**Verification and Acceptance Testing Document**

**for**

**Mapping for Change**

**Graph Generator**

**Version 1.2**

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# Revisions

|  |  |  |
| --- | --- | --- |
| Version | Date | Summary |
| 1.0 | 2018/3/9 | Initial Version for Sprint 2: initial testing tables |
| 1.1 | 2018/3/23 | Version for Sprint 3: updated testing tables and introduced write-up |
| 1.2 | 2018/3/27 | Added revision table, updated title page |
| 1.3 | 2018/3/29 | Modified based on client feedback |

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# Introduction

Mapping for change is a software project for enabling visualizations of data regarding the various social and assistive housing opportunities in Kelowna. This document outlines the testing necessary to determine the validity and correctness of the software created.

# Purpose

The purpose of this testing document is to provide a clear process by which the correctness of the produced software can be verified and validated. It is important, both to the developers and to the client, that there is a clear statement of which parts of the software have been correctly implemented and which parts are seeing problems.

# Scope

The scope of this testing document for Mapping for Change is currently to validate the background data manipulation and communications for correctness, and to verify the minutia of the visual appearance and accuracy of the data represented in the website frontend. Currently, validation testing is used for testing JSON correctness, and acceptance testing is used for testing qualitative website functionality. It should be noted that the correctness of the functionality harnessed from Google’s Content Delivery Network (Google Maps, Google Charts) is not under the scope of this document.

# Plan Overview

The process for the creation of the validation testing for JSON correctness was to work from the bottom up to create each necessary helper method for the final validity method, writing tests for each as they are completed. Once the whole JSON checker was complete, there is another ultimate unit test checking the validity of the overall subcomponent. This subcomponent is intended to be used in the unit testing of the creation of the various graphs in the deliverable.

As frontend functionality is implemented into the website, more acceptance tests are to be written to check the functionality and aesthetics of the visual aspects of the website. It is important to test each target platform, (Chrome, Firefox, Safari, IEv8) independently.

# Assumptions

The primary assumption made is that the tests indicated in this document are sufficient to test all the necessary functionality of the software. The validity of this assumption may increase or decrease as more tests and software are implemented.

# Validation Testing

Tests should be added as needed.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Number | Acceptance Requirement | Critical (Yes/No) | Test Result (Pass/Fail) | Comments |
| 1 | Correct Scanning for Quote Marks | Yes | Pass | findNextUnescapedQuote() correctly scans for quotes, ignoring escaped quotes. |
| 2 | Correct Scanning for Characters | Yes | Pass | indexOfCharContained() correctly scans for queried characters. |
| 3 | Correct Scanning for Specific Tokens | Yes | Pass | findNextNonTextCommaOrEndBrace() correctly identifies comma and end brace delimiters. |
| 4 | Correct Elimination of String Contents | Yes | Pass | replaceQuoteDelimitedStrings() correctly replaces contents of strings. |
| 5 | Correctly Identifies Constructors | Yes | Pass | isNewBefore() correctly identifies tokens which are preceded by “new”. |
| 6 | Correct Elimination of Whitespace | Yes | Pass | deleteWhitespace() correctly eliminates unnecessary whitespace. |
| 7 | Correct Elimination of Whitespace Outside of Quotes | Yes | Pass | deleteWhitespaceNotQuoted() correctly eliminates unnecessary whitespace (only outside of quotes). |
| 8 | Correct Identification of Whitespace | Yes | Pass | isWhiteSpace() correctly identifies whitespace. |
| 9 | Correct Identification of Bracket Pairs | Yes | Pass | isBracketConjugate() correctly identifies corresponding bracket pairings. |
| 10 | Correct Identification of Tokens within Layer | Yes | Pass | findNextValueInSameLayer() correctly scans through tokens within a layer. |
| 11 | Correctly Finds Inclusive Substring | Yes | Pass | inclusiveSubstring() correctly processes strings to output inclusive substrings. |
| 12 | Correctly Identifies Sequence of Tokens in Layer | Yes | Pass | getAllTokensForLayer() correctly identifies the sequence of tokens in a layer. |
| 13 | Correctly Identifies Layer Type | Yes | Pass | getLayerType() correctly identifies layer type. |
| 14 | Correctly Produces Map Value | Yes | Pass | getValueForMap() correctly produces a mapping for a specific value. |
| 15 | Correctly Preprocesses JSON String | Yes | Pass | prepareJSONForValidation() correctly preprocesses an input string to test for validation. |
| 16 | Correctly Identifies Valid JSON | Yes | Pass | assertGoogleChartJSONValid() correctly identifies valid JSON strings for Google Charts, and rejects others. |
| 17 | Test WinterDistribution | No | Pass | WinterDistribution creates data as required by its specifications. |
| 18 | Test SolsticeDistribution | No | Pass | SolsticeDistribution creates data as required by its specifications. |

