1. ML Predictions

- Create an API using a machine learning model to return data.
- Write a Python API with validation for uploading data to a Flask server, ensuring the data is formatted properly for a particular machine learning model, and return the resulting predictions.
- Write a Node app with react that provides a UI for the Python API, forms for the users to insert data and/or .csv files, and return predictions to the user with an option to download as a .csv file.
- Data will come from UCI machine learning repository.

2. ML visualizations

- Create a Node App with a react front end that lets a user play around with LSTM structures.
- Pretrain LSTM models on specific datasets with specific architectures.
- Let a user select a specific dataset, and a specific architecture, and view visualizations of the predictions.
- Predictions / visualization will be done with python, images generated using matplotlib (returned as IObyte strings, or list of such.)
- Data will come from UCI machine learning repository.
- Can do side by side comparisons of two structures.

3. ML Experimental Design

- Create a node app that lets you write math functions, use them to generate training data, and fit machine learning models to the data.
- Various experimental design techniques would be available for comparison (e.g., for a fixed number of samples, which generates the most accurate machine learning model.)
- training would be done in python, user functions would be included using feval, and experimental design would be done using python.
- UI would be created in flask/node.

Functionality

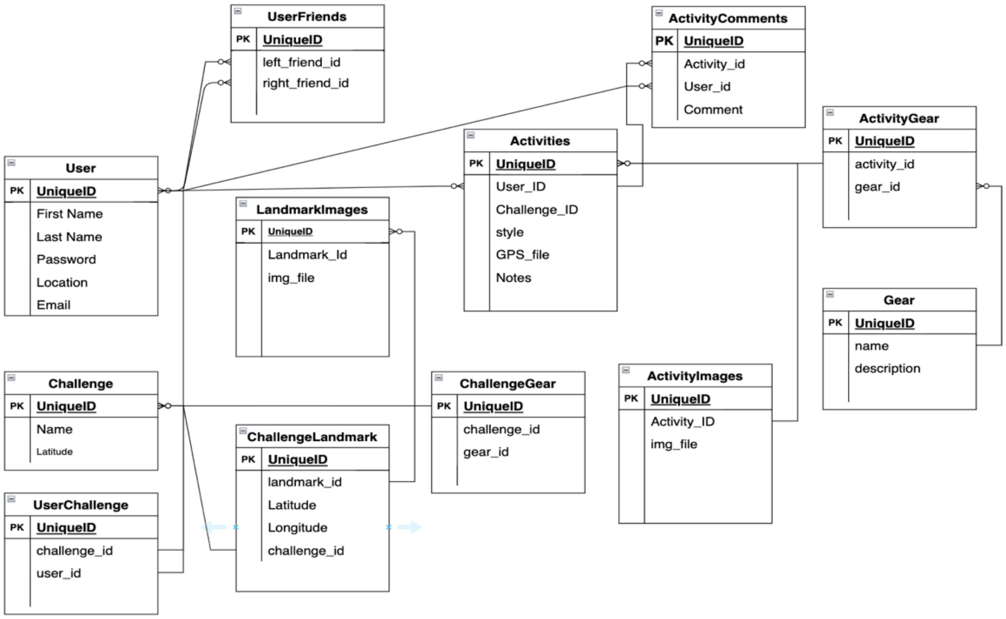
Data Requirements and Sources

Potential issues

User Flow

Http Verb	Route	Response	Restriction
GET	/	Homepage	
GET	/users/create	Create account form	

Schema


UserFriends
PK UniqueID
left_friend_id
right_friend_id
ActivityComments
PK UniqueID
Activity_id
User_id
Comment
ActivityGear
PK UniqueID
activity_id
gear_id
User
PK UniqueID
First Name
Last Name
Password
Location
Email
Activities
PK UniqueID
User_ID
Challenge_ID
style
GPS_file
Notes
LandmarkImages
PK UniqueID
Landmark_Id
img_file
Gear
PK UniqueID
name
description
Challenge
PK UniqueID
Name
Latitude
ChallengeGear
PK UniqueID
challenge_id
gear_id
ActivityImages
PK UniqueID
Activity_ID
img_file
ChallengeLandmark
PK UniqueID
landmark_id
Latitude
Longitude
challenge_id
UserChallenge
PK UniqueID
challenge_id
user_id