Honors Web Application Test Plan

Laila Shaikh, Mikaela Goldrich, & Mike Reynolds

Table of Contents

1 Introduction

1.1 Purpose

This test plan describes the testing approach and overall framework that will drive the testing of the honors program web application. It will help the testing team to understand the system and identify the features setup for testing.

1.2 Statement of Scope

The UMW Honors Program Application is a Web-based, database driven application intended to be used by the administrators and students associated with UMW Honors Program. The idea is to create an effective way for students to view their progress in the honors program. It will also assist administrators to view, track and share the student's data on a platform accessible to both students and administrators.

1.3 Overview of The Remainder of the Document

Section 2 System Overview describes the way the software will interact with the users. It also gives a brief overview of the functional and nonfunctional requirements of the project.

Section 3 Test Plan covers the approach to carry out the tests. It describes the resources needed to set up the environment. It gives details of how the testing team will report defects and estimate time schedule for testing.

Section 4 Test Procedure describes the whole procedure to carry out each individual unit test or integration test separately.

This report ends with Section 5 Appendices. It contains a glossary where the clarification of technical terms is given. It specifies the contribution of each team member and resources used while creating this document. This section also contains forms and examples to facilitate feedback from each test.

2 System Overview

2.1 Project Description

Our website is broadly composed of the following three sub-systems: Homepage, Student dashboard, and Admin dashboard.

As soon as the user enters the URL of the website, they will be directed to the home page. This page will provide login functionality and a forgot password option. The system will identify each user as either a student or admin upon login If time allows, this page will also have a help button on it. The Help option will take the user to the page where different manuals will be available intended to assist the user.

Both the student and admin dashboards will have the option to change the user's password and logout. These options can be found in the right hand side of the top navigation bar in the user dropdown.

The admin dashboard has three main components. In priority order they are as follows: importing student and checksheet data, searching students and view their checksheets according to checksheet data and announcements capability.

The student dashboard allows student users to view their checksheet and see their progress in completion of the specific honors program requirements. This dashboard will also show the announcements from admin users.

2.2 Requirements List

The planned functional requirements are presented here in use case form:

2.2.1 USER LOGIN (ADMINISTRATOR & STUDENT)

Description: The administrator and student log into the system.

Main flow:

6. The user clicks the login button with the mouse.
7. The system displays a text box prompting for a username and password.
8. The user enters a username and a password.
9. The system verifies that the username and password match the information in the user database table.
10. The system grants the user access to the student or
11. administrator area depending on the user id.

Alternate Flow 1:

5. The system does not find a matching username and password.
6. The system will display a checkbox that states the username and/or password is not correct, and asks if the user would like to try again.
7. The user clicks the yes button.
8. The system will return to step 2 in the main flow.

Alternate Flow 2:

7. The user clicks the no button.
8. The system will return to the home page.

2.2.2 IMPORT .CSV DATA (ADMINISTRATOR)

Description: The administrator loads student user and checksheet data into the database by importing a .csv file.

Main Flow:

1. The administrator clicks the Import menu option button with the mouse.
2. The system displays a page containing a button to *Select Spreadsheet*.
3. The administrator clicks to select a csv file.
4. The system displays a browser to select the .csv file.
5. The administrator navigates to the file location, selects the file and clicks import.
6. The system locates the .csv file.
7. The system transfers the information from the .csv file to the database, overwriting the previous information.
8. The system will display a message stating that the file was successfully imported.
9. The system will return to the administrator dashboard.

Alternate Flow 1:

6. The system does not locate the .csv file.
7. The system will display an error message indicating the file could not be found.
8. The system returns to Main Flow Step 3

Alternate Flow 2:

7. The system cannot transfer the data to the database.
8. The system displays an error message to the user indicated that the selected file is improperly formed or as an invalid file extension.
9. Return to Main Flow Step 3.

2.2.4 SEARCH DATABASE (ADMINISTRATOR)

Description: The administrator searches for checksheets based on checksheet or user data.

Main Flow:

1. The administrator enters a search term in the search box and clicks the search button with the mouse.
2. The system compares the search term with information in the database.
3. The system finds information in the database matching the search term.
4. The system displays the list of students who match the search term on the admin dashboard.
5. The administrator clicks a student's name to view their checksheet.
6. The administrator clicks to go back to their dashboard with the search results.

Alternate Flow:

3. The system does not find a matching term in the database.
4. The system displays a message stating no matching students were found
5. If the admin wishes to search again, return to Main Flow Step 1.

