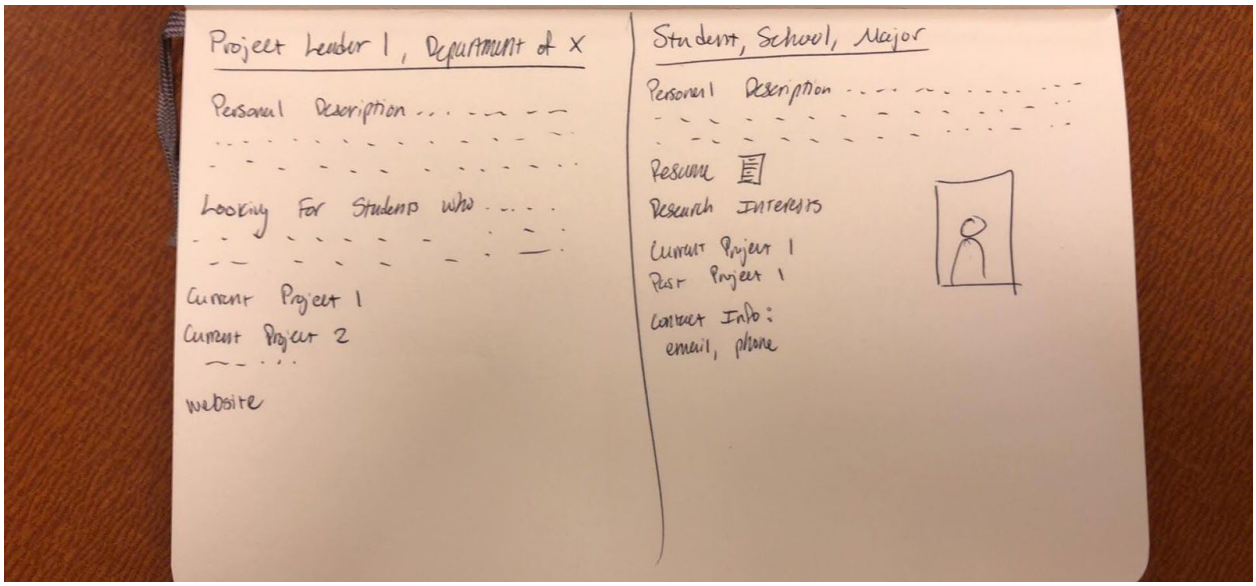
Web Interface

Our group has not yet developed a functional web page for our project. Graphics and descriptions of the website's structure are below.

Description of Interface







There will be three main tabs within our webpage, Research Projects, Project Leaders, and Students (as shown in the first three panels in photos 1 and 2):

Within the research projects tab, users will have the option to filter the results by subject, number of openings, and… Each research project will appear below in a scrolling pane with a highlighted title and department, with a brief description and number of openings below. Once you click on a research project, it will direct you to the project page (pane 4, image 2), which will show the title of the project, the project leader, a description of the project, the skills needed, and the number of openings.

The second main tab will be Project Leaders (image 1, pane 2). Underneath the tab, users will be able to filter by department, name, and… The tab will display the names of all project leaders, their departments, and projects they are working on. Once you click on a project leader, you will be directed to the project leader's respective page (image 3, pane 5). Users will find a personal description of the project leader, what they're looking for in a student, their current projects, and a link to their personal website.

The final tab will be for Students. Users will be able to filter students by their major, research interests, name, and school. Each student will be listed along with their school and major, with research interests, skills, and any current or past projects listed underneath. When a user clicks on a student, they will be directed to the student's respective page (image 3, pane 6). Within a student's page, users will find a personal description, link to the student's resume, research interests, current and past projects, and all their contact info.

Query Descriptions (Queries are all in GitLab Repository)

- Select all projects, filter by subject, filter by number of open spots, sort by date posted
- Select all project managers, filter by department, sort by name alphabetically
- Select all students, filter by major, filter by research interests, sort by name alphabetically