# Acceptance Testing

More test cases should be added as needed if more graphs are implemented.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Test Case # | Test Case Description | Step # | Steps to Perform | Expected Result | Actual Result | Comments |
| 1 | Services Map Evaluation | 1 | Regard Services Map | Map is aesthetically clean and up to standards | Yes |  |
|  |  | 2 | Regard Services Map | Underlying data is understandable | Yes |  |
|  |  | 3 | Regard Services Map | Data displayed is meaningful | Yes |  |
|  |  | 4 | Regard Services Map | Map is easy and intuitive to use | Yes |  |
| 2 | Female Map Evaluation | 1 | Regard Female Map | Map is aesthetically clean and up to standards | Yes |  |
|  |  | 2 | Regard Female Map | Underlying data is understandable | Yes |  |
|  |  | 3 | Regard Female Map | Data displayed is meaningful | Yes |  |
|  |  | 4 | Regard Female Map | Map is easy and intuitive to use | Yes |  |
| 3 | Transgender Map Evaluation | 1 | Regard Transgender Map | Map is aesthetically clean and up to standards | Yes |  |
|  |  | 2 | Regard Transgender Map | Underlying data is understandable | Yes |  |
|  |  | 3 | Regard Transgender Map | Data displayed is meaningful | Yes |  |
|  |  | 4 | Regard Transgender Map | Map is easy and intuitive to use | Yes |  |
| 4 | Rank Map Evaluation | 1 | Regard Rank Map | Rank Map is aesthetically clean and up to standards | - | Discussed changes - make relevant to discussed demographics |
|  |  | 2 | Regard Rank Map | Underlying data is understandable | - | “” |
|  |  | 3 | Regard Rank Map | Data displayed is meaningful | - | “” |
|  |  | 4 | Regard Rank Map | Map is easy and intuitive to use | - | “” |
| 5 | Histogram Evaluation | 1 | Regard Histogram | Histogram is aesthetically clean and up to standards | Yes |  |
|  |  | 2 | Regard Histogram | Underlying data is understandable | Not yet | Discussed changes required |
|  |  | 3 | Regard Histogram | Data displayed is meaningful | Not yet | Discussed changes required |
|  |  | 4 | Regard Histogram | Histogram is easy and intuitive to use | Yes |  |
| 6 | Shelter Sought Graph Evaluation | 1 | Regard Shelter Sought Graph | Graph is aesthetically clean and up to standards | Yes |  |
|  |  | 2 | Regard Shelter Sought Graph | Underlying data is understandable | Somewhat | Clarify wording |
|  |  | 3 | Regard Shelter Sought Graph | Data displayed is meaningful | Somewhat | % of capacity |
|  |  | 4 | Regard Shelter Sought Gramp | Graph is easy and intuitive to use | Yes |  |
| 7 | Most Beds Available Table Evaluation | 1 | Regard Most Beds Available Table | Table is aesthetically clean and up to standards | Yes |  |
|  |  | 2 | Regard Most Beds Available Table | Underlying data is understandable | Yes |  |
|  |  | 3 | Regard Most Beds Available Table | Data displayed is meaningful | Somewhat | Add % capacity |
|  |  | 4 | Regard Most Beds Available Table | Table is easy and intuitive to use | Yes |  |
| 8 | Word Cloud Evaluation | 1 | Regard Word Cloud | Word Cloud is aesthetically clean and up to standards | Sure |  |
|  |  | 2 | Regard Word Cloud | Underlying data is understandable | Yes |  |
|  |  | 3 | Regard Word Cloud | Data displayed is meaningful | ? | Great for demonstrations + neat to see over time |
|  |  | 4 | Regard Word Cloud | Word Cloud is easy and intuitive to use | Yes |  |
| 9 | Analytics Line Chart Evaluation | 1 | Regard Analytics Line Chart | Chart is aesthetically clean and up to standards | Yes |  |
|  |  | 2 | Regard Analytics Line Chart | Underlying data is understandable | Yes |  |
|  |  | 3 | Regard Analytics Line Chart | Data displayed is meaningful | Yes |  |
|  |  | 4 | Regard Analytics Line Chart | Chart is easy and intuitive to use | Yes |  |
| 10 | Analytics Pie Chart Evaluation | 1 | Regard Analytics Pie Chart | Chart is aesthetically clean and up to standards | Yes |  |
|  |  | 2 | Regard Analytics Pie Chart | Underlying data is understandable | Yes |  |
|  |  | 3 | Regard Analytics Pie Chart | Data displayed is meaningful | Yes | Mention based on unique IP address |
|  |  | 4 | Regard Analytics Pie Chart | Chart is easy and intuitive to use | Yes |  |
| 11 | Website Graphics on Internet Explorer | 1 | Load home page | Home page loads | Yes |  |
|  |  | 2 | Navigate to specific graph | Graph loads | Yes |  |
|  |  | 3 | Resize browser window | Elements shrink as necessary, horizontal scrolling becomes enabled | Yes |  |
| 12 | Website Graphics on Firefox | 1 | Load home page | Home page loads | Yes |  |
|  |  | 2 | Navigate to specific graph | Graph loads | Yes |  |
|  |  | 3 | Resize browser window | Elements shrink as necessary, horizontal scrolling becomes enabled | Yes |  |
| 13 | Website Graphics on Chrome | 1 | Load home page | Home page loads | Yes |  |
|  |  | 2 | Navigate to specific graph | Graph loads | Yes |  |
|  |  | 3 | Resize browser window | Elements shrink as necessary, horizontal scrolling becomes enabled | Yes |  |
| 14 | Website Graphics on Safari | 1 | Load home page | Home page loads | Yes |  |
|  |  | 2 | Navigate to specific graph | Graph loads | Yes |  |
|  |  | 3 | Resize browser window | Elements shrink as necessary, horizontal scrolling becomes enabled | Yes |  |
| 15 | Website Graphics on Mobile | 1 | Load home page | Home page loads | Yes |  |
|  |  | 2 | Navigate to specific graph | Graph loads | Yes |  |
|  |  | 3 | Zoom in to specific area | Elements shrink or grow as necessary, scrolling becomes enabled | Yes |  |