Assignment T1: Preliminary Project Proposal

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Part 1: Overview

**1. What will your project do?**

Our project will be a web application that matches researchers running clinical trials with prospective trial participants. Both types of users (researchers and prospective trial participants) will be able to create an account and log in. The prospective trial enrollee will be able to input information regarding their health status (age, gender, race, pre-existing conditions etc.) and requirements for trials (location, trial type, invasiveness, etc.). The researchers will be able to specify what their research is about and what types of patients they're looking for. Our web app will match the researcher to prospective enrollees who fit their criteria. The enrollee and researcher will be able to message one another within our application, and discuss more specific trial requirements.

Our MVP will most likely not implement the messaging functionality and will simply send a notification to a participant if they match a researcher's criteria. Furthermore, our MVP will only get specific information from the user (using drop-down menus instead of having the user input plain text) to simplify the data we will be storing.

**2. Who or what will be its users?**

Our application will have two types of users: researchers and prospective trial enrollees. Both types of users will have authenticated login and timeout/explicit logout.

3. **What do you think you'll be able to show in your demo?**

There will be a user interface that we can demo. We could show the process for each type of user--creating an account, logging in, filling out a form, getting matched with a researcher/enrollee, messaging a researcher/enrollee etc.

4. **What kind of data do you plan to store?**

We plan to store health data about each prospective trial enrollee (i.e. age, gender, preexisting health conditions, etc.) as well as information about each trial in search of participants (i.e desired age, desired gender, other criteria). We will also store messages between the trial enrollees and the researchers.

5. **What API do you plan to use and what will you use it for?**

We are most likely going to use an API for the authenticated login as well as our messaging platform. Also, we will use an API to calculate the distance between a trial enrollee and a researcher so that the trial will fit the participant's location criteria. Another public API we could use is Lexigram: an API that uses NLP to extract mentions of clinical concepts from text. If we end up having the users input plain text (to describe medical conditions for example), then this API may be helpful.

Part 2: User Stories

As a researcher, I want to find fitting participants for clinical trials so that I can get results.

My conditions of satisfaction are

1. The participants I am matched with do not violate the criteria for my trial.
2. I am able to ask potential participants for further information if necessary.
3. I am able to communicate with potential participants.
4. I am able to fulfill my requirement for a number of participants.
5. I am able to create multiple trials.
6. I know which trial a participant matched to.

As a potential participant, I want to participate in clinical trials so that I can earn money.

My conditions of satisfaction are

1. I will know the hourly rate associated with the trials I am matched to.
2. I have the ability to decline.
3. I can access information about the trial.
4. If I meet all criteria for a trial, I will be notified.
5. I am not matched with trials for which I violate screening criteria.

As a potential participant, I want to participate in clinical trials so that I can get access to treatment for a pre-existing condition.

1. I will be matched with trials related to my pre-existing condition.
2. I will know the interventions associated with each trial.

3. All trials I am matched with have received IRB approval.

Part 3:

Explain how you will **conduct acceptance testing** on your project. This means that every MVP user story must be associated with a plan for user-level testing. The test plan should address both common cases and special cases. Discuss sample inputs the user or client would enter and the results expected for the corresponding test to pass vs. fail. Note inputs might come from files, network, devices, etc., not necessarily from a GUI or command line, and results might involve changes in application state, files, outgoing network traffics, control of devices, etc., not necessarily outputs via a GUI or command line. You may optionally discuss testing plans for your wishlist additional user stories, if any.

From rubric: 2 points each for 3 best user story testing plans, no more than 6 points total (i.e., 2*3). Each user story should be associated with at least two plausible-sounding system-level tests (not unit tests), 1 point for testing a common case and 1 point for testing a special case, e.g., user/client or system error. (If more than two tests are described for the same user story, still max 2 points per user story)."

User Story 1 Tests:

**Case 1:** A participant who matches a researcher's criteria is matched with that researcher.

- Create a participant with healthy medical data
- Create a trial looking for healthy people
- The test passes if both the participant and researcher are notified of the match.
- The test fails if either party is not notified of the match.

**Case 2:** A researcher is running multiple trials. They know which participants are matched with a given trial.

- Create a new researcher, and add multiple trials to their account.
- Create a new user matching each trial's criteria.
- The test passes if the researcher is effectively informed of which trial each participant matches.
- The test fails if the researcher cannot distinguish which trial a participant has matched or an incorrect trial is indicated.

**Case 3:** A researcher does not upload the IRB approval for their clinical trial.

- The researcher is not able to create the corresponding clinical trial

User Story 2 Tests

**Case 1:** A participant can accept the match by indicating that they would like to move further.

- Create a participant with condition x.
- Create a trial looking for people with condition x.
- The participant and the trial are matched.
- The test passes if the participant can accept the match by continuing a conversation with the researcher.
- The test fails if the participant is not able to accept the match.

**Case 2:** A participant can reject the match.

- Create a participant with condition x. Submit their
- Create a trial looking for people with condition x.
- The participant and the trial are matched.
- The test passes if the participant is able to reject the match by indicating their choice on the application and the match is removed.
- The test fails if the participant is unable to reject the match and the match is not removed.

**Case 3:** A participant has not input their medical history so that they can be matched with clinical trial criteria.

- The user is not able to become a part of the match database
- If there is a portion of the form that is not filled out, the user will not be able to submit it

User Story 3 Tests

**Case 1:** A participant gets matched with a trial related to their specific condition.

- Create a participant with condition x.
- Create an IRB approved trial looking for people with condition x.
- The test passes if both parties are notified of the match and the participant can see interventions.
- The test fails if either party is not notified.

**Case 2:** The participant has not specified their underlying condition.

- They will not be able to submit the form.

Part 4:

We will be using JDK, Eclipse, Maven, CheckStyle, JUnit, Emma, Spotbugs, and SQLite.