Library Management System

Group B



Release 1.0

Team Members: *Charles Barber, Nicholas Feldman, Christopher Lim, Anthony Palumbo, Edward Wong*

**REVISION TABLE**

|  |  |  |  |
| --- | --- | --- | --- |
| ***Revision Number*** | ***Revision Date*** | ***Summary*** | ***Author*** |
| *0.1* | *02/14/2017* | *Domain Model* | *Anthony Palumbo* |
| *0.2* | *02/16/2017* | *Nouns & Verbs, Knowns & Unknowns* | *Charles Barber, Edward Wong* |
| *0.3* | *02/21/2017* | *Design Pattern Usage* | *Nicholas Feldman* |
| *1.0* | *02/22/2017* | *Initial creation and changes* | *Christopher Lim* |
| *1.1* | *02/03/2017* | *State vs. Strategy* | *Nicholas Feldman* |
| *1.2* | *03/02/2017* | *Design Evaluation* | *Anthony Palumbo* |
|  |  |  |  |

**PROBLEM STATEMENT**

Your team has been tasked with the responsibility to design and implement the Library Book Management System (LBMS). The LBMS is Book Worm Library’s (BWL) system for providing book information to users, tracking library visitor statistics for a library statistics report, tracking checked out books, and allowing the library inventory to be updated. It is the server-side system that provides an API used by client-side interfaces that BWL employees use.

**SYSTEM REQUIREMENTS**

At a high-level this project will be source controlled on GitHub, implemented in Java as a desktop application. Must be compatible with the standard Java 1.8 SDK installed on the RIT SE lab machines. The system does not require or use any form of external database, persisting only in standard Java constructs. The system will be delivered as an executable jar file and require no network connection to function. A start.bat file will be provided to set any required environment variables, perform any program specific initialization, and execute the program, and will able to be executed from a Windows Command Prompt.

**FEATURE REQUIREMENTS (USER STORIES)**

|  |  |  |
| --- | --- | --- |
| *No.* | *User Story Name* | *Description* |
| 1 | API | The LBMS shall be use text-based requests and responses. |
| 2 | Visitor Registration | The LBMS will require that first time visitors to the library register. |
| 3 | Visits | The LBMS shall keep track of visits by visitors and the time each visitor spends at the library during each visit. |
| 4 | Operational Hours | The LBMS shall be available for full use while open from 08:00 to 19:00. All visits are automatically ended when the library closes at 19:00, and the LBMS does not allow users to start a new visit or check out books. |
| 5 | Searching | The LBMS shall respond to queries for book information. |
| 6 | Checking out | The LBMS shall track checked out books by visitors. The system shall allow for a maximum of 5 books per visitor to be checked out and each book may be checked out for a maximum of 7 days. |
| 7 | Fines | The LBMS shall apply an initial $10.00 fine to all books 1 day overdue. Subsequently, adding $2.00 for each additional week overdue, with a maximum fine of $30.00. |
| 8 | Statistics Report | The LBMS shall respond to queries for an informational report of the library. |
| 9 | Advance Time | The LBMS shall support a feature to track and advance time. |
| 10 | Clean Shutdown | The LBMS system shall provide a mechanism for a “clean” shutdown of the system. The system shall end any visits in progress at system shutdown and persist all data at system shutdown. |
| 11 | Startup | The LBMS system shall restore persistent state on startup. |

**USE-CASE CONTEXT DIAGRAMS**

**DEVELOPMENT ENVIORNMENT**

**ARCHITECHTURAL MODEL**

**COMPONENTS AND FUNCTIONS**

**CLASS DIAGRAMS**

**SEQUENCE DIAGRAMS**