

Software Testing Specification

for

HealthQ

Version <1.0>

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Group 2

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Revision History

Name	Date	Reason For Changes	Version
Brian Deguzis	2/27/2018	Document Created	0.1
Brian Deguzis, Eddie Matos	3/1//2018	Introduction, Features to be Tested Sections Added	0.2
Brian Deguzis	4/16/2018	Approach, Item Pass/Fail Criteria, Environmental Needs Sections Added	0.3
Brian Deguzis	4/17/2018	Features Not to be Tested, Test Deliverables, Test Tasks, Responsibilities, Staffing and Training Needs, Schedule, and Approval Sections Added	0.4
Brian Deguzis	4/22/2018	Suspension Criteria, Test Logs, and Resumption Requirements Section Added	0.5
Brian Deguzis	4/29/2018	Document Finalized	1.0

Introduction

The purpose of this document is to provide a written description of the testing plan for the HealthQ software. From reading this document the reader will have a better understanding of how this system was tested. The details in this document are geared towards the software development team in order to properly guide and enforce IEEE testing procedures.

Test Items

The structure of the testing procedures will be divided into modules where each module will be tested separately and with the system as a whole after the completion of each sprint. Testing of the modules will be broken into the following sections:

- Initiation of the the system in different environments
- Ability for the system to respond to different users.
- The ability for the software to pull information.
- Correctness of the information given to the user by the system.

Features To Be Tested

The following is a listing of the features to be tested during along with the estimated associated risk.

Feature Name	Risk
Process Voice Command	High
Retrieve New Data Table	High
Calculate Statistic	Med

Features Not To Be Tested

The following describes all features in the HealthQ system that will not be tested during the course of development.

- Unit testing for any component that is not being developed by the HealthQ team

- Integration testing for any group of modules consisting solely of external components. Note that this does include modules from environments in which they do not normally operate. (Ex: two external modules from different sources).

The rationale for these plans is that we assume that all external components have been commercially tested for the environments in which they normally operate.

Approach

The following will describe the overall test strategy for the HealthQ system. No special tools or training will be required to follow this plan. On the hardware side, the server and all communication with it will be tested. On the software side, all modules making up HealthQ will be tested (more details on these modules can be found in Section III of this document). After each module is implemented, there will be full regression and integration testing to insure all modules interact properly, and that the software functions properly as a whole. Regression testing will be done based on severity of defects detected, but all modules will also be covered during the tests regardless. Items in the software which cannot be tested or do not make sense will be noted in this test document, and critical items that match this description will be given special attention after testing.

Item Pass/Fail Criteria

The following will describe the conditions for when each module will be successfully tested.

Severity Level	Condition
Low	75% of all defects found in this level have been resolved.
	All test cases completed.
Med	85% of all defects found in this level have been resolved.
	All test cases completed.
High	100% of all defects found in this level have been resolved.
	All test cases completed.

Suspension Criteria and Resumption Requirements

The following describes the criteria for which testing may be paused and resumed.

Suspension Criteria	Resumption Criteria
A defect is introduced that prohibits further testing.	The defect is resolved.
The current module's deadline is passed without finishing testing, and testing on the next module must begin.	Once required testing of the current module is complete, unfinished testing of the previous modules can resume.
A holiday causes both development and testing of the software to halt for the duration of the break.	The holiday is over.
The test plan is modified and the tests are deemed unnecessary or less important than other tests.	The test cases are evaluated as necessary.

Test Deliverables

The following will be included as test deliverables:

- The Software Testing Specification
- The Test Logs
- The Test Summary Report

Test Tasks

The following tables detail the task breakdown for each test deliverable and their respective estimated completion dates.

Software Testing Specification

Task	Estimated Completion Date
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Introduction	3/1/2018
Test Items	3/8/2018
Features to be Tested	3/8/2018
Features Not to be Tested	3/8/2018
Approach	4/1/2018
Item Pass/Fail Criteria	4/1/2018
Suspension Criteria and Resumption Requirements	4/1/2018
Test Deliverables	3/8/2018
Test Tasks	4/15/2018
Responsibilities	4/15/2018
Staffing and Training Needs	4/15/2018
Risks and Contingencies	4/15/2018
Approvals	3/8/2018
Final Test Logs	4/5/2018
Final Test Summary	4/5/2018

Environmental Needs

Testing for the HealthQ system will be carried out on a Google Home device, Android smartphone, and on the Dialogflow console. Each function of the system will be tested using a full range of numeric inputs from data tables of various sizes. Test data will be real data provided from the CDC public databases. Testing will be spread out equally for each of the components in the system. Testing will be open during all phases of development. During initial unit testing, the Dialogflow console will be used as an emulator of Google Assistant, and once the system is live, a Google Home and Android smartphone will be used to test. No tools outside of the original system will be used during testing. Discord will be used as a communication interface between testers during testing phases.

