SDS: The Ultimate Online Book Store

Group Name: SDS

GROUP MEMBERS

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SDS: The Ultimate Online Bookstore

Architecture

The SDS: The Ultimate Online Bookstore is a scalable web based application based on the service-oriented architecture (SOA). The architecture depicting the complete flow of the web application is shown below-
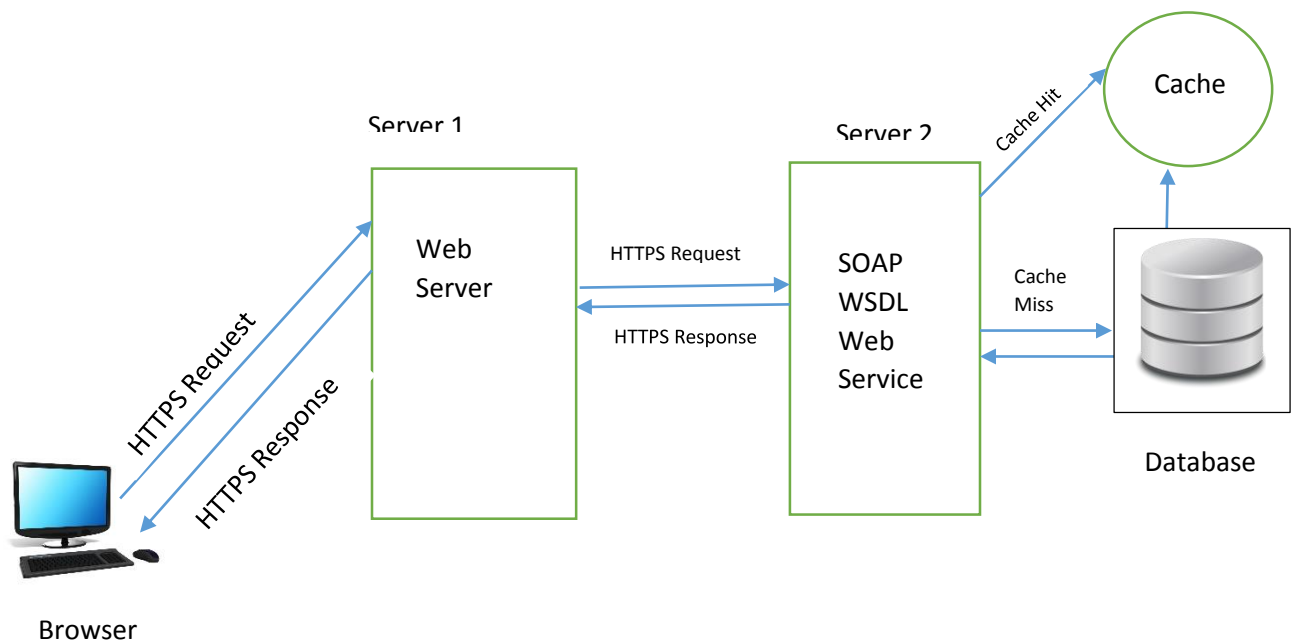
Technologies Used

- Front-End: Designed using HTML, CSS, JavaScript and bootstrap components on top of Flatfy theme (theme available publicly for all)
- Server-side Programming: Apache 2.4.17 with PHP 5.6 & MySQL; WAMP 3.0; Symphony 2 framework for PHP
- Web Services: NuSOAP library for implementing SOAP WSDL in PHP
- Database: MySQL
- ORM: Doctrine2 framework
- Cache: MemCache Distributed Cache
- Compression: GZip compression

Initially we planned on working with Java and JavaScript but we explored more and we decided to take up PHP because of its powerful features and we would get a chance to work and learn a new language. Also, there was a bit familiarity with PHP among the team members and the easy availability of required libraries for the integration features.

Functionalities

1. New User Registration
   A new user can register by clicking on the 'Sign Up' button on the homepage. The user will be redirected to a new page where he/she can fill the required details, i.e. Email, Password, First Name and Last Name. After entering the required details, the user should click the SIGNUP button. If successful, 'Your Registration Completed Successfully' message will be displayed.

2. Existing user login and logout
   An existing user can login by clicking on the 'Login' button on the homepage. The user will be redirected to the login page. The user will be able to login to his account by entering the registered Email and Password and clicking the Login button. If correct, the 'Login Success' message will be displayed. If not, then the 'Wrong Email or Password' message will be displayed.

