

McMASTER UNIVERSITY

# Test Report

REVISION 1

CAPSTONE TEAM 14

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# Revision History

Date	Comments
March 26, 2017	Revision 0 of Test report created
April 9, 2017	Correction and Final Revision

# 1 Introduction

This test report details the results of the systems tests performed on the HIV Regimen Generator. It includes the non-functional tests performed, including: usability, performance and robustness testing.

## 2 Automated Testing

Automated testing was not used for this project. Since the project involved accessing information from an SQL database and checking for correctness, it was decided that the testing would be done better and more efficient if inputs and outputs were examined manually. The output of the generator is in a String format throughout the web page, so the group decided that manual testing would be more efficient.

## 3 System Tests

### 3.1 Landing Page

No.	Test Case	Initial State	Input	Expected Output	Actual Output	Result
1.1	Landing Page	Empty web browser opened with Internet Explorer, Google Chrome, and Mozilla Firefox	Opening our web application (HRG.org)	Web application opens on corresponding browser successfully.	As expected	PASS
1.2	Landing Page	Landing page opened up in browser	Press Start Button	Go to the Form page	As expected	PASS
1.3	Landing Page	Landing page opened up in browser	Press About Button	Go to the About page	As expected	PASS

## 3.2 About

No.	Test Case	Initial State	Input	Expected Output	Actual Output	Result
2.1	About	About page	Press the Home button	Go to Home page.	As expected	PASS

### 3.3 Patient Information Form

No.	Test Case	Initial State	Input	Expected Output	Actual Output	Result
3.1	Patient Information Form	Height and weight empty fields.	Enter height and weight. Press the Calculate BSA button.	Display the BSA value in BSA field.	As expected	PASS
3.2	Patient Information Form	Empty form	Press submit button	Error message; asking user to fill in the required fields	As expected	PASS
3.3	Patient Information Form	Enter only the required	Press the submit button	Go to Combination Selection page	As expected	PASS
3.4	Patient Information Form	All required information filled out in the form. Leave non required information empty	Press the submit button	Go to the Combination Selection page	As expected	PASS
3.5	Patient Information Form	Form page open in browser	Press the Home button	Go to Home page.	As expected	PASS
3.6	Patient Information Form	Form page open in browser	Press the About button	Go to About page	As expected	PASS

### 3.4 Combination Selection

No.	Test Case	Initial State	Input	Expected Output	Actual Output	Result
4.1	Combination Selection	Empty Combination Selection page	Select the required fields; pick two from the first group, and one from the second, and press submit	Go to medical results page	As expected	PASS
4.2	Combination Selection	Combination page opened up in browser	Press the Home button	Go to Home page	As expected	PASS
4.3	Combination Selection	Empty Combination Selection page	Select more from the fields than required	Display error message; please only select exactly two from the first group, and exactly one from the second	As expected	PASS
4.4	Combination Selection	Combination Selection page open in browser	Press Home button	Go to Home page	As expected	PASS
4.5	Combination Selection	Combination Selection page open in browser	Press About button	Go to About page	As expected	PASS

### 3.5 Medical Results

No.	Test Case	Initial State	Input	Expected Output	Actual Output	Result
5.1	Medical Results	Result page opened up in browser	Press the link from the drugs information in Patients selected regimen field	Go to drugs information website	As expected	PASS
5.2	Medical Results	Select the correct required fields	Press submit	Medical results page lists the correct medications as previously selected	As expected	PASS
5.3	Medical Results	Result page opened up in browser	Press the Home button	Go to Home page	As expected	PASS
5.4	Medical Results	Medical Results page open in browser	Press About button	Go to About page	As expected	PASS

## 4 Non-Functional Tests

### 4.1 Usability

The usability of HIV Regimen Generator was evaluated using test participants. The participants were given a set of tasks as follows:

1. Fill out medical information on the Patient Information Form
2. Select one of the generated results to be used by the patient

3. Navigate to the about page and then to the home page

The given tests were sufficient enough to gather the necessary information required to analyze the usability of our HIV regimen generator.

#### **4.1.1 Results**

Among the test participants, all of them were able to complete the form and receive a list of medical combinations to choose from. Upon selecting, all participants were able to view the details of their selected regimen and given an option to print the details of the medication found in their regimen.

On average, the performance of the given usability test was as expected. User's of the website took on average 1 to 2 minutes to complete the form and select a generated regimen.

#### **4.1.2 Discussion**

Overall, the process of generating an HIV regimen based on the given patient information is simple and easy to understand. The process requires filling out a basic web-form (that almost all frequent users of the Internet are now familiar with) and the regimen generator will match its parameters with suitable choices to present to the user.

The target audience for the web application includes doctors and potential patients. It is not intended for an average Internet user because a doctor's input is critical in evaluating and prescribing any medical regimen. An average user without proper medical background might not understand the requirements of an HIV regimen to select the appropriate medical combinations provided, but that is a minor issue.

The applications medical database is updated as it is developed. We do not plan on making any further updates/adjustments to the list of existing medications, so this might surface as a problem in the future as inaccurate information. The application will specify when the last updated date is to provide users with a general idea of the accuracy of our web application. If the group members or the supervisors choose to expand on the website, updating the medical information will be simple.



## 4.2 Performance

HIV Regimen Generator is able to produce a series of suitable regimen provided that the form is filled with criteria that is deemed correct for a specific medication. Load times are consistent as the number of users that access the server increase and the database remains accurate with information. The performance was tested using Microsoft Edge. Testing was done using the Microsoft Edge Developers tools. The group found that any additional lag will be due to connectivity issues with the server.

## 4.3 Robustness

HIV Regimen Generator is tested with various browsers on different hardware devices to test its robustness.

Browser	Device	Look and Feel	Functionalities	Bugs
Microsoft Edge	Computer	As Expected	As Expected	None
Mozilla Firefox	Computer	As Expected	As Expected	None
	iOS	As Expected (size change)	As Expected	None
	Android	As Expected (size change)	As Expected	None
Google Chrome	Computer	As Expected	As Expected	None
	iOS	As Expected (size change)	As Expected	None
	Android	As Expected (size change)	As Expected	None
Opera	Computer	As Expected	As Expected	None
	iOS	As Expected (size change)	As Expected	None
	Android	As Expected (size change)	As Expected	None
Safari	Computer	As Expected	As Expected	None
	iOS	As Expected (size change)	As Expected	None

The application is open for public use, and because of that, will not use an account system for the HIV Regimen Generator. Users will not have to

worry about leaked medical information as information is managed within that session and that session only. Much of the managing and matching is done through the database.

## 5 Summary of Changes

The following are changes made as a result of testing:

- Modified the database to remove columns that were unnecessary and combine columns that could be grouped together
- Updated the web pages to be more visually appealing