

Library Search and Reserve a Book

Functional Specifications

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Problem Description

A librarian desires to allow her patrons to find and reserve books that the library owns. She would like to make this service available to patrons even if they are not physically inside of the library.

Solution Overview:

Briefly describe the solution.

- Provide the ability for a web-user to search for a) the library, b) then search the library catalog for the book(s), and then reserve the book(s).
- (Out of scope – included here to show brainstorming / strategic direction): SEO (Search Engine Optimization) that places a library reservation in the same search results page as purchasing a book. Said another way, give people who intend to purchase a book, e.g. from the local Barnes and Noble, the option of checking the book out of the library.

Value

Briefly describe the value that addressing the above problem will provide to (a) Farmington Hills Public Library as a business and (b) a library patron as an end user.

Value to the library:

Supports several of the library's [long-term goals](#):

library goal	How “search and reserve” supports the goal
1. To provide a high standard of services which are user-oriented.	Allowing the user to reserve books, without assistance, is user-oriented.
2. To promote library services, programs, and materials in the community.	Using the Internet as a fulfillment channel will promote the library.
3. To develop a diversified public relations program which will increase library usage...	Web reservations will increase library usage.

4. Web-based reservations are a form of customer self-service, (decrease demand on paid and volunteer staff).

Value to the potential library user:

1. Reservations can be done anywhere, e.g. from home, and anytime, i.e. 24x7.
2. Reservations can be done with any device that can access the Internet, inc. PC, smart phone (e.g. iPhone), etc.
3. Easy, satisfying reservations will increase repeat library business (a library goal).
4. Compared to in-person reservations, web-based reservations will increase customer satisfaction because they:
 - a. Are faster
 - b. Consume less resources, e.g. vehicle wear and tear, gas
 - c. Eliminate wasted trips
5. Books are held at front desk, eliminating the time a patron spends retrieving the book, resulting in increased customer satisfaction.

Requirements

Compose a brief set of requirements that address the problem description above. Make assumptions if necessary regarding what the librarian would find acceptable.

Functional

High Priority

1. Add a “Find a Book” link to the **masthead** that links directly to the search query page.
2. Add a **search query** page containing:
 - a. Text entry box
 - b. Buttons to search on: 1) “Everything” (primary path), 2) “Subject”, 3) “Title” and 4) “Author”. When clicked:
 1. Parse input, form query, then search the appropriate index(es).
 2. If query returns zero results, then display an informational message. Otherwise, display the search results page.
 - c. Links for:
 1. “More search options” (advanced search page)
 2. “Tips on searching” (search help page)
 - d. Help button (context-sensitive help)
3. Add a **search results** page containing:

(These requirements are for the search “Everything” button.)

 - a. Tabs for results from each search index, i.e. “Title”, “Author” and “Subject”.
 - b. Summary line: “Results x - y of about z for <search term(s)>”
 - c. For each book match, display:
 1. Title of the book
 2. Number of books available now
 3. Number of days before the first book becomes available (add 1 day for re-shelving)
 4. Link to a details page (details about the book)
 5. Button to the “make a reservation” page (reserve the book). When clicked:
 1. Navigate the visitor to the sign in page.
 2. Once the visitor has authenticated and is recognized as a patron, display the “make a reservation” page.
 - d. Links for:
 1. “More search option” (advanced search page)
 2. “New search” (return to search query page)
 3. “Next” and “Previous” – display conditionally, only as necessary.
 - e. Help button (context-sensitive help)
4. Add a **make a reservation** page containing:
 - a. If the book:
 1. **Is available**, refer to the mockup - display the “is available” panel
 2. **Is not available**, refer to the mockup - display the “is not available” panel
 - b. Button to make a reservation. When clicked:
 1. If book is available:
 1. Place the book on hold for two days.
 2. Associate the book with the patron’s name.
 3. Generate a pick slip for the librarian.