3. User login information
   The last date/time of valid login and the number of failed logins can be viewed in the Profile page under the Settings tab.

4. User profile information
   A user can directly access his/her profile from the homepage by clicking the Profile button. The user will be redirected to the profile page where the profile information can be viewed under the Settings tab and the Name can be edited.

5. Image Slider

   An image slider has been incorporated in the Features – '$10 Books' page . This feature lets the user buy books that are of price $10. We made this feature to facilitate budget shopping for the customers. Also, when the user clicks on an image, he will be redirected to the particular product page.

6. Navigation Bar

   A navigation bar is present at the top of the homepage with 5 tabs, i.e. Features, Categories, New Releases, Cart and Contact Us, for direct access by the user.
   Features- Lists all the features of the website that the user can use
   Categories- There are 3 categories of books that the user can buy
   a) Bestsellers
   b) Academic & Professional
   c) Literature & Fiction

7. Search

   A search feature had been incorporated under Features where the user can search for books based on the book title and author name.

8. Shopping Cart

   A user can directly access his items placed in the Cart by clicking on the Cart tab on the navigation bar. The cart contains the items added along with their price, quantity and total amount. The user can make changes and updates in the cart like adding/ removing items.

9. Previous Orders

   A customer can view the history of previous orders from the profile page, under the Order History tab.

10. Add & View Reviews

    On the individual product pages, a user can add a review to already purchased books or view previous reviews.

11. 404 page

    If the user tries to access any page which is unavailable he will be directed to a 404 page.

12. Contact – Us page(E-mail)

    The user has an option to enquire/provide feedback via the Contact-Us functionality. The user should enter his name, email and message and click the Submit button after which an email will be generated to his account and a message will be displayed.

13. Single Sign-On
    The user can directly sign up using his Google account.


Web Services

The SOAP services implemented are available only when provided with the right authorization token by the client side backend. When called directly without the token, the behavior is undefined.

| getBooks.php	getBook()	requires title (string) return an array of all the columns associated with that book
Defined a book complex type and an array of this complex type in wsdl	getByColumn()	requires column name and column value returns an array of all the books that match the criteria
	search()	author name and title (string) returns an array of all books
	getBooks()	requires genre(string) returns an array of all books found with the genre
Login.php defined a user complex type in wsdl	login()	requires email, password, image url, name (string) returns user complex type
	update()	requires id (integer), name (string) returns the user complex type from db
	signup()	requires email, password, image url, name (string) returns user
orders.php defined an array of string complex type to store all the user reviews, an array of books complex type a book complex type	removeFromCart()	userid, bookid (integer) returns success or fail (string)
	addToCart()	userid, bookid (integer) returns success or fail (string)
	addReview()	userid, bookid, (integer), review(string) returns success or fail (string)
	checkout()	userid (integer) returns success or fail (string)
	getCart()	userid (integer) returns array of all books
	getReview()	userid, bookid (integer) returns array of string
	getOrders()	userid (integer) returns array of books

Issues Faced & Resolved

1. Openssl application is required by to encrypt packets between two end points. The openssl that comes with Wamp3.0 is apparently missing some dll files and does not work with windows. So we had to download Openssl for windows, install it and replace the openssl for wamp the new executable and Dll.

2. The client server communication was very hard to capture and debug, especially to debug the response and request being done in the SOAP service. So we used Fiddler4 (a windows application) to capture all the HTTP communication. Moreover, Chrome blocks loading of http resources from a website that is served using https. Fortunately, Fiddler4 temporarily signs the https certificate that was self-signed using openssl, so that chrome no longer questions the authenticity of the certificate and all resources are loaded with a warning instead of an error.

3. Chrome always tries to cache all the JavaScript files, so any changes made were not reflected in the website, had to keep the developer console turned on to disable caching.

