**A summary of the unit tests that you wrote and a description of what kinds of bugs, if any, those unit tests enabled you to find (1 page)**

The purpose of the Unit Testing for Cycle 1 was to uncover and functional or technical errors that were produced. From experience, when multiple teams work on different areas of a program there are many integration errors that may occur. The goal of this testing was to perform technical unit testing on each input from the user, to discover any functional errors that occur in the basic functionality of the application, to ensure that proper error messages are sent to the user when performing basic tasks, and to ensure that integration between the database and front end are adequate with no error. From the functional and technical unit testing, we were able to uncover a number of errors occurring from input validation, error handling, and object interaction.

For development cycle 1, 15 unit tests were created that covered a range of areas. 3 unit tests involved logging into accounts and the validation involved in it. 6 tests that involved the creation of accounts and input validation for the accounts. 2 tests involved ensuring that the buttons to load different areas were working properly, and the last 4 tests involved creation jobs from the “Job Creation” screen.

The unit tests performed for cycle 1 are in a separate document called “Unit Testing - XP Cycle 1” with all of the results and screenshots. For log-in validation a number of things were verified. The log-in functionality was confirmed to work and the user was redirected to the proper page. The other two tests that were performed on the log-in functionality were to verify input was properly validated. One test attempted to log into an account that didn’t exist and the other test attempted to log into an account with an incorrect password. The expected result of these tests were to return an error message that indicated the input problem to the user. However, the actual result returned a “This site can’t be reached” error. The method to fix this error should be to validate the input after the database is queried. An incorrect input should reload the page with an error pop-up or have a message displayed on screen with the prior input filled in so that the user can change it.

The next set of tests were for creating user accounts. In these tests, The positive test of account creation with valid input information was confirmed to work as expected with the user redirected to the “Job Creation” screen. Of the validation tests, tests confirmed that special characters were allowed to be used. The final three tests for account creation were for no password provided as input, no username provided as input, and for a duplicate user name. For all of these tests, proper error handling should have occurred and provided the user with feedback on the error but for the lack of input tests, the next page failed to load with an error message indicating that “This site can’t be reached”. The final test for duplicate username allowed for a duplicate account to be created in the database instead of returning an error message. As for log-in, more input validation needs to occur to ensure that the user is receiving adequate feedback for their input.

Two tests were performed to ensure that navigational buttons were working properly. The button to load all jobs in a display was confirmed to work. The test to ensure that the “Pick Job” functionality worked failed. Instead of allowing a user to pick a job, the button returned an error message showing that “This site can’t be reached”.

The last set of tests that were created involved verifying that the “Request a Job” functionality worked properly. Four tests were created to cover both positive and negative inputs. Two of four of these jobs passed. Any input with blank descriptions returned an error screen indicating that “This site can’t be displayed” instead of error handling properly. As before, more input validation needs to occur to ensure adequate inputs.