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4. Expire the reservation after two days and notify the librarian to re-shelve the book.
2. If book is not available:
 1. Queue a reservation for the next available book.
3. Whether or not the book is available:
 1. Generate a confirmation number.
 2. Display a **pop-up** with the confirmation number and message.
 3. Send an email, containing the same information items that are displayed on the appropriate panel, along with the confirmation number, to the patron's email address.
- c. Links for:
 1. Cancel the request

Optional, but highly recommended

5. Enhanced search query features:
 - a. Suggestions of similar books when the library doesn't carry the book, or no books are currently available
 - b. Suggestions for incorrect spelling
 - c. Relevance ranking if an exact match is not found
 - d. Auto complete
 - e. Boolean "and" & "or" logic precedence
 - f. Case insensitivity
 - g. Fuzzy search
 - h. Wildcard search for word variants
 - i. Search-based reports, e.g. most frequently sought books the library doesn't have
6. Validate that patrons have:
 - a. No other library assets on reserve.
 - b. No other issues, e.g. overdue books, which would prevent them from creating a reservation.
7. Enhanced reservation features:
 - a. For patrons: view "my reservation", and "cancel my reservation" features
 - b. For librarians: reservation-based reports, e.g. books with the most reservations
8. Add a marketing announcement to **home** page:
 - a. Add a "Find a Book" oversized button, with yellow background, to the Home page featured content area.
 - b. Add an announcement that entices visitors to try the new, enhanced "search & reserve" feature for "hot" titles.

Non-functional

High Priority

1. Train the staff on the new "search & reserve" feature.

Medium priority

2. Interlock with other library communication plan components, e.g. email blast, to promote the "search & reserve" feature.

Assumptions

1. Book:
 - a. Library carries the book and the book is indexed in a catalog.

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- b. Maximum of one book can be reserved at any time.
 - c. "Book" can refer to any media, e.g. hard cover, paperback, books on CD, e-book, etc.
 - d. Searching partner libraries for a book match is out of scope
2. Website:
- a. Sign in capability already exists.
 - b. Website already exists, with system resources that are sufficient to responsively handle the average and peak lodes, e.g. when a bestseller first becomes available.
3. Other:
- a. English is the only supported language (admittedly unrealistic).
 - b. Pickup from only one location (the library has two locations).
 - c. Reservations expire after 2 calendar days.
 - d. There are no other outstanding reservations for the same book.

Use Case List

Please compose a list of use cases to address the requirements listed above, including a name and brief description.

Actors

- Visitors – anyone accessing the library’s catalog via the Internet.
- Patrons – visitors who have established an identity (username).

Search feature

	Actor	Goal	Brief
1,	Visitor	Locate a book by title	Visitor browses the library website. Visitor searches based on title . Visitor scans a list of books meeting the search criteria ¹ . Visitor chooses a book, and then reviews detailed information ² . Visitor decides to search for another book.
2.	Visitor	Locate a book by author	Visitor browses the library website. Visitor searches based on author . Visitor scans a list of books meeting the search criteria ¹ . Visitor chooses a book, and then reviews detailed information ² . Visitor decides to search for another book.
3.	Visitor	Locate a book by subject	Visitor browses the library website. Visitor searches based on subject . Visitor scans a list of books meeting the search criteria ¹ . Visitor chooses a book, and then reviews detailed information ² . Visitor decides to search for another book.
4.	Visitor	Locate a book with a fragment of information	Visitor browses the library website. Visitor searches based on a fragment of information (the “Everything” option). The first search is narrowly defined. When no books match the visitor searches using broader criteria. Visitor scans a list of books meeting the search criteria. Visitor chooses a book, and then reviews detailed information ² . Visitor decides to search for another book.

