

BOOK MANAGEMENT SYSTEM PROTOCOL

1. INTRODUCTION

Our protocol allows users to submit and to get books to the server from the client. The client is able to communicate to the server via a graphic user interface. It accesses the server on a designated port. The port is selected by the server. The server is run through the command line/ shell and can be accessed by starting the server with its first argument a port number.

2. BOOK MANAGEMENT SYSTEM

When the server starts there are no books; books are not persistent. In order to successfully submit a book you must Use the SUBMIT call followed by setting the TITLE of a book, the AUTHOR, and LOCATION in that specific order. You are able to search through our catalogue of books by using the GET call. This will require at least 1 of the three attributes of the book (TITLE, AUTHOR or LOCATION) or at most all three. The order that these are written in does not matter. To remove a book from our catalogue you must use the REMOVE call. This will require at least 1 of the two attributes of the book(TITLE or AUTHOR), or at most both.

3. FORMAT OF MESSAGES

• 3.1 CLIENT

The client expects messages in the following format, which is submitted through a Send button:

SUBMIT
TITLE <Title of book here>
AUTHOR <Author of book here>
LOCATION <Location of book here>

Example:
SUBMIT
TITLE Introduction to Pascal Programming
AUTHOR Abramov, Zima
LOCATION Laurier Science Building, N2087

GET
TITLE <Title of book here>
AUTHOR <Author of book here>

Example:
GET
TITLE Introduction to Pascal Programming
AUTHOR Abramov, Zima

REMOVE
TITLE <Title of book here>
AUTHOR <Author of book here>

Example:
REMOVE
TITLE Introduction to Pascal Programming
AUTHOR Abramov, Zima

• 3.2 SERVER

The server will return the following for each type of call:

SUBMIT – Book submitted successfully; Unable to parse request.

REMOVE – Book removed; Books removed; Book not found; Unable to parse request.

GET – Book cannot be found; Unable to parse request;

<Title of retrieved Book>

<Author of retrieved Book>

<Location of retrieved Book>; if multiple books are found, all of them will be listed.

4. SYNCHRONIZATION POLICIES

Deleting a book creates a race condition. In order to mitigate this risk, we make the function synchronized, so no other connection calling GET will access this book while it is being deleted.

5. ERRORS

On all errors, users will be prompted a message (These are shown under 3.2). The types of errors are: Wrong format of request retrieved by client; Book(s) not removed; Book not found, from the server. And the GUI offers clean JDialogs that tell us exactly what exceptions have been raised such as: Could not create connection; error with host; Could not find host; Please ensure port number is correct.