
Software Requirements Specification

for

Application of Geographical Visualization for showing the spread of Zika virus across the American Continent.

Version 1.0 approved

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Revision History

Name	Date	Reason For Changes	Version
NA	NA	NA	NA

1. Introduction

1.1 Purpose

We are trying to do data analysis through Geographical Visualisation and understand the spreading of Zika virus across the North and South America.

1.2 Intended Audience and Reading Suggestions

The project can be used by Disease control agency, Medical companies, Health Ministry, to study the growth of disease across a terrain.

1.3 Product Scope

This project is to analyze the spread of disease. This will help us in studying the spread of disease for better disease control. It will help NGOs and governmental ground force to effectively and efficiently direct their resources to stop its spreading. This could help in evacuation and its containment.

1.4 References

1. Alan M. MacEachren, Francis P. Boscoe, Daniel Haug, Linda W. Pickle: *Geographic Visualization: Designing Manipulable Maps for Exploring Temporally Varying Georeferenced Statistics.*
2. Theresa-Marie Rhyne: *Visualization Viewpoints.*
3. <https://plot.ly> for dependency related to this particular package.

2. Overall Description

2.1 Product Perspective

This is new, a self-contained project to show its purpose for better utilisation of resources and improvement in condition in times of epidemic. It may be later be upgraded show some spread of disease with other factors like literacy and hygiene and waste management score.

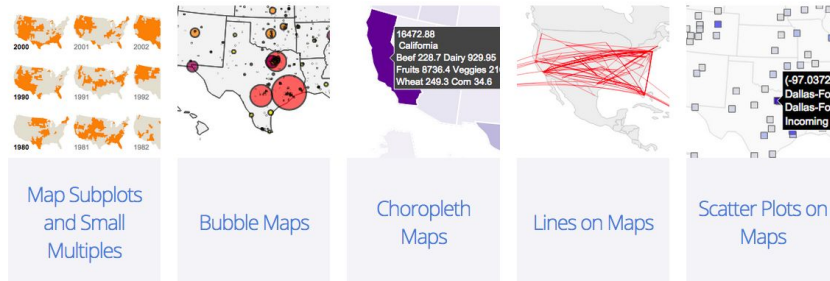
2.2 Product Functions

This project will show how the spread of various variable in a map in terms of

- *Choropleth maps*
- *Heat maps*
- *Bubble maps*

- *Scatter plot*

FIG - I Example of different type of maps



We will also be looking for introducing animation in the plot as a function of a timeline.

2.3 User Classes and Characteristics

There are no user classes and characteristics in this project all the user will have access to all the functionality provided by the project. Some functionality may be affected due to internet connection.

2.4 Operating Environment

The project will run on the Windows Operating system but the source code will be available on Github and just needs to be converted to suit their OS executable extension. It will run in any computer with a decent processor (i.e Using Intel® Core™ i3 CPU) and a decent graphics card with an internet connection.

2.5 Design and Implementation Constraints

The most important constraint, as well as a tool in this project, is a python library called PLOTLY on whose functionality will be the base of the project. This project may require a Google Javascript map API whose performance will depend on internet speed. Also, this project will require geocoding tool in the development time of the project whose accuracy might not be true. The project should be completed before 13 October 2019. Using python as the language to design the stuff. It will be an open-source where other developers may add more features on GITHUB. Though the final feature right will remain with the author.

2.6 User Documentation

- *A user manual.*
- *A repository on GITHUB for the product. So someone can ask queries and report bugs.*

2.7 Assumptions and Dependencies

We are using plotly package. We would also use google Javascript maps in presenting some type of maps. Animation feature will largely depend upon on the plotly functionality. The data preprocessing will be done using the pandas package.

3. External Interface Requirements

3.1 User Interfaces

The UI will be a simple model where it will have a radio button for selecting the type of maps visualization and the variable on which it wants to do the visualisation. And a different section for animation based on the timeline setup function. It will produce an output as plotly produces. and a basic error message for the functionality as per the problem occurs.

3.2 Software Interfaces

The project will run on the Windows Operating system but the source code will be available on Github and just needs to be converted to suit their OS executable extension. With some interface borrowed from plotly. The software will be by default will be provided with the database of the Zika spread. The user will input the map type associated with some variable for some static maps and a different column for animation.

4. System Features

4.1 Simple static maps

4.1.1 Description and Priority

This project will show how the spread of various variable in map in terms of

- *Choropleth maps*
- *Heat maps*
- *Bubble maps*
- *Scatter plot*

The types of variable data for plotting identification

priority -High

risk - 3

cost - 6

penalty - 8

4.1.2 Stimulus/Response Sequences

In less than 4- 5 step the user would be able to plot the data on the map.

4.1.3 Functional Requirements

A basic GUI and internet connection will be required[TBD].In the case of invalid input, it will show an error box [TBD].

4.2 Animation

4.2.1 Description and Priority

This will show the animation of a particular variable using a timeline.

priority -low

risk - 7

cost - 3

penalty - 4

4.2.2 Stimulus/Response Sequences

In less than 4- 5 step the user would be able to plot the data on the map.

4.2.3 Functional Requirements

A basic GUI and internet connection will be required[TBD].In the case of invalid input, it will show an error box [TBD].

5. Other Nonfunctional Requirements

5.1 Performance Requirements

The plotting should not take more than 30 seconds.

The UI should be simple.

5.2 Software Quality Attributes

Preprocessing the data code for a particular variable should be shared and flexible.

The project will roll out a canary Version of the product.

We would focus on ease of use and ease of learning with equal preference.

5.3 Business Rules

It is an open-source code with an MIT license.

6. Other Requirements

We may update the product with newer product version showing plotting some more features such as literacy and hygiene score.

Appendix A: To Be Determined List

The Functional requirement of simple static maps and animation