CMSC 345

Software Design and Development

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**Code to Joy**

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**Code Inspection Report**

Code to Joy – Map Maestro

Code Inspection Report

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1. **Introduction**

1.1 Purpose of This Document

The purpose of this document is to provide a well-documented analysis of the code written for this product. This analysis will include an examination of the coding standards used, any defects found within the current build and the methods of reviewing our code employed for this document.

* 1. References
* System Requirements Specification
* Software Design Document
  1. Coding and Commenting Conventions

Code Conventions for the Java Programming Languages is the list of standard conventions supported by UMBC. The group consulted these standards when writing the Map Maestro. Some standards followed included in-line curly braces, camel case variable names, and standard method headers in Java. These standards were followed to make easy to read, organized code.

* 1. Defect Checklist

|  |  |
| --- | --- |
| **Potential Defects to be Tested for** | **Category** |
| New user can’t be created | Functional |
| Login doesn’t work | Functional |
| Admin status not recognized | Functional |
| Text files not properly read | Functional |
| Admin can’t add locations | Functional |
| Admin can’t remove locations | Functional |
| Admin can’t modify locations | Functional |
| Users can’t select multiple locations | Functional |
| User trip not stored | Functional |
| Trip cannot be converted properly into kml | Functional |
| User information not saved | Functional |
| Path is not the shortest available | Functional |
| Path does not display on Google Earth | Functional |
| Project throws an error when trying to run | Functional |
| Commenting standards not followed | Comments |
| Comments not included | Comments |
| Google Earth fails to open | System Based |

* 2. **Code Inspection Process**
  1. Description

Code was inspected through the testing. After sections of code had been written, they would be tested to confirm functionality. After this incremental testing and unit testing was completed for each class, members met and merged their code. During this process, much testing was performed in order to ensure continued functionality after the edits. This incremental testing ended after the program functioned correctly in all areas tested.

After this building process, next came the cleaning up of the existing code. Comments were altered to more closely follow a uniform model, and more of the code was commented for clarity. After this, code was further edited, mainly the gui, in order to improve aesthetic appeal. This overhaul of the gui required further testing in order to confirm functionality a final time. This last confirmation of clean, successful code ended our review process.

2.2 Impressions of the Process

This was an effective way of evaluating the code written. Testing while inspecting allowed the group to confirm that the project has functionality and readability. Ideally, comments would be completed during the coding process, rather than after, but enough description was given to have a basic understanding of what each program did. The process could have been improved through the use of writing and inspecting together rather than coding separately and joining at the end.

Within the code, there are classes likely to contain few defects and classes likely to contain many defects. Based on the difficulty of implementation, LoginGUI class is likely to contain many defects, as it is the driver for both a GUI and the entire project. Some classes were obtained through the use of open source software posted online, and these had few or no defects within them. These classes were the GoogleMail class and the ShortestDistance class.

* 1. Inspection Meetings

Meetings were held on multiple occasions, including meetings held in UMBC’s Albin O. Kuhn library on December 3rd, 5th, and 10th. These meetings were held from 3:45 pm to 5:15 pm, and on December 5th, an additional, shorter meeting was held from 6:45 pm to 7:00 pm in order to make preparations for the presentation on the 10th. On the 3rd, the Locations class and locations.txt file were examined. Ben acted as the scribe, because he created the class and would need to improve upon any flaws. He later was replaced by Matthew as the scribe, since after the locations code, the route.kml file was examined, which Matt had created from the format he found online. There was no specific moderator; everyone took up the task of examining code and determining how it needed to be fixed. On the 5th, Amanda was the scribe, and the code examined was the User class and the LoginGui class. Sean became the scribe later that meeting when it was time to review his portion of the code: the ShortestDistance class. Again, everyone not the scribe performed multiple roles, as the group had not decided upon roles for this review. On the 10th, the day of the presentation, the Email function was tested and deemed functional,

3. **Modules Inspected**

|  |  |  |
| --- | --- | --- |
| **Name** | **Functionality** | **Where it Fits into Code** |
| Location | Class that acts as the location to be plotted on Google Earth | This was its own class, and specific instances were called from within LoginGui and ShortestDistance |
| Route | .kml file required for inputting data into Google Earth, takes a latitude and longitude in specific format to function properly | This was a file opened and written to inside LoginGui, and then fed into Google Earth |
| LoginGui | The Gui for the entire project, contained driver for the project and handled user input through the use of buttons and text boxes and calls to other classes | This class was the nucleus of the project, all other classes and files relied on being called by this class |
| User | The user class, creates an instance of user with user given parameters username, password, and a third attribute set by default to false, for is not an administrator | This class was called by LoginGui to check if a user was valid when logging in |
| ShortestDistance | Class that calculated the shortest path and modified a passed in array to reflect this shortest path | This class method was called by LoginGui after receiving user input for the list of locations, the start location, and the stop location |
| Email | Class that could send the user an email of their trip to the specified destination email | Called if the user inputs an email after the route is planned |

4. **Defects**

Currently, the project has some methods that are not functioning as intended. These program defects include:

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Description | Defect Type | Module of Origin |
| Add Location Error (Fixed) | Adding location in gui doesn’t add location | Functional | LoginGui has not yet implemented |
| Remove Location Error (Fixed) | Removing location in gui doesn’t remove location | Functional | LoginGui has not yet implemented |
| Modify Location Error (Fixed) | Modifying location in gui doesn’t modify location | Functional | LoginGui has not yet implemented |
| Email Error (Fixed) | Email is not called or sent during runtime | Functional | LoginGui has not yet implemented |
| Email Attachment Error (Fixed) | Email does not attach list of locations to be sent to user | Functional | Email has not implemented |
| Executable Error (Fixed) | File is not in executable jar form | Functional | Error with exporting file as an executable jar file |
| Text File Error | If user deletes text files, program has nothing to draw from, accessibility issue | Functional | Based on external text files and class that calls them, LoginGui |
| User Input Error (Fixed) | No error message for incorrect input | Functional | LoginGui has not yet implemented |
| Existing Username Error (Fixed) | No error message for incorrect input | Functional | LoginGui has not yet implemented |
| Incorrect Password Error (Fixed) | No error message for incorrect input | Functional | LoginGui has not yet implemented |
| Help Documentation Error (Fixed) | Help documentation nonexistent | Functional | LoginGui has not yet implemented |
| Text file Accessibility Error | Users can find text files and elevate status to admin | Security | External file issue, text files can be accessed by anyone |
| User Status Error | User cannot be made admin without accessing text file | Security | LoginGui has not yet implemented |
| Password Security Error | User account info not secure, easy to access | Security | No file safety for external files |
| Button Misclicking Error (Fixed) | Logout button too close to next, leads to mistakenly exiting | Other | LoginGui gui needs editing for better format |

Appendix A – Team percent contributions, Team sign off, Customer acceptance

**Team Review Signoff**

I agree that I have read the above document and reviewed its content. If I do not agree with anything pertaining to the content or format of the document, I shall write it in the comments section below.

**Members of the Team: Signatures: Date:**

Amanda Hartman \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_

Comments: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Sean Hutchinson \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_

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