Reserve feature

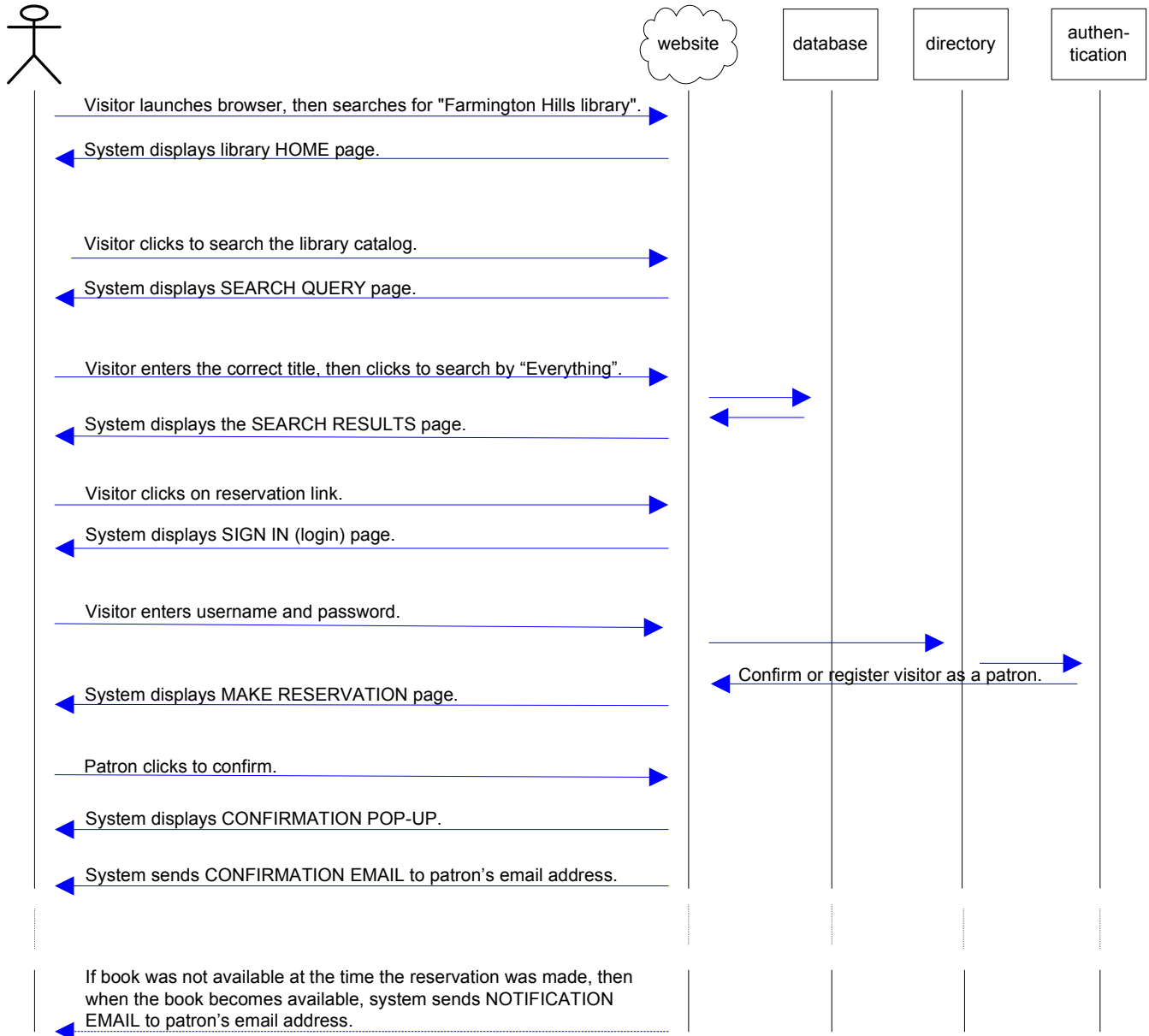
	Actor	Goal	Brief
5,	Visitor / Patron	Reserve a book that’s currently available	Visitor browses the library website. Visitor searches for and locates a book. Visitor decides to read the book. Visitor notices the book is available now . Visitor reserves the book. System confirms visitor is a patron (has a username). System confirms the reservation and starts a 2-day timer. Patron picks up the book.
6.	Visitor / Patron	Reserve a book that’s not currently available	Visitor browses the library website. Visitor searches for and locates a book. Visitor decides to read the book. Visitor notices the book is not available now . Visitor reserves the book. System confirms visitor is a patron (has a username). System confirms the reservation. System notifies the patron when the book actually becomes available. Patron does not pick up the book.

¹ A mockup is provided for searching using the “Everything” option. Mockups for searches based on title, author and subject have not been provided, as these would look like a single tab for the “Everything option.

² A web page containing the detailed information about the book is referenced, but considered out of scope, as both the search and the reserve features can be invoked without visiting the book detail page.

