Crime Buster Application

User Interface Design Document

Presented to

Mr. Jonathan Pautsch of

Next Century Corporation

Software Engineering I

CMSC 447

By

Angel Cheng

Sam Mendimasa

Katelyn Seitz

Zach Vance

6 April 2018

Crime Buster Application
User Interface Design Document

Table of Contents

1. Introduction
    1.1 Purpose of This Document
    1.2 References

2. User Interface Standards

3. User Interface Walkthrough
    3.1 Crime Buster Navigation Diagram
    3.2 Crime Buster Walk Through
        3.2.1 Adding / Removing Data Visualizations
        3.2.2 Filtering Options Walkthrough
        3.2.3 Adding Comments

4. Data Validation

5. Report Formats

Appendix A **-** Agreement Between Customer and Contractor

Appendix B – Peer Review Sign-off

Appendix C – Document Contributions

1. Introduction

User interfaces are an extremely important part of any application and the effective use of all its features. Many might overlook the importance of the user experience and only think about the functionality. What we try to do here is to create an intuitive, easy to use application that allows for fast training and efficient results by creating the best possible user interface.

1.1 Purpose of This Document

The purpose of this document is to show the user how to navigate and interact with the Crime Buster web application. Images will show the user interface and display the different pages within the application. There are important features that are highlighted to ensure the user knows and is able to take advantage of the full functionality of the Crime Buster web application.