Responsibilities

Tester	Responsibility
Brian Deguzis	Creating the Software Testing Specification and Testing Plan. Managing and guiding all testers and collecting/organizing their test deliverables.
Benny Villegas	Unit Testing for the following modules: <ul style="list-style-type: none">- Retrieve New Data Table- Calculate Statistic
Eddie Matos	Integration testing for all modules in the system after each sprint.

Staffing and Training Needs

All testers of HealthQ will be members of the development team and are expected to fully understand the functionality of the software, and as such will not require any additional training.

Risks and Contingencies

Risk	Probability	Impact	Mitigant
Lack of access to server that hosts HealthQ	Med	High	Since we are not in direct control of our server, we will make sure we have sufficient development time to insure that any outages will not set us back in an significant way.
Lack of communication from testers to	Low	Med	Weekly meetings and constant contact through our Discord server means all team members are easily

developers			reachable, and that everyone should be informed at any given time.
Addition of new requirements mid development	High	Med	Requirements will be prioritized in the requirements specification document. Any additional requirements that the client adds during development will be discussed during our weekly performance meetings, where the corresponding priority will be decided on.
Lack of domain knowledge	Med	High	Weekly team meetings will be held in order to learn more about the domain and modules we will be developing.
Insufficient time to test any given module	High	Med	The testing/development schedule will be divided such that each module receives its own block of time in which it is the focus of the development team.

Test Logs and Results

The following describes the test cases carried out for the HealthQ system, and their respective outcomes.

Test Case	Expected Outcome	Actual Outcome	Interpretation
“Start HealthQ”	HealthQ is started	HealthQ is started	Pass
“Load HealthQ”	HealthQ is started	Command is not recognized	Fail, additional training for the voice recognition is needed
“Fire Up HealthQ”	HealthQ is started	Command is not recognized	Fail, additional training for the voice recognition is needed

“Load data set from program code 54321”	CDC flu data set is loaded.	CDC flu data set is loaded.	Pass
“Get data from program code 54321”	Data is extracted from the CDC flu dataset.	Data is extracted from the CDC flu dataset.	Pass
“Add the geo ID patch”	Interpret inconsistencies in the dataset so that data for Georgia and Florida can be properly parsed.	Interpret inconsistencies in the dataset so that data for Georgia and Florida can be properly parsed.	Pass
“Add the state patch”	Interpret inconsistencies in the dataset so that data for Georgia and Florida can be properly parsed.	Interpret inconsistencies in the dataset so that data for Georgia and Florida can be properly parsed.	Pass
“Add geo patch”	Interpret inconsistencies in the dataset so that data for Georgia and Florida can be properly parsed.	Interpret inconsistencies in the dataset so that data for Georgia and Florida can be properly parsed.	Pass
“How many people died from the flu in Georgia in 2010?”	179	179	Pass
“How many people died from the flu in Georgia in 2011?”	189	189	Pass
“What’s the difference between 2010 and 2011 in flu deaths in Georgia, HealthQ call code 54321”	10	10	Pass

“How many people died from the flu in 2010 in Florida?”	153	153	Pass
“How many people died from the flu in 2011 in Florida?”	141	141	Pass
“What’s the difference in flu deaths for 2010 and 2011 in Florida, HealthQ call code 54321”	-12	-12	Pass
“According to your data set what is the average amount of flu deaths in Georgia, HealthQ call 54321”	184	184	Pass
“According to your data set what is the average amount of flu deaths in Florida, HealthQ call 54321”	147	147	Pass
“What is the average amount of flu deaths between Georgia and Florida for all years on your data set, HealthQ code 54321”	165.5	Command is not recognized	Fail, additional training for the voice recognition is needed

Approvals

After each sprint in the development of HealthQ, approval of testing procedures will be handled as follows:

- Initial

- After the testing of the system for each sprint is initially complete, the testing results will be presented to the Test Leader for approval before the next stage of approval.
- Final
 - After being approved by the test leader, a test summary will be prepared and presented to the key stakeholders for the system.