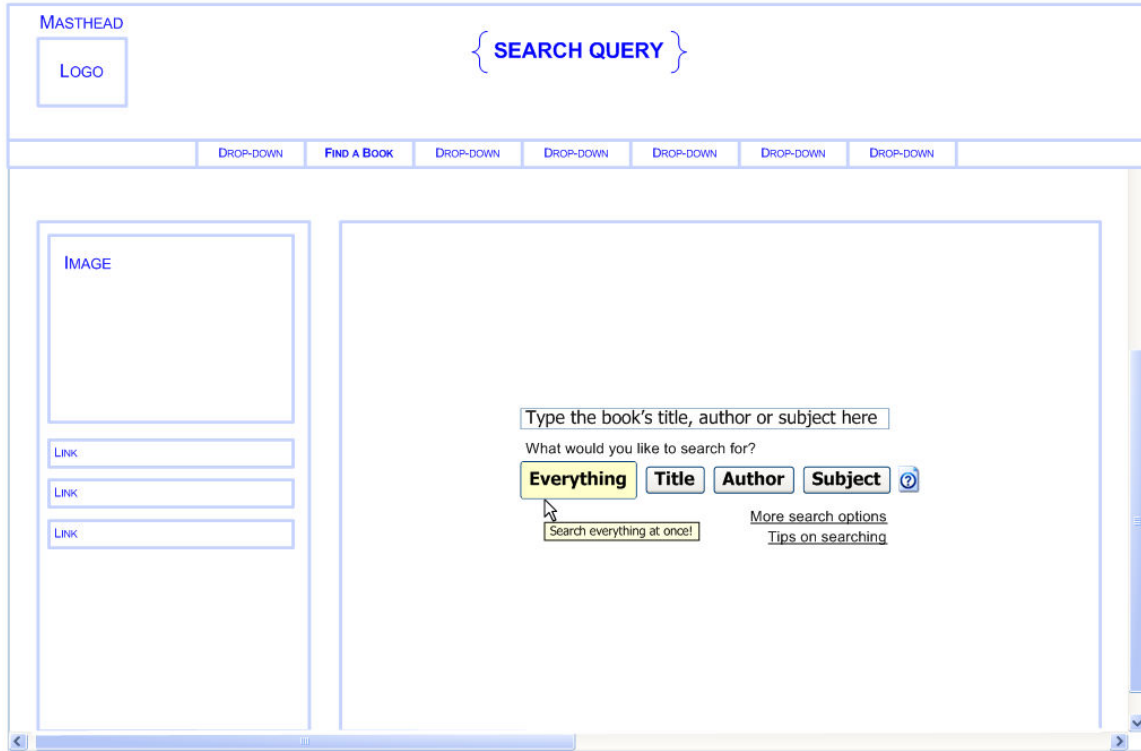
User-System Interaction

Compose a basic flow for the user-system interaction in which the library patron finds and reserves a book.