2.2.5 CHANGE PASSWORD (ADMINISTRATOR & STUDENT)

Description: Administrator and students will be able to change their passwords for security reasons.

Main Flow:

1. The user clicks the Change Password button with the mouse.
2. The system will display a text box that prompts for the user's old password.
3. The user enters the old password.
4. The system verifies the password with the information in the database.
5. The system will display a text box that prompts the user to enter a new password two times.
6. The user enters the new password twice.
7. The system will verify that the 2 passwords match.
8. The system will replace the old password in the database with the new password.
9. The system will display a message that the password was updated successfully.
10. The system will return to the user homepage.

Alternate Flow 1:

7. The system verifies that the 2 passwords do not match.
8. The system will display a checkbox that states that the new passwords do not match, and asks if the user would like to try again.
9. The user checks the yes box.
10. The system will return to step 5 in the main flow.

Alternate Flow 2:

9. The user checks the no box.
10. The system will return to the user home page.

2.2.6 VIEW CHECKSHEET (STUDENT)

Description: Students will be able to view their checksheet on the student dashboard.

Main Flow:

1. The student navigates to the Honors Application website
2. The system displays a login box.
3. The student enters their username and password.
4. The system verifies that the username and password matches the information in the user database table.
5. The system grants access to the student's dashboard containing the student's checksheet.

Alternate Flow 1:

4. The system does not find the username and password in the user database table.
5. The system displays an error message stating that the username and/or password is incorrect, and prompts the user to try again.
6. Return to Main Flow Step 3.

2.2.7 EXPORT CHECKSHEET (STUDENT)

Description: Students will be able to export their checksheet as a PDF.

Main Flow:

1. The student clicks on the Export PDF button with the mouse.
2. The system will query the checksheet database for the student's checksheet information.
3. The system will format the information as a PDF.
4. The system will display a text box prompting for a location to save the PDF.
5. The student will enter a save location.
6. The system saves the PDF file at that location.
7. The system displays a message that the file was saved successfully.
8. The system returns to the student home page.

Alternate Flow 1:

6. The system does not find the save location.
7. The system displays a checkbox that states the save location was not found, and asks if the student would like to enter another location.
8. The student checks the yes box.
9. The system will return to step 4 in the main flow.

Alternate Flow 2:

8. The student checks the no box.
9. The system will return to the student home page.

3 Test Plan

3.1 Testing Strategy

The Honors program will be tested by software testing and validation testing; no automated static analyses will be used. Unit tests will be performed on the database, the home/login page, the administrator dashboard, and the student dashbaord to prove basic functionality. All of the pages will require performance, stability, and usability testing to prove that they are responsive to input and that the GUI is effective. Integration testing will then be performed between the database, home/login page, and admin to student dashboards to prove that the website maintains data accuracy and functionality.

Following integration testsing, system tests will be performed to verify functional requirements. Lastly, system integration testing will be performed to prove integration with Domain of One's Own.

3.2 Testing Resources and Staffing

Access to the website and database will be needed to test the GUI and various functional requirements. The setup of Domains of One's Own is still in progress, a URL and any necessary login credentials will be provided to the testing team before testing begins. Testers will need to download example checksheets to validate import functionality.

The implementation team will provide test cases for the testing team. With the help of test cases, the testing team will do usability testing on the GUI, and perform system testing to verify the functional requirements of the web app.

3.3 Test Work Products

Upon completing a test, the tester will complete the Test Form to document results of the test. This form will contain the test case information, a comparison of expected and actual results and

3.4 Test Record Keeping

Records of the tests can be kept on the Test form located at the end of this paper. An example of the form can be found in Section 5.4. A flaw severity Breakdown is located in Section 5.5.

3.5 Test Schedule

The implementation team will have done software testing throughout the development of the project, so the testing team will be utilized to aid in validation testing of the Honors Program website.

Unit Testing

Date	Test	Assigned Team
4/3/2017	Database	Implementation and Testing
4/3/2017	Home/Login page	Implementation and Testing
4/5/2017	Administrator page	Implementation and Testing
4/7/2017	Student Page	Implementation and Testing

Integration Testing

Date	Test	Assigned Team
4/3/2017	Login-Database	Testing
4/5/2017	Administrator page-database	Testing
4/7/2017	Student page-database	Testing
4/5/2017	Login-Administrator page	Testing
4/7/2017	Login-Student page	Testing

Validation Testing (Test details listed in Section 4.1*)*

Date	Test	Assigned Team
4/3/2017	1. Import data - invalid file format	Testing
4/3/2017	2. Import data - invalid file extension	Testing

4/3/2017	3. Import data - valid file	Testing
4/3/2017	3. Login- student	Testing
4/3/2017	4. Login- administrator	Testing
4/3/2017	5. Login- unregistered	Testing
4/3/2017	6. Login- invalid password	Testing
4/3/2017	7. Login- invalid username	Testing

4 Test Procedure

The following tests will check the needed functionality of the Honors Program website. The tests have been designed to be simple to perform, but should be rigorous enough to test if the function works or not.