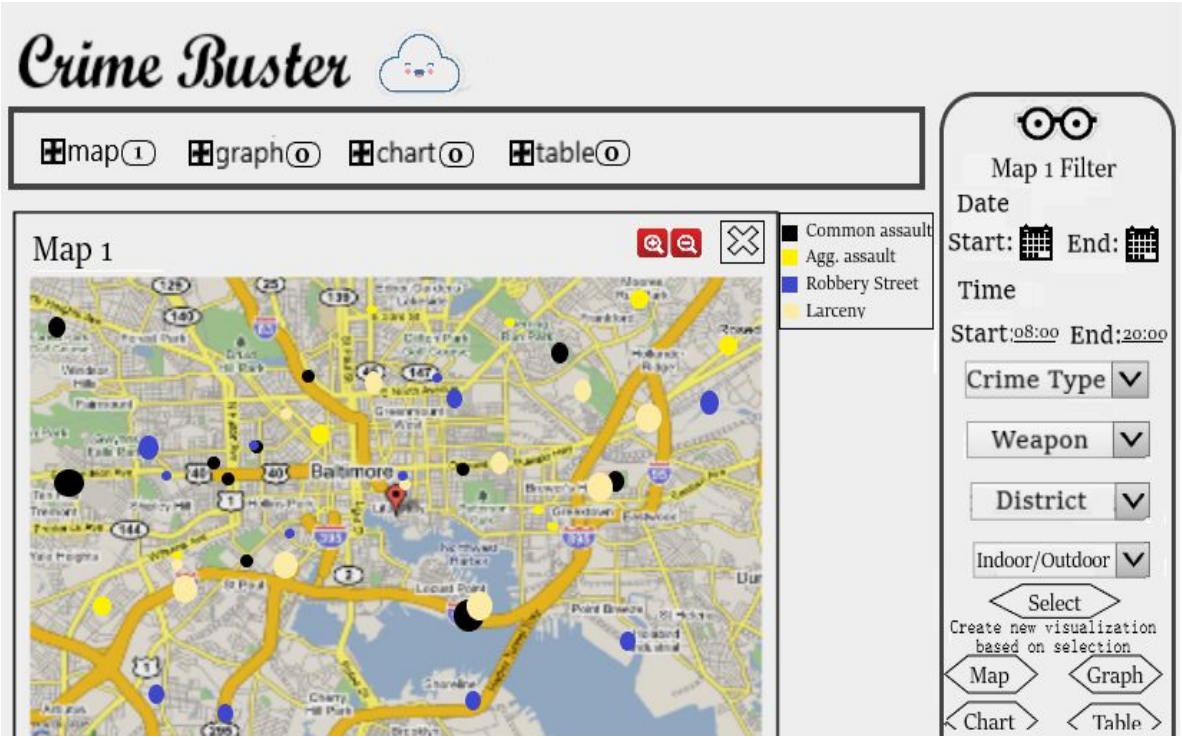
1.2 References

1. Crime Buster Web Application System Requirements Specification Document
2. Baltimore Police Department. "BPD Part 1 Victim Based Crime Data | Open Baltimore | City of Baltimore's Open Data Catalog." *City of Baltimore*, Socrata, data.baltimorecity.gov/Public-Safety/BPD-Part-1-Victim-Based-Crime-Data/wsfq-mvij.
3. Class Module 11 Powerpoint Slides: Paper Prototyping

2. User Interface Standards

This section contains an overview of the design standards used in the Crime Buster web application. There are five main features that are consistent throughout the entire application that can also be seen visually in figure 2.1 below. First, the Crime Buster logo will always appear on the top left corner of the web page. At any time, the user may select the Crime Buster logo to return to the home page displaying all data and only the map. Second, the filter options will always be visible on the right hand side of the screen. The page is designed for this so that the user always knows which filters are being applied at the time by easily looking to the right. Third, the filter options are applied to all of the currently displayed visualizations. That is, it is not possible for different visualizations on the screen to have different filters active at the same time. This is to maintain consistency between the displays and ensure the user is comparing valid data. The user selects filters and then can compare different visualization types, but they will be filtered by the same data. Fourth, the data visualization tool bar will always be displayed at the top of the screen. This is a standard so that at any time any visualization type may be easily added to the display. Fifth and lastly, every visualization on the screen will have an X button in the top right corner of it. This is to maintain the standard that any visualization at any time can be easily removed from the display and allows the user to de-clutter the screen.

Figure 2.1:



3. User Interface Walkthrough

3.1 Crime Buster Navigation Diagram

We have a single page web application where the user uses the applications provided features to change what is seen on the home screen.

3.2 Crime Buster Walkthrough

3.2.1 Adding / Removing Data Visualizations

This section of the user interface design document contains an overview of the design and user process of the Crime Buster Web Application. As seen in figure 1 below, the main page of the application has numerous features that are worth noting here. When the web application is first loaded, a default home page will come up. When the web page is loaded, the home screen as seen below in figure 1 is of a single map visualization. This is because the map generally contains the most information and is a good default prior to the user making other custom visualizations. There are four primary types of data visualizations within the application which are map, chart, graph, and table.

Now that the page is loaded and the default visualization of the map is able to be seen, the user may choose to add any of the given visualization types to the screen. The user may do this by using the visualization type selection toolbar at the very top of the screen. It contains plusses for each visualization type. The removal of one or more types from the screen is achieved by simply clicking the X in the top right of that particular visualization on the screen.