Screenshots of the website

After user login

Categories

View books by selecting a category.!
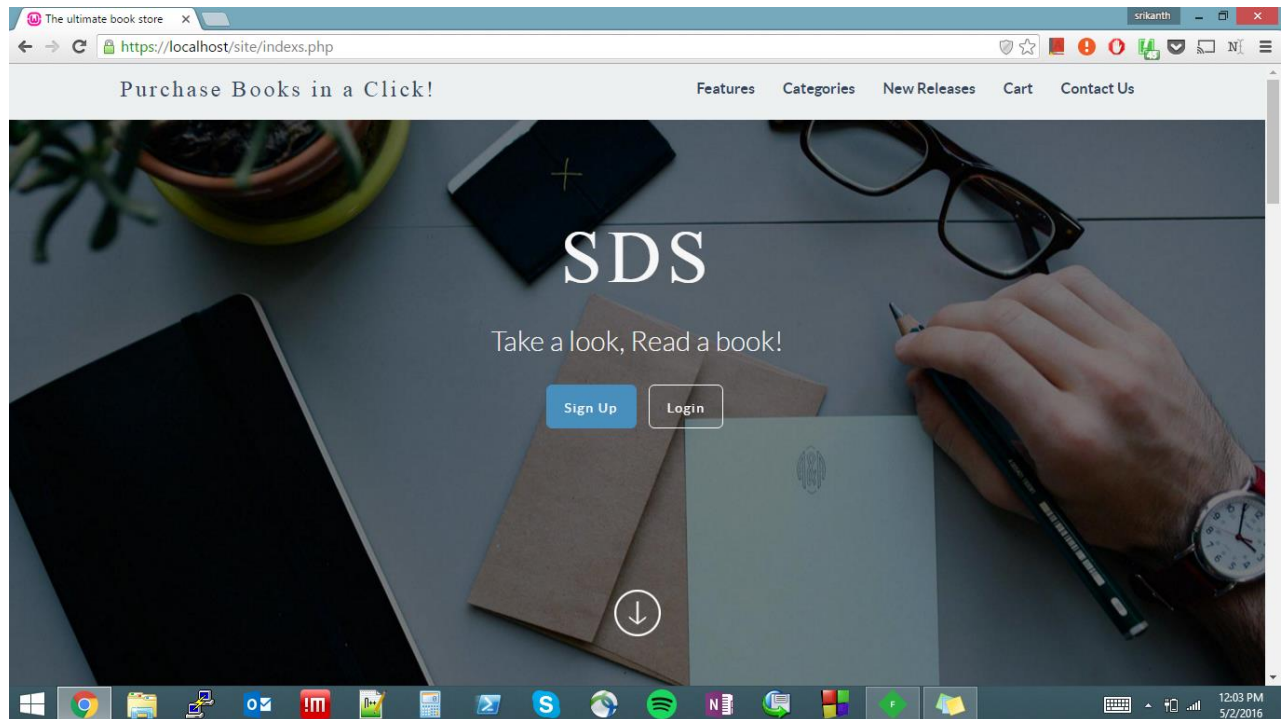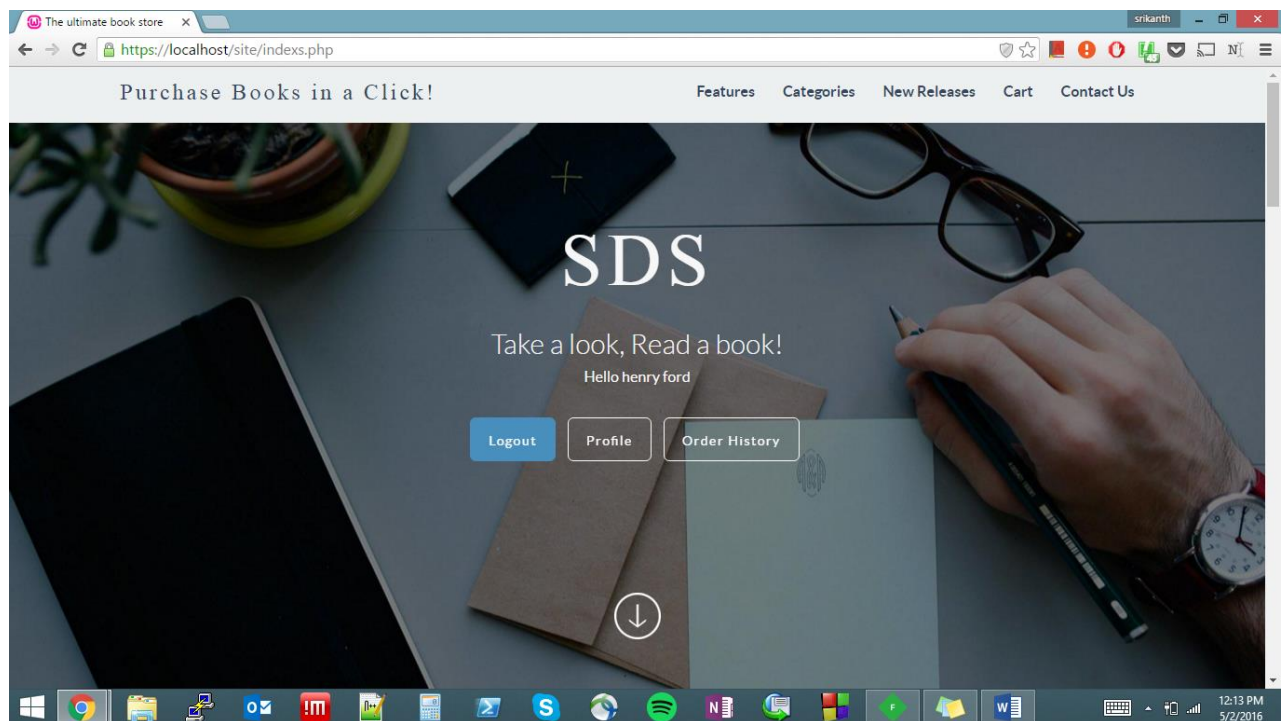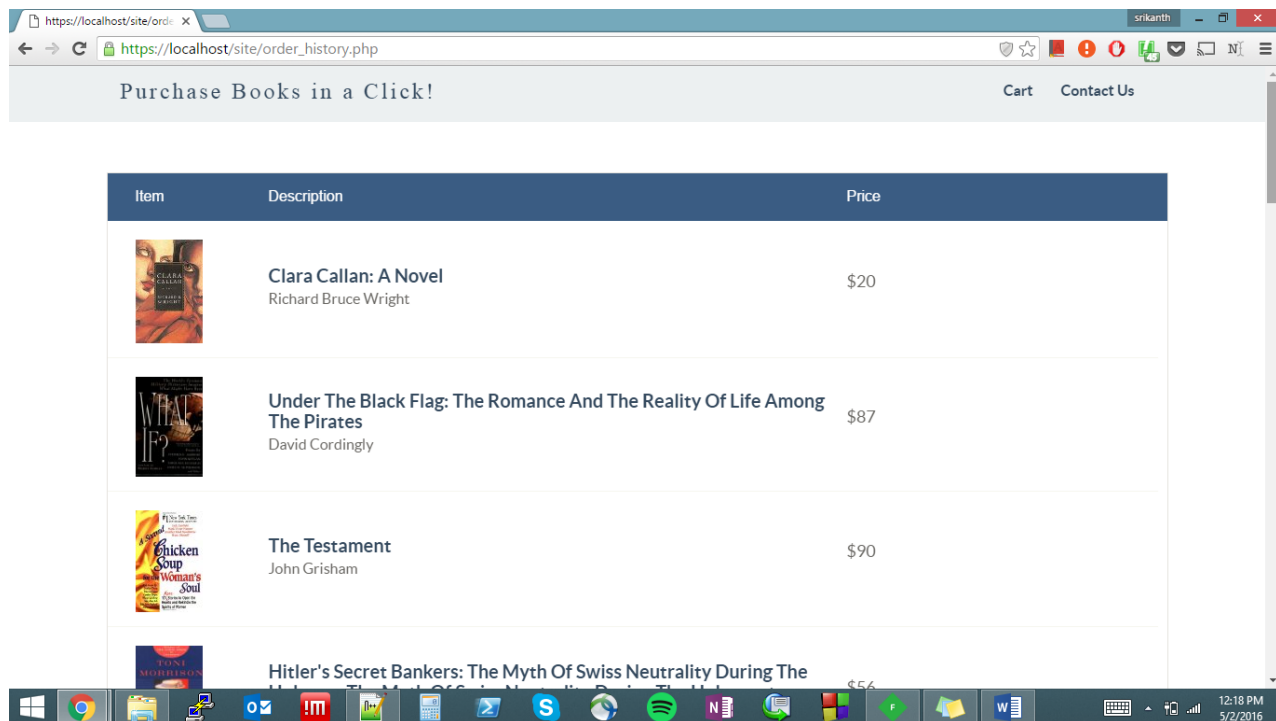