Crime Buster Application

Administrator Manual

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Presented to

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Software Engineering I

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Crime Buster Application
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1. Introduction

1.1 Purpose of This Document

This document is geared towards a web application administrator and is a step-by-step guide to set up the CrimeBuster web application on any web server. Setup is simple and once complete, users can become fully integrated into the application. Please have the Systems Requirements Document and Systems Design Document close by for quick reference.

1.2 References

1. CrimeBuster System Requirements Specification
2. CrimeBuster System Design Document
3. 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.
4. Php: Installation and Configuration(2018). Retrieved from " http://php.net/manual/en/install.php "
5. Apache 2.2 (2018): Downloading the Apache Server. Retrieved from "https://httpd.apache.org/download.cgi "
6. Apache server for linux: Studio page. Retrieved from "http://directory.apache.org/studio/download/download-linux.html "
7. MySQL (2018): MySQL Download Page. Retrieved from "https://www.mysql.com/downloads/"
8. XAMPP download (2018): XAMPP Download Page. Retrieved from "https://www.apachefriends.org/download.html "
9. MicrowaveSam (2014): EC2 Instance with Apache, PHP, MySQL. Retrieved from "https://www.youtube.com/watch?v=wNr7YqjjzOY"
10. SUCURI (2018): Website Backups. Retrieved from "https://sucuri.net/website-backups/"

2. System Overview

The section describe the history and hardware and software requirements of the CrimeBuster Web Application.

2.1 Background

The CrimeBuster application is charged with creating data visualizations for the baltimore crime, which can help police or other users analyze and visualize the crime information. Please refer to the Systems Requirements Specification, section 1.2, for more information about the purpose of this application.

The CrimeBuster application is largely self-sustaining but can be easily extended if necessary. For any possible error or crash recovery, this document describes how to quickly find log files and generate scheduled database backups.

2.2 Hardware and Software Requirements

The system can be run on either a Windows, mac, Linux or Unix based operating system, and mobile platforms such as android and apple. We support SQL and SQLite as the database engine for rapid software installation. PHP 5.2 or higher is required and it does most of the heavy lifting of connecting to, querying, returning data, and managing the database. Apache2, Node.js, or another server language is also require for hosting the system and performing http GET and POST requests.

We would recommend one of Amazon EC2 instances, particularly a redhat or ubuntu base instance for quickly hosting the CrimeBuster application. This will reduce setup time and will resolve some security concerns. Also, if your company already uses AWS it would be extremely easy to integrate this application with your other systems.

3. Administrative Procedures

The section describe how to install CrimeBuster software requirements and CrimeBuster itself. Routine and periodic administrative tasks are described below. We recommend setting up CrimeBuster on a linux based host, as it would be easier to install the required software.

3.1 Installation

The installation for setting up CrimeBuster for a local development or production server is similar to if you were also setting up CrimeBuster for a global server. For local development or production we would suggest applications such as XAMPP or WAMP and for global web hosting, we would suggest AWS. Both servers would require php5 or above, mysql and sqlite. The CrimeBuster application is currently running on an ubuntu instance, hence the instructions below pertain only to linux based hosts. However, hosting on windows or other platforms would be straightforward, but you would need to ensure that PHP, MYSQL, SQLITE, as well as your prefer backend(Apache or Node) is installed and configured correctly.

3.1.1 PHP5 or above installation

PHP5 or higher is required to be installed and properly configured on the system before CrimeBuster installation. Please refer to the "Download PHP" installation process for your specify system at "http://php.net/manual/en/install.php" for installing php version 5 or higher.

3.1.2 Apache2 Installation

Apache2 or another server scripting language that integrates with PHP is required to be installed and properly configured on the system before CrimeBuster installation. Please refer to the "Download Apache" installation process at "https://httpd.apache.org/download.cgi" for installing apache2.

3.1.2.1 Apache2 Installation for Linux Redhat environment

Installing Apache2 for linux based in environment is simply and straightforward. After updating your system, please run the following command "sudo apt-get install apache2". If you are unfamiliar with terminal installations please refer to the GUI based installation process at "http://directory.apache.org/studio/download/download-linux.html" for installation.

3.1.3 Mysql and Sqlite Installation

Mysql and Sqlite is also required to be installed and properly configured on the system before CrimeBuster installation. These are used for interaction with the database. Please refer to the "Download MySQL" installation process at "https://www.mysql.com/downloads/" for installing Mysql. The link above has installation procedures for yum and apt repositories, which should be used if you're hosting on a linux instance. Please also refer to the "Download Sqlite" installation process at "https://www.sqlite.org/download.html" for installing Sqlite. The link has different procedures for different environments, so please choose the one that correspond to your system.