3.2.2 Filtering Options Walkthrough

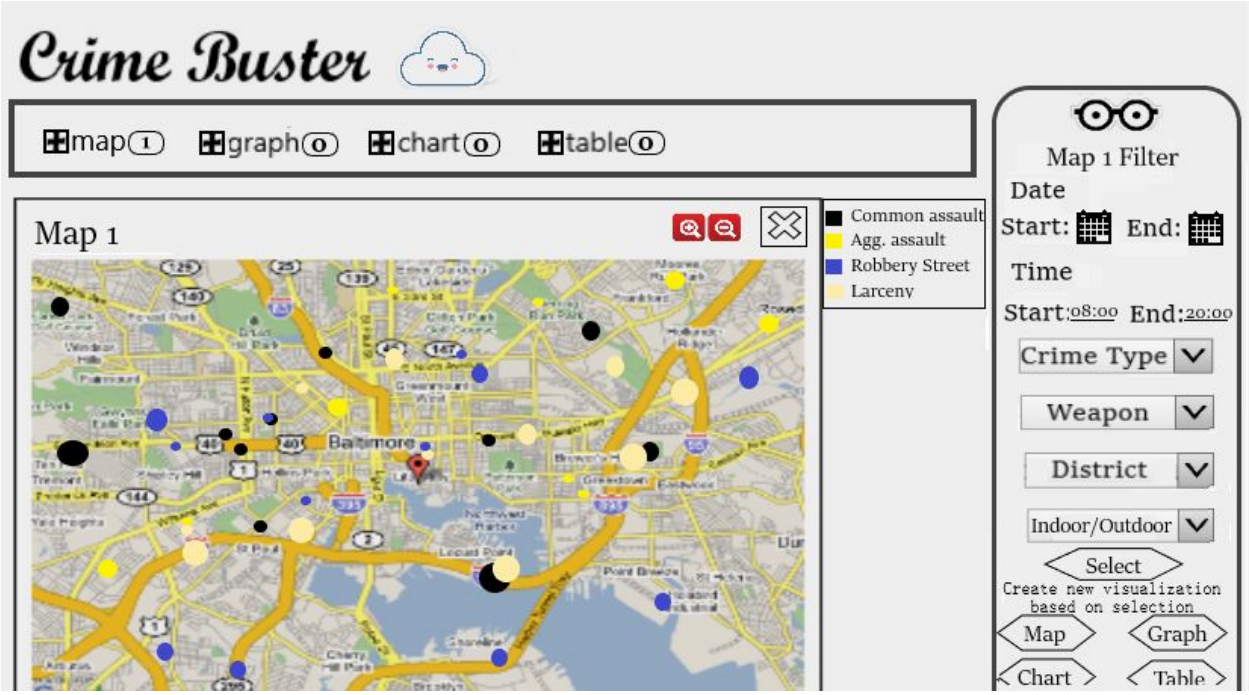
The next important functionality of the application is the filtering options, which are located at the far right hand side of the web page in the filtering options box. Inside this box, there are options to filter based on: weapon, crime type, date, time, location, and lastly the option to select a group of data from one of the visualization types and filter to only see that data. The filtering by weapon and crime type are both handled by using a drop-down menu with the option to filter by as many weapons / crime types as desired. The filtering by date is handled by two drop down calendars, one for the beginning date and one for the ending date. An error will be displayed if the starting date is after the ending date. The filtering by time option takes in two decimal numbers on a scale of 0-24, one for the starting time, and one for the ending time. An error is met when either of the numbers are outside the 0-24 range. In this case, the starting time can be after the ending time. For example, starting at 20 and ending at 2 world show all the crimes overnight from 8pm to 2am the next day. The filter by location option is handled by two drop down menus. These are in check-box form so the user may select as many areas as desired. The first is for selecting a district, and the second drop down menu is to filter by neighborhood. The last filtering option is selecting a group of data from a visualization. For example, the user could select the desired crimes from the map (in the form of dots) or one bar from a bar graph to focus in on what is interesting within that data. Another important feature of the map is the ability of the user to select an area on the map by clicking and dragging to highlight a specific area. This area along with the selected filters are then applied to the data. The last option here is to reset to default which is for when the user wishes to return to the default of all data with no filters.

3.2.3 Adding comments

The final feature to be noted for the home page is the ability of the user to add comments to any specific crime. When the user wishes to make a note on a crime, the crime should be selected

from the map view, then the comment section will come up at the bottom of the web page allowing the addition of a comment for that crime. There is an option for the user to make the comment public or private: public for any officer to see, or private for only those signed into the current account to see. There is a toggle option available just left of the submit button to select the public or private option, if no option is selected, the comment will follow the setting of the account (each account has a default setting for their comments which can be changed in the account settings described earlier). After the completion of the comment, the user clicks the submit button and the comment is added to that crime.

