

MICHIGAN STATE

UNIVERSITY

Project Plan

StackLife 2.0: Library Search and Display Tool

The Capstone Experience

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*From Students...
...to Professionals*

Functional Specifications

- Store information about Islamic law from Harvard Library.
- Provide universal access by creating a Web Application.
- Allow user to customize searches and save searches.
- Support general users and registered users.
- Display data and a photo about the book.

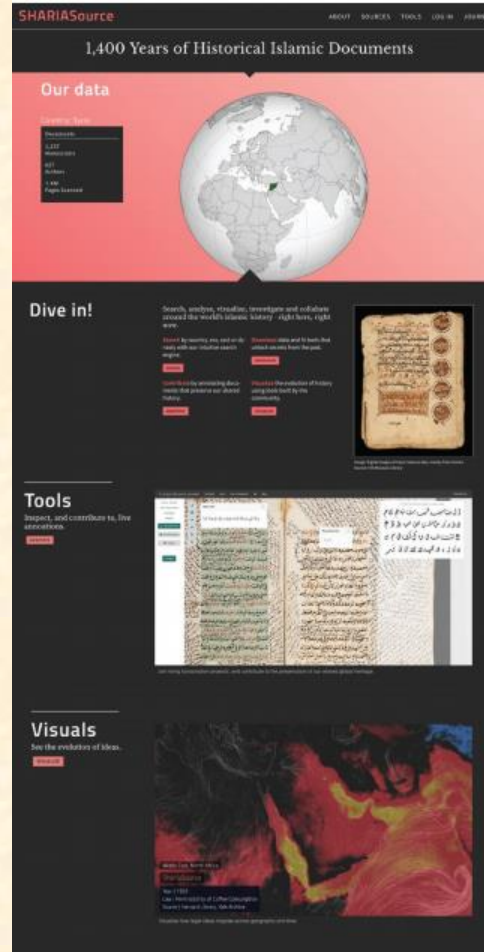


Design Specifications

- General search based on titles, author and ISBN
- Advanced search on genre, date and region
- Homepage visualization of spinning globe that pings a country and list statistics about that country's records
- Customizable graph to plot information about resources



Screen Mockup: Client-Provided



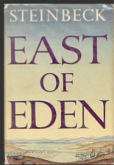


Screen Mockup: Search Results

SHARIAsource

Search by title, author, or ISBN

Search results for “John Steinbeck”

Author	Title	Summary
 Steinbeck, John	Of Mice and Men	Of Mice and Men focuses on the lives of George Milton and Lennie Small, two friends who are working towards a shared dream of owning their own piece of land during the Great Depression. Of Mice and Men explores themes of human interaction, dependence, and the damaging effects of isolation.
 Steinbeck, John	Grapes of Wrath	The Grapes of Wrath, the best-known novel by John Steinbeck, published in 1939. It evokes the harshness of the Great Depression and arouses sympathy for the struggles of migrant farmworkers. The book came to be regarded as an American classic.
 Steinbeck, John	East of Eden	East of Eden is a novel by Nobel Prize winner John Steinbeck, published in September 1952. Often described as Steinbeck's most ambitious novel, East of Eden brings to life the intricate details of two families, the Trasks and the Hamiltons, and their interwoven stories.

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Screen Mockup: Book Detail View



Screen Mockup: Advanced Search

The screenshot shows a web browser window with the URL 127.0.0.1:5000. The page title is "SHARIAsource" and the navigation menu includes "About", "Advanced Search", and "Log In". The main heading is "Advanced Search". Below the heading, there is a text input field labeled "Name your search...", a "+ Save Search" button, and a "Saved Searches" dropdown menu. The search criteria are listed as follows:

Topics	History, War
Geographic Regions	
Genres	
Contributors	
Original Language	English, Arabic
Date	<input type="text"/> to <input type="text"/>

At the bottom right, there is an "Advanced Search" button.



Technical Specifications

- Flask web microframework(Python)
- HTML/CSS/Javascript
 - Bootstrap for UI design
 - Planetary.JS
 - D3.js/Chart.js
- Amazon Web Services RDS
 - MySQL 8.0



System Architecture

Database System



Application



Flask

Server
Side

Client Side



JS



CSS



System Components

- Hardware Platforms
 - Any platform that can access the internet
 - Must keep mobile in mind
- Software Platforms / Technologies
 - Python/Flask
 - HTML/CSS/JavaScript(and associated libraries)
 - MySQL
 - Gitlab



Risks

- **Database Speed – Difficulty: High | Priority: High**
 - The database is going to have over 14 million entries in it, writing a MySQL query to search for a book could take a demanding amount of time if the database is not optimized.
 - Mitigation: Add indices in our tables within the database to make query speeds much faster.
- **Database Structure - Difficulty: Medium | Priority: High**
 - Each of the 14 million entries have individual complicated attributes. Having an intuitively structured database is an important milestone in not only our success on this project but also in future iterations of the project.
 - Mitigation: Minimize the number of tables in our database to make it easier to follow
- **Data conversion/migration(last semester) – Difficulty: Medium | Priority: High**
 - MARC-21 is a complicated format, previous semester’s group converted to CSV and migrated some data into a database.
 - Mitigation: Verify the data and parsing scripts to make sure the data is correct.
- **User Friendly Front-End – Difficulty: Medium | Priority: Medium**
 - Users might not be as fluent with computers as we are so one of our first priorities is to make an intuitive front end for all of the users.
 - Mitigation: Use technologies such as bootstrap to make a better-looking UI, consult with client to make sure UI is easy to follow



Questions?

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