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CPSC 4620
Database Project Proposal
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Range Finder

Problem Statement

It is obvious that people like to track things. There are numerous successful web and mobile applications whose sole purpose is to allow users to track various aspects of their lives. With Range Finder, we want to expand the list of what people can keep track of, while still allowing them to stay in touch with nature. We do not feel like there is an adequate source for people to track the mountains that they have hiked or climbed and Range Finder aims to fix that. We plan to do this by creating a database containing the mountains of North America and implementing a web portal that allows users to search the database, mark mountains they have climbed, and leave comments about their trip.

We believe this makes an interesting parallel processing problem strictly because of how large the dataset is; there are thousands of mountains in North America and Range Finder aims to track as many of them as possible. The potential user-base would consist of people who are passionate about the outdoors and love climbing mountains.

Proposed Approach

Using MySQL, PHP, HTML, and CSS, we plan to create a site that allows users to sift through the massive list of mountains in a incredibly user friendly way. This way users can add mountains to their own accounts in order to keep track of them. Since the dataset is so large, we will use the built-in MySQL search algorithms so that the user is able to quickly find the mountain they are looking for. The entity model we plan to use to represent each mountain will consist of the mountain's name, state, elevation, latitude, and longitude.

Functions Targeted by Software

Users will be able to:
- Search database by various attributes
  - name, state, elevation, latitude/longitude
- Add mountains to their personal account
  - Forms a relationship between the user and mountain entity models to show that the user has climbed that mountain
- Leave comments on mountains
  - Creates an entry in the comments table that belongs to the user and mountain
- See and edit their personal information
  - name, email, password, phone, address
- See where other users have been

Administrators will be able to:
- Edit/Add information about mountains.
  - Fix errors such as naming and elevation
- Input new mountains into the dataset
- Search/Remove/Edit user accounts
- Backup dataset information
  - Download a database dump

Evaluation Plan

We will feel like we will have succeeded if a user can be created in Range Finder and then the user can search the database for a specific mountain based off any attribute and receive a response in less than one second.

Project Timeline

Week	Task
1	Gather the map information for creating a database
2	Parse map information and create the database
3	Design the MySQL queries for searching mountains based on different attributes
4	Plan the design for the web portal
5	Implement a bare-minimum HTML page that searches a subset of the database
6	Implement users by creating a login for the site
7	Implement tracking functionality for forming relationships between users and mountains
8	Implement commenting functionality for mountains
9	Implement administrative database functions
10	Build bare-minimum site to be used on full-sized database
11	Finalize site design/layout

Sources:
All map data used to create the database is from *www.openstreetmap.org*