Figure 3.1



Descriptions of Following Figures

Figure 3.2:

Figure 3.2 shows the homescreen of the Crime Buster application. This depicts an overview of the data in the map format. The data can be filtered using the panel to the right or by clicking and dragging over an area of the map. The size of the dots are correlated to the number of crimes at that location and as you zoom in closer they separate into individual dots / crimes. The crime type is also color coordinated.

Figure 3.3:

Figure 3.3 shows all four of the data visualizations. All of the visualizations use the same filtering options which are selected using the filtering section on the right. The number next to each visualization in the top toolbar indicates the current number of each of that specific visualization currently displayed.

Figure 3.4:
Figure 3.4 shows what the page looks like when three charts are selected. The user has the option to select different types of charts and may find it advantageous to compare the data using these different virtualizations.

Figure 3.2

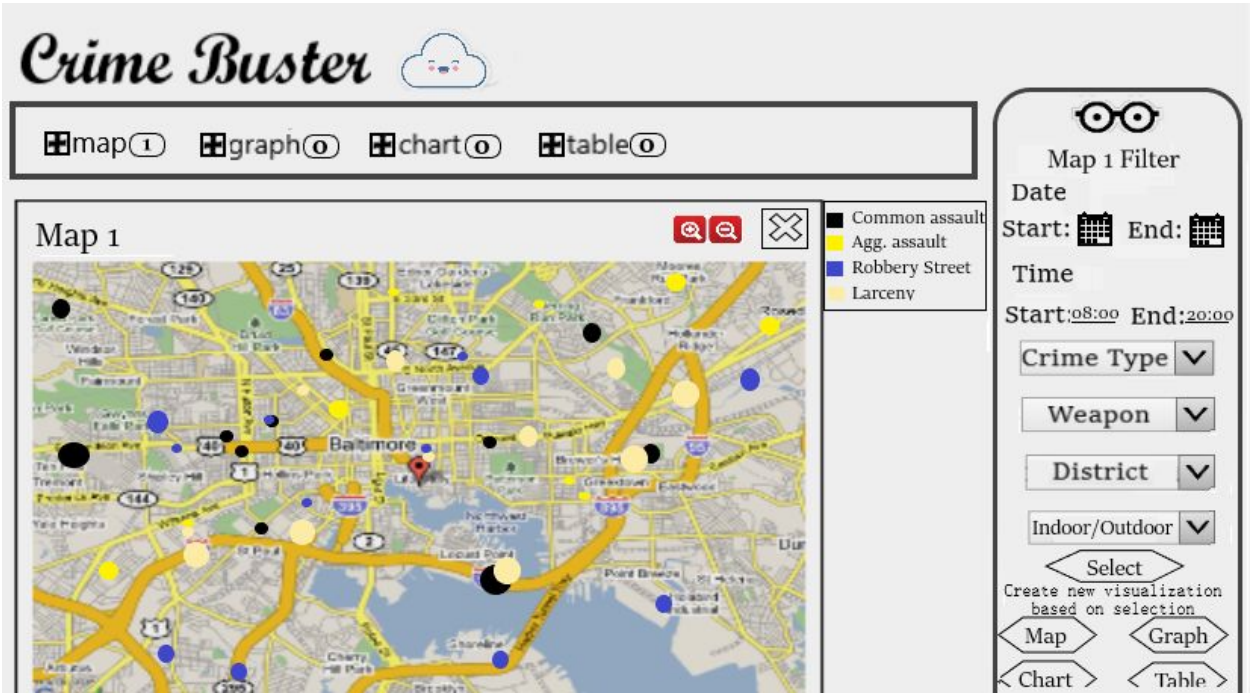


Figure 3.3

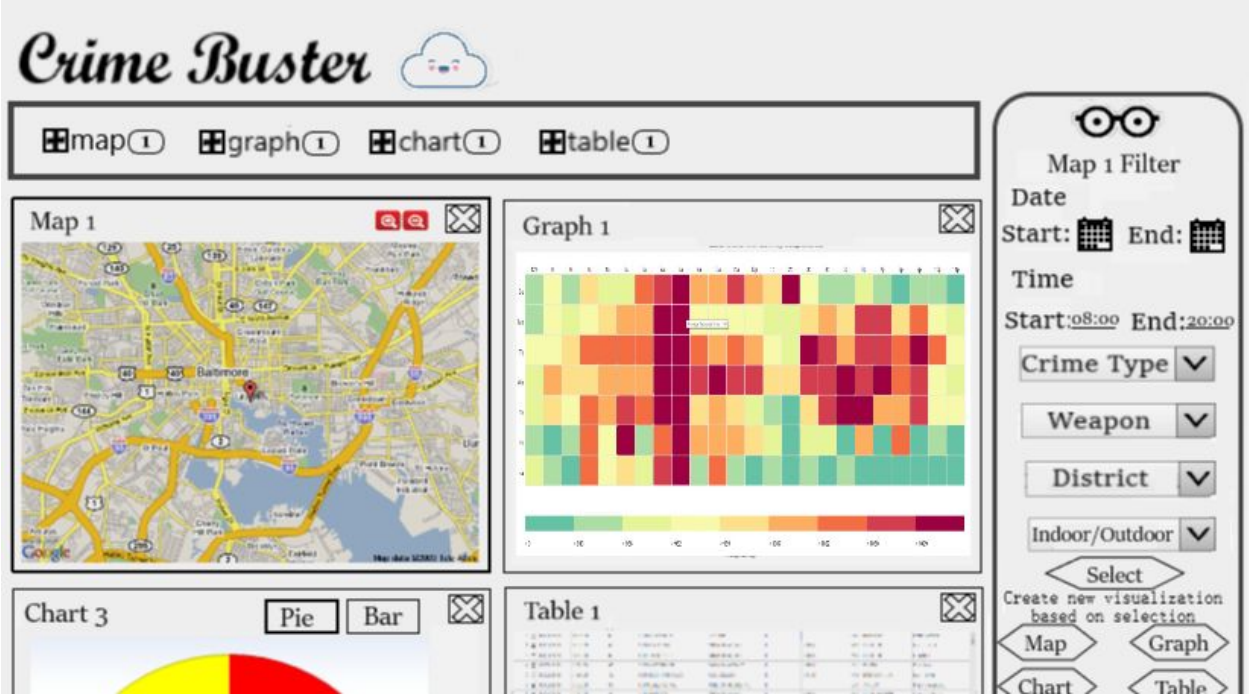
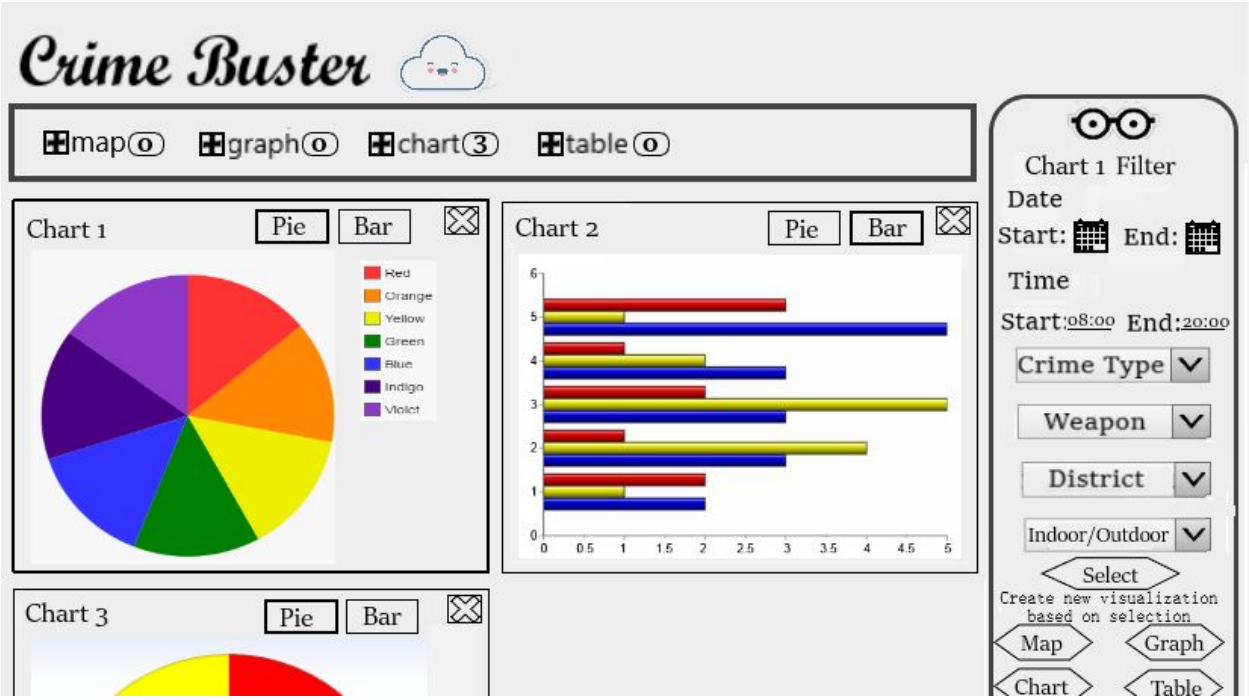