3.1.4 XAMPP Installation

XAMPP is not a requirement, but it will streamline the process of setting up the CrimeBuster application locally. XAMPP comes packaged with PHP, Apache, as well as MariaDB for Mysql server management. Please refer to the "Download XAMPP" installation process at "https://www.apachefriends.org/index.html" for installing XAMPP.

3.1.5 Installing system requirements on EC2 Ubuntu Instance

An EC2 Ubuntu Instance is not required, but it is our suggested means of hosting CrimeBuster. Once you have access to the ubuntu instance, login and update all packages with the following command "sudo apt-get update". Afterwards, you can install PHP, Mysql, Apache2, and Sqlite with the following commands "sudo apt-get install apache2 libapache2-mod-php5 php5 mysql-server php5-mysql sqlite3" and "mysql_secure_installation". Please refer to the "How to Setup Amazon Web Services EC2 Instance with Apache, PHP, MySQL" video at "https://www.youtube.com/watch?v=wNr7YqjjzOY" for step by step instructions.

3.1.6 CrimeBuster Installation

Once all prerequisites are installed, CrimeBuster installation is fast and easy.

3.1.6.1 Installing on Local Server

Once a local server has been configure and all prerequisites are met, simply copy the CrimeBuster folder into the webserver directory, open a browser of your choice, and navigate to the URL of your server. For example, https://::8080/CrimeBuster.

3.1.6.2 Installing on Global Server (AWS)

Once a global server has been configure and all prerequisites are met, simply copy the CrimeBuster folder into the webserver directory. For apache servers on a linux based hosts, the server repository is located here ../../var/www/html/. Afterwards, open a browser of your choice on any device that connects to the internet and input the URL for your server.

3.2 Routine Tasks

CrimeBuster Database needs to pull data from open baltimore website every two weeks. This action can be set manually by re-downloading the data from the datasheet that's provided from the website as an .csv or .json to convert to sql code and use DB Browser for SQLite to update the .db file. Until the code the make the whole process automatically is completed successfully, the task needs to be performed every other week for the new data.

3.3 Periodic Administration

The system should be backed up periodically to protect user account data in the event of server failure. Sucuri provides convenient and cost-effective backup services. For more information, visit their website at https://sucuri.net/website-backups/

3.4 User Support

For any additional support, please contact us via email at any of the following addresses:
- acheng2@umbc.edu
- kate14@umbc.edu
- sam34@umbc.edu
- zvance1@umbc.edu

4. Troubleshooting

In the event of an error or bug troubleshooting is necessary. We have outlined common issues that may arise during use of the Crime Buster application.

4.1 Dealing with Error Messages and Failures

In the unlikely event of a system failure, please contact user support in troubleshooting all error messages or failures. The only error message that should ever be displayed is if the end date entered precedes the start date entered. The error message of: "Please select valid dates" will be seen on the screen. To resolve this issue, select ok to close the error message, and change the selected dates so that the start date is before or the same as the end date.

4.2 Known Bugs and Limitations

Currently only a few bugs exist in the system. First, upon first load of the web application, the number of filtered results is listed as zero even though all filters are selected. Until this number works correctly, the heat chart also lists everything as zero. After unclicking an individual filter or two, the filtered results does work along with the heat chart. So, there is no limitation, just initially the user needs to unselect a few filters to get the heat chart to work, then can re-select or filter however they wish. The Crime Buster development team was unable to find the location in the code where this bug exists and therefore could not find the fix. Another bug is that sometimes the colors in the legend (on the side bar next to the crime types) show up on the side

bar as the text instead of the actual color. It seemed to be random as to which ones did not work correctly and which did and the Crime Buster team was not able to successfully solve this issue of consistency for the web application. It does stop the user from knowing what exact color that crime type is, upon a refresh, the problem should fix itself. Another is that sometimes when the web page is loaded, the style of the checkboxes and question mark icon next to the time of day selection differ. This is rare, but when the page is refreshed, the styling fixes itself. Again, the Crime Buster development team was unable to identify this error in the code, but it really does not limit the functionality as the checkboxes always work and the style is fixed to look better after a refresh.

Appendix A – 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: Tardigrade

Name: Angel Cheng   Date: 05 / 07 / 2018

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Name: Katelyn Seitz   Date: 05/07/2018

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Name: Zach Vance   Date: 05/07/2018

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Appendix B – 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.

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