

Crime Buster Application
User Interface Design Document

Presented to
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Software Engineering I
CMSC 447

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Crime Buster Application

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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. The intended audience for this product are the Baltimore Police Department, Next Century Corporation, and Dr. Wilson of the University of Maryland, Baltimore County.

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](https://data.baltimorecity.gov/Public-Safety/BPD-Part-1-Victim-Based-Crime-Data/wsfg-mvij).” *City of Baltimore*, Socrata, data.baltimorecity.gov/Public-Safety/BPD-Part-1-Victim-Based-Crime-Data/wsfg-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 1.0 and 1.1 below. First, the Crime Buster logo will always appear on the top left corner of the web page. Second, the filter options will always be visible on the left 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 left. 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 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. Users can click and unclick to make different visualizations appear or disappear on the page. 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 1.0 Home Page

Figure 1.1 Home Page

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 Visualization Type Selection

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 1.0 above, 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 in figure 1.1 and 2.0 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, time series, 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 checkboxes for each visualization type. The removal of one or more types from the screen is achieved by simply un-click the checkbox on the visualization selections which are displayed on the top of the page (Figure 1.1).

3.2.2 Filtering Options Walkthrough

The next important functionality of the application is the filtering options, which are located at the far left 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, premise, and district. The filtering by weapon and crime type are both handled by using grouped checkboxes 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 (see Figure 1.1). The filtering by time option takes in two decimal numbers on a scale 0-12 AM/PM, one for the starting

time, and one for the ending time. An error is met when either of the numbers are outside the 0-12 range. In this case, the starting time can be after the ending time. For example, starting at 8PM and ending at 2AM would show all the crimes overnight from 8pm to 2am the next day. The first is for selecting a crime type, and the second grouped checkboxes are to filter by weapons. There are also filtering options of selecting district, location, and premise. These are in check-box form so the user may select as many areas as desired (Seen in each figures).

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 top of the web page allowing the addition of a comment for that crime (Figure 2.3). After the completion of the comment, the user clicks the OK button and the comment is added to that crime.

3.2.4 Screen Shots

Figure 2.0 Home Page (Color Cluster view)

Figure 2.1 Home Page (Cluster Map View)

Figure 2.2 Home Page (Color Cluster Map View --- Tooltip)

Figure 2.3 Home Page (Color Cluster Map View --- Adding Comments View)

Figure 3.0 Home Page (Time Series -- Heat Chart)

Figure 3.0 Home Page (Time Series -- Time Line Chart)

Figure 4.0 Home Page (Charts -- Vertical Chart)

Figure 4.1 Home Page (Charts -- Horizontal Chart)

Figure 4.2 Home Page (Charts -- Stack Chart Chart)

Figure 5.0 Home Page (Table View)

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.

4.1 Data Validation Table

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	Integer	Within the 0-12 range
Ending time filter	Integer	Within the 0-12 range
Adding Comments	String	Less than 200 Characters

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:

Date:

Signature

Comments

Team

Name:

Date:

Signature

Name:

Date:

Signature

Name:

Date:

Signature

Name:

Date:

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:

Date:

Signature

Comments

Name:

Date:

Signature

Comments

Name:

Date:

Signature

Comments

Name:

Date:

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.