WEB ROUTING

Evaluation Manual

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# 1. Overview

This document will discuss issues and potential improvements to the system. Both the routing and the auctioning components of the system are designed to be scalable and support development of further features. Some ideas for further features are included, as well as technical issues that were unable to be fixed within the timeframe.

# 2. Issues

1. **Multiple Users logged in on the same browser**: Users cannot login to two separate accounts on the same browser.
2. **Screen scaling: The screen must be able to adjust to the size of the device using the application.**
3. **Navigation dropdown**: The current dropdowns on the navigation panel will obscure the buttons underneath.
4. **Cannot upload users:** Need to implement uploading users from excel spreadsheet.
5. **Shadow Admin to see current logged in users:** Shadow Admin lacks the ability to see what users are currently logged into the application.
6. **Freight rate table expansion:** Needs to take in weight, volume, and other potential parameters.
7. **Forgot password:** This feature does not work. It currently redirects you to the Login Page.
8. **Add technicians:** This screen looks and works differently than other add screens. The contacts are populated into the page even though you may already have a contact that is a technician.
9. **Add Other User:** This screen shows MASTERLIST as the role since the code gets the role.name for each user. This needs to display Auctioneer
10. **Auctioning when disabled**: The current shipments that were in the auction remain the in auction
11. **Account is not enabled**: An error is thrown into the console instead of handling it and giving the user an appropriate message.
12. **Verify account**: If you are already logged into the account and you click the verify account button from the email it crashes the page and throws an error in console.
13. **Admin delete capabilities:** Admins are not able to delete other admins, auctioneers, or Shadow Admins.
14. **Navigation bar**: The navigation bar cannot be minimized if the user is not logged in.
15. **Dependency conflict:** An error is displayed in the console every time an entity is deleted that has a database relation.
16. **Unpopulated drop downs**: Drop downs are not populated when dependent fields do not exist. For example, when trying to add a driver and there are no contacts available that are not already tied to a driver, the drop down will not be populated. This will disable the submission of the form that is dependent on the relationship.
17. **Screen incongruencies:** The registration pages, add technicians, and admin account creating pages have green buttons and split forms. This is incongruent with the style of the other pages within the application.
18. **Direct Assignment Price:** When directly assigning a shipment, the price field allows for much more input than what is capable of being stored in the database.
19. **Vehicle Assignment Loading**: When attempting to find the best vehicle based on distance, if there are no vehicles to find then the cursor is stuck as a loading icon.
20. **Excel Uploading**: Double clicking the upload button can fire the upload twice.
21. **Filter Routes Date:** The date selection does not filter by ship date as expected. When selecting a date it does not filter the routes by the date that was selected.
22. **Updating User Details**: When updating user details, it disables auctioning for that user.
23. **Add Other Screen:** When Admins attempted to add an “other user” the page breaks once a field is incorrect.
24. **Deleting a User**: Deleting a user does not delete the carrier object along with it if the user is a carrier.

