Software Engineer - Takehome Exercise Instructions

The software systems we build are core components within a complex web architecture. We have high standards for the availability, reliability, performance, and security of our systems. In order to deliver on our promise to the American people, we must quickly field support requests that span diverse aspects of our systems. Some example requests we must handle include investigating and resolving subtle integration issues between our systems and external systems, debugging a failing external dependency, resolving discovered bugs, making application enhancements for things like improving accessibility for blind users, and many others. This exercise is designed to recreate the type of software support work we frequently do.

Take your time completing this exercise -- the goal is to understand more about your ability to debug code and how you address the issues you uncover. This exercise should take no more than an hour of your time.

Instructions

1. Open the project code, which was provided alongside this document.
2. Follow the instructions in the project's README file to get the project up and running locally on your machine.
3. Once you've completed the exercise, please delete the *node_modules* folder (it's very large and we don't need it). Then create a zip file (just like the one we sent to you) and email it back!

Goal

1. Use your local environment to debug the issue described in the email thread below.
2. Implement a fix.
3. Precisely communicate the root issue and your solution to two parties:
    a. A technical description to a fellow Nava engineer
    b. A non-technical description to our government client

Deliverables

1. A zip file with the fixed project source code. Your solution should:
    ○ Display an appropriate error message for this failure case
    ○ Ensure the page never hangs for *any other* failure case
2. A PDF or text document where you:
    ○ Briefly explain the issue at a technical level, and how you fixed it. Screenshots showing evidence of the problem before the fix and after the fix are encouraged. The goal is to be brief but clear, so a fellow engineer could quickly review your changes and provide feedback. You can think of this as a mock pull request.

○ Write a brief email responding to our non-technical government client, explaining the issue and how we fixed it. Your response should be no more than a few sentences or bullet points, and should include a screenshot showing the fix.

Tips

There are many ways this problem can be solved. There are also many optimizations that could be made. Here are some tips to constrain the bounds of problem:

- Your solution need only address the immediate problem at hand.
- Your solution should not require too many lines of code, nor should it require any large refactoring.
- If you see other optimizations that should be made, please just call them out as recommendations in the technical description of the issue. You do not need to implement them in code.

The Issue

Nava received the following email from our government client describing an issue they've encountered:

From: Bala, Josephine
Sent: Wednesday, January 25, 2017 1:37 PM
To: Nava [Nava PBC] <hcgov@navahq.com>
Subject: FW: HP DR - Not Able to Create Account

Hello Nava Team,
In test environment, we are not able to create new account. It is not taking to next page.
Can you please check ?

Thanks & Regards,
Josephine.Bala
Acme-Tech Ops

From: Forrester, Michael
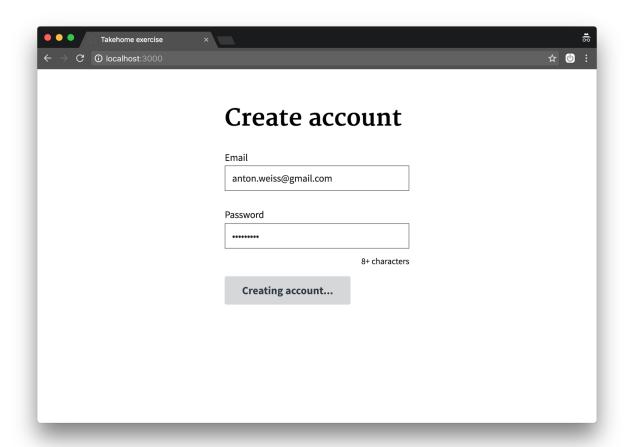**Sent:** Wednesday, January 25, 2017 1:02 PM
To: Josephine, Bala [Acme Technologies LLC] <bala.josephine@acme.tech.llc>
Subject: HP DR - Not Able to Create Account

Hi Josephine,
Attached is the screenshot of where it hangs on create account. It seems to happen with passwords that contain ? or = characters.

Michael Forrester
Federal Services