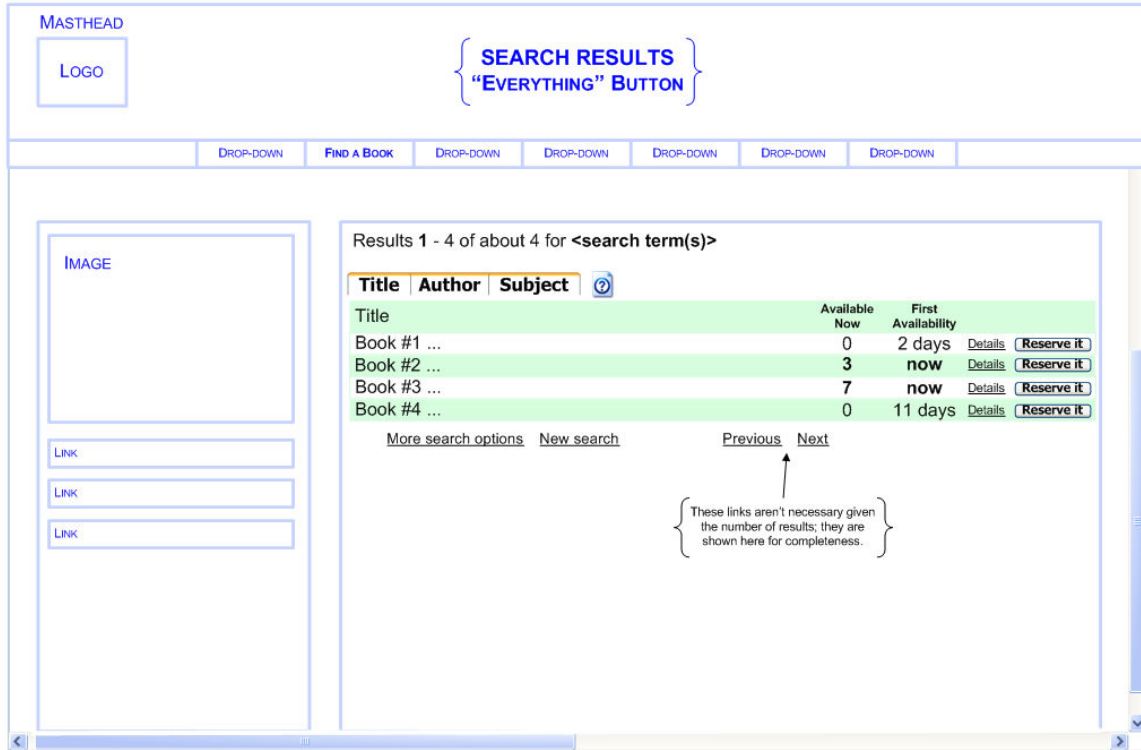


Prototype

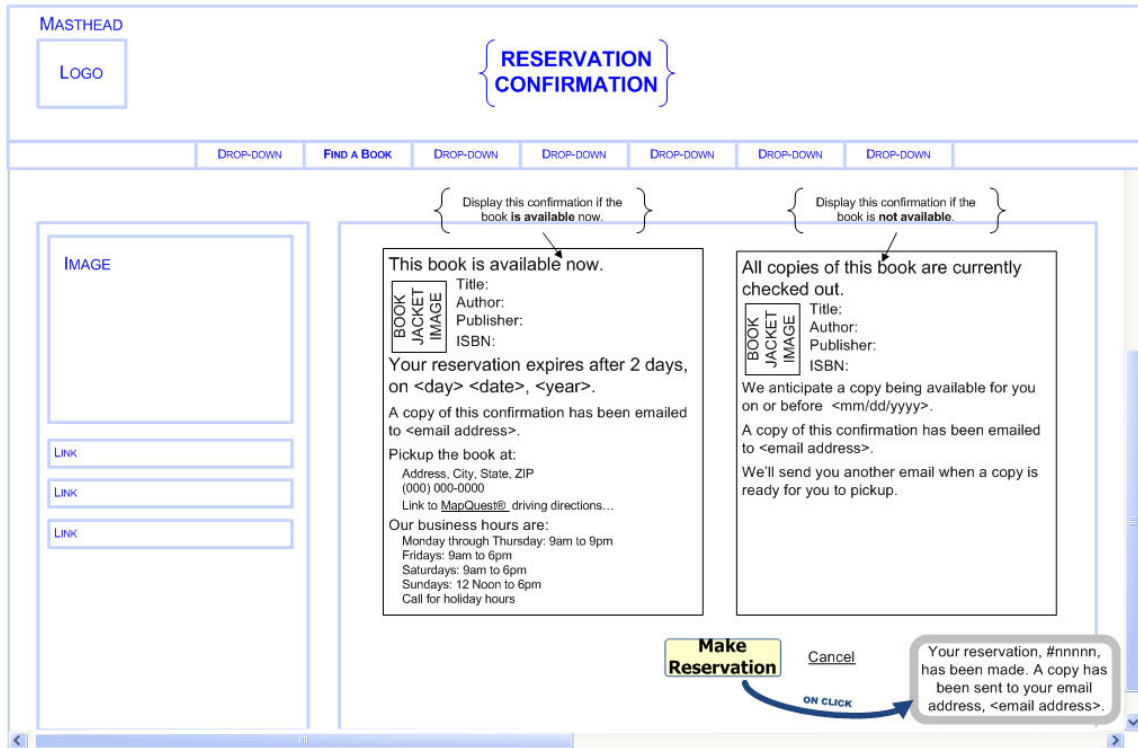
Please draw a basic mock-up (i.e. the appearance of the web browser screens) of the basic flow described above.