# 3. Fixing Issues

1. This issue with logging multiple different users into different tabs lies in how Spring manages sessions. It ties a session to a browser cookie, called JSESSIONID, and that cookie is shared between all tabs of the browser. A workaround for this would be to store some unique token in window.sessionStorage in HTML5 on the client end with JavaScript and passing this unique token to the server with every request. Then, some intercept function would have to check every incoming post request and indicate which user is logged in to the server, thus delivering the right content to their tab. Google Mail uses a system like this and appends the token physically into the URL body.
2. A fix for this has been implemented in the Navigation bar and header. This involves using the @media tag in CSS to adjust the CSS for different screen sizing. This issue is that the CSS for every element that needs to be resized will need to be rewritten entirely, with multiple sets of CSS for different screen sizes. It is also difficult to test this element of the program without having access to many different screens at easy disposal. If this were fixed in the future it could lead towards an eventual mobile version of the program, but it would require a full CSS rewrite from the ground up.
3. Instead of dropdown submenu, implement an accordion menu.
4. This could be done using the existing excel upload. However, it would need the user to securely set their own password after uploading. Not be able to store plain text passwords in the excel file. Users would need to be prompted to change their password upon first login.
5. Use the object principle from the SecurityContextHolder object in Springboot to grab a list of active user's session ids. This would also require the UserDetailsService to implement methods for handling the session IDs and mapping them to the correct usernames.
6. The freight rate table currently considers distance and can also set prices for different carriers. It should also be able to modify prices based on distance. This can be done by modifying the formula for calculating the Shipment price from the Freight Rate Table.
7. The crash is due to a null reference error in userServiceImpl.java. The crash would have to be caught (in a try catch) and a message displayed to the user.
8. Change the html to match the other add pages. Display only the contacts that do not have technicians already attached to them. This is done in the add drivers screen.
9. This should be changed to display Auctioneer
10. When the auctioning is disabled, it should check for the current shipments in auction for that shipper and move them back to pending.
11. Examine the login Controller, it does some strange thing with catching a Springboots error that manifests as an empty string
12. There should be a check to see if the user is currently logged in when the verify account button is clicked. If they are then it logs them out.
13. The delete buttons need to reclusively delete the dependent objects before those users may be deleted.
14. The JavaScript that is responsible for this action does not load when the user is not authenticated. Overriding the springboot feature that is responsible for this may be a fix.
15. To fix this the database should be reconstructed to not have so many foreign key relationships. This creates a chain of dependencies.
16. Rework the way forms are loaded on the application to be more dynamic and handle this situation
17. Poll the users current screen size and adjust the sizing of CSS elements to fit smaller screens sizes.
18. This is due to the price object being converted into a BigDecimal object. Remove this and create conditional string slicing.
19. Implement a timing functional that gives the transactional a certain amount of time before converting the icon back to a normal curser.
20. Once clicked the curser should be turned into a loading icon, not allowing further input until the transaction is complete.
21. The filter date should first be removed. The first step for adding it back into the program would be to take the date from the shipment and convert it into a workable format with the way the date picker returns its date.
22. Set the new users object enabled filed to the current logged in users enabled field.
23. The drop-down breaks once the forms has been submitted incorrectly. This is because the transactional post request is populating the model and not the GetRequest which originally populates the page.
24. When deleting a user check to see if the user is a carrier. Delete the carrier object along with that carriers' objects.

# *4.* Improvements/future work

1. Expanding the freight rate system to incorporate more parameters beyond the current distance and carrier ones. Weight, volume, and commodity class can be considered.

2. Creating a system for having accounts created by the administrator (whether uploaded or added manually) set up their password on first login. It would be far more secure to have externally created accounts set their own password on first login than trusting that responsibility to the admin.

3. The routing system currently can display the route of a vehicle as it picks up a shipment and drops it off. This can be expanded to show more details about the route, as well as showing the route of a vehicle with multiple shipments. The current system can already calculate an optimal vehicle for each shipment based on distance, this system could be expanded into calculating an optimal route from shipment to shipment for all the shipments in a vehicle.

4. A system could be developed to get around the limitations of Springboot session manager to allow different users to log into different tabs. This would either involve modifying the URL body with a unique token stored on a tab-by-tab basis in the client or appending said token into the request header for all requests, and then having a system on the server-side handing out the appropriate pages to each tab based on which token was received.

5. The CSS of the application can be redesigned to be scalable, so that it would be more feasible to have everything scaled to different screen sizes. This could also be used to build a mobile version of the application. A mobile version would be helpful for drivers in the field calculating their routes.

6. Expand the Logging system: Currently Shadow Admins can only see the current log file that is being written to. Log files get archived after it hits 1GB and there is no system to reopen them for browsing. You may want to consider moving away from the log file to a sql table for consistency with all of the other entities across the application.