**User acceptance testing**

In the final sprints when the majority of the system functionality was implemented user acceptance testing took place. User who have experience in using a rota building application and those who do not were asked to patriciate in the testing. This provided important feedback as it showed that the system was easy to understand and use when the user was a novice and had no experience in using such applications. Furthermore, from user testing it showed that the system was easy to navigate, pages didn’t not take more than 10 seconds to load and only registered users could use the system.

While, this type of testing could have taken place at an earlier date, it was believed that as not much functionality was implemented during the first sprints those testing the system would not be as able to provide as clear feedback as possible it most of the features were missing. Those testing returned feedback verbality and any clear defects found find were noted and fixed. **Table number** shows a selection of defects that were found in the system during user testing and the solution used to fix the defect.

It should be noted that user acceptance testing took place on the computer in which the system was developed using the localhost. Better user acceptance testing would have involved launching the application and getting users to test it using their own web browser. This would have meant that the system would have been exposed to a number of various environments and this would have meant more defects and improvements could have been made to the system. However, due to the time constraints of the project this wasn’t possible.

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| Page on which defect found | Description of defect | Solution to problem |
| Sign-in Page | Upon click of forgot password link the system is not navigating to forgot password page and showing 404 page when clicked | Set up router link for page that when forgot password link is clicked the system navigates the user to the forgot password page |
| All | User could enter URL manually and if not admin gain access to the admin functionality | Admin authentication guard was added to all admin routes and stops general users accessing admin functions |
| User Welcome Page | Total shift count for week did not update when week was changed. First loaded total shift count shown | Weekly shift count was added to the onChanges method that counts the total shifts for week when change is detected |
| User Welcome Page | When no one is working the information modal does not show any information | ngIf statement added to the view that outputs message if total shifts for that day are 0 |
| Rota Creation Page | User can insert characters instead of numbers into start and finish time inputs | Inputs changes so they are of type time |
| Rota Creation Page | Editing one shift cases all already created shifts to be edited to the same time | Shift ID was passed to the edit shift method |
| Employee Overview Page | User can manually enter userID in URL for user that doesn’t exist | Message added so that when a user does this the system will output a message saying user for selected ID does not exist |
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