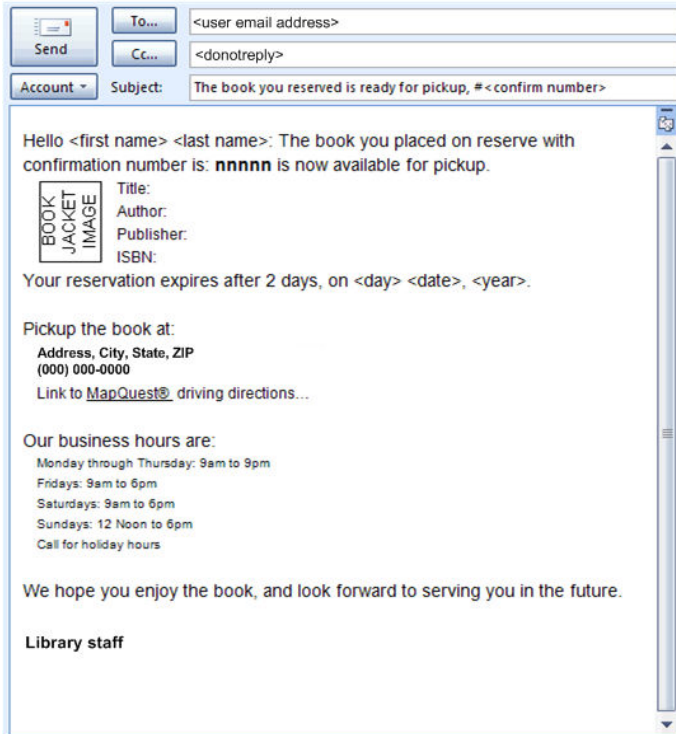
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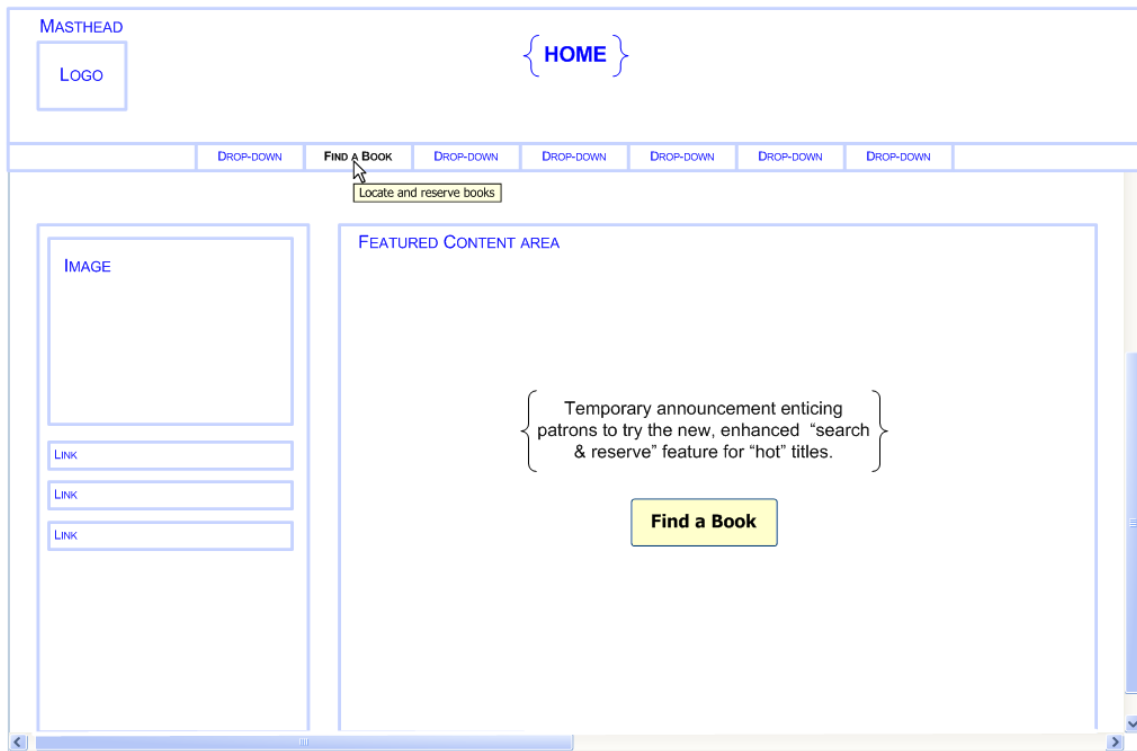
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{NOTIFICATION EMAIL}



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End of Analysis