4.1 Unit Tests

The test chart will list all of the tests for the functional requirements of the system. It includes the related reference from the requirements list, the subsystem being tested, the purpose of the test, needed test case data, and the expected results.

Test #	REQ #	Subsystem	Purpose	Test Case Data	Expected Results
1	2.2.2	Database	Ensure database does not crash	data-invalidformat.csv	Display error message to user indicating file format error and prompt for new file
2	2.2.2	Database	Ensure database does not crash	data-invalidextension.xlsx	Display error message to user indicating invalid file type and prompt for new file
3	2.2.2	Database	Verify that a proper csv file can be uploaded and imported into database	checksheet-valid.csv	Database will be populated using the data from the csv file and display a messing that the import was successful.
4	2.2.1	Login	Test if registered student is able to login to student dashboard successfully	Username: Student Password: Welcome123	User must successfully login to the Student dashboard
5	2.2.1	Login	Test if registered admin is able to login to admin dashboard successfully	Username: Admin Password: Welcome123	User must successfully login to the Admin dashboard

6	2.2.1	Login	Test if unregistered user is not able to login to the site	Username: Abc Password: Abc	Proper error must be displayed and prompt to enter login again
7	2.2.1	Login	Test with valid username and empty password such that login must get failed	Username: Student Password:	Proper error must be displayed and prompt to enter login again
8	2.2.1	Login	Test with empty username and valid password such that login must get failed	Username: Password: Welcome123	Proper error must be displayed and prompt to enter login again

5 Appendices

5.1 Dictionary of Terms

- .csv file – a comma separated values text file, usually used to enter large amounts of information
- Dashboard – the page that is displayed upon login. Both student and admin users have a dashboard.
- Flaw – a discrepancy between actual and expected results
- HN – Honor designated courses
- Honors Program Checksheet – a checklist used by University of Mary Washington Honors Program students to keep track of their progress in the

program. Information on the checksheet includes: courses taken list, GPA, activity lists, portfolio lists, and co-curricular lists
- Pandas – a data analysis Python library that is used to create arrays, tables, and data frames from various input sources, including .csv files

5.2 Contributions

- Laila Shaikh – Purpose, Statement of Scope, Overview of the remainder of the document, Project Description, test cases, test strategy(editing)
- Mikaela Goldrich – Document formatting and setup, unit testing, editing of document, verified correctness and consistency
- Mike Reynolds – Test Plan, Edited Requirements List

5.3 References

5.3.1 SOURCES

- University of Mary Washington Honors Program Handbook, 2016-2017 Academic Year
- Honors Application Project Plan- Laila Shaikh, Mikaela Goldrich, Mike Reynolds
- Software Flaw Severity List inspired by Test Plan Sample template on www.SoftwareTestingHelp.com

5.3.2 EXAMPLE TEST FORM

Test:	Import valid spreadsheet
Test Case:	Import a .csv file using the browse button
Pre Conditions:	- Admin user is logged in - User has clicked the *Import* option from the side navigation bar. - The csv has been downloaded on the user's computer
Steps:	1. Click *Select Spreadsheet* 2. Navigate to the .csv file and select it 3. Click *Import*
Test Case Data:	Download CSV for Test 3
Expected Result:	The checksheet and user tables in the database will be populated with the information from the csv. A confirmation message will be displayed to the user.
Result Achieved? (y/n):	no
Actual Result:	Data was not in proper columns but the confirmation message was still displayed.

Flaw Severity (1-4):	3

5.3.2 FLAW SEVERITY BREAKDOWN

Severity	Impact
1 (Critical)	- Produces system crash - Causes file corruption - Causes a system hang up that requires re-booting
2 (High)	- No functionality (but no system crash)
3 (Medium)	- Partial functionality - Prevents another area from functioning
4 (Low)	- Functionality with cosmetic problems

5.3.3. BLANK TEST FORM

Test:	
Test Case:	
Pre Conditions:	
Steps:	
Test Case Data:	

Expected Result:	
Result Achieved? (y/n):	
Actual Result:	
Flaw Severity (1-4):	