Figure 3.4



4. Data Validation

There are a few data entry points into the Crime Buster Web Application. They include: the starting time to filter by, the ending time to filter by, the starting date to filter by, and the ending date to filter by. Please see the table below for more information regarding the limits and checks for each of the data and what type they are.

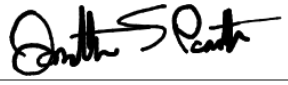
Entry Location	**Data Type**	**Limits**
Starting Date Filter	Date	Must be before the ending date filter
Ending Date Filter	Date	Must be the same as or after the starting date filter
Starting time filter	Double	Within the 0-24 range
Ending time filter	Double	Within the 0-24 range

Appendix A – Agreement Between Customer and Contractor

The customer agrees to a Crime Buster system with data visualizations, filtering options, and crime comments as some of the capabilities. Additional features will be provided in further development spirals. When and if future changes to this document occur a drafted new document will be created. Both a hard and electronic copy of both versions will be presented to the client for review. Upon approval, the draft will be finalized and signed off by both parties.

Client

Name: Jonathan Pautsch Date: 04/07/2018



Signature

Comments

Team

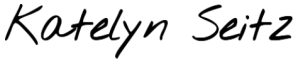
Name: Anqi Cheng Date: 04/06/2018

Signature

Name: Sam Mendimasa Date: 04/06/2018

Signature

Name: Katelyn Seitz Date: 04/06/2018



Signature

Name: Zachary Vance Date: 04/06/2018

Signature

Appendix B – Team Review Sign-off

This document has been collaboratively written by all members the team. Additionally, all team members have reviewed this document and agree on both the content and the format. Any disagreements or concerns are addressed in team comments below.

Team:

Name: Anqi Cheng Date: 04/06/2018

Anqi Cheng

Signature

Comments

Name: Sam Mendimasa Date: 04/06/2018

Sam Mendimasa

Signature

Comments

Name: Katelyn Seitz Date: 04/06/2018

Katelyn Seitz

Signature

Comments

Name: Zachary Vance Date: 04/06/2018

Zachary Vance

Signature

Comments

Appendix C – Document Contributions

Throughout the development of this document, each team member contributed in some way, hence the overall work distribution split evenly across all members (Angel 25%, Sam 25%, Katelyn 25%, and Zach 25%). The specific breakdown of work contribution is also divided across all sections, as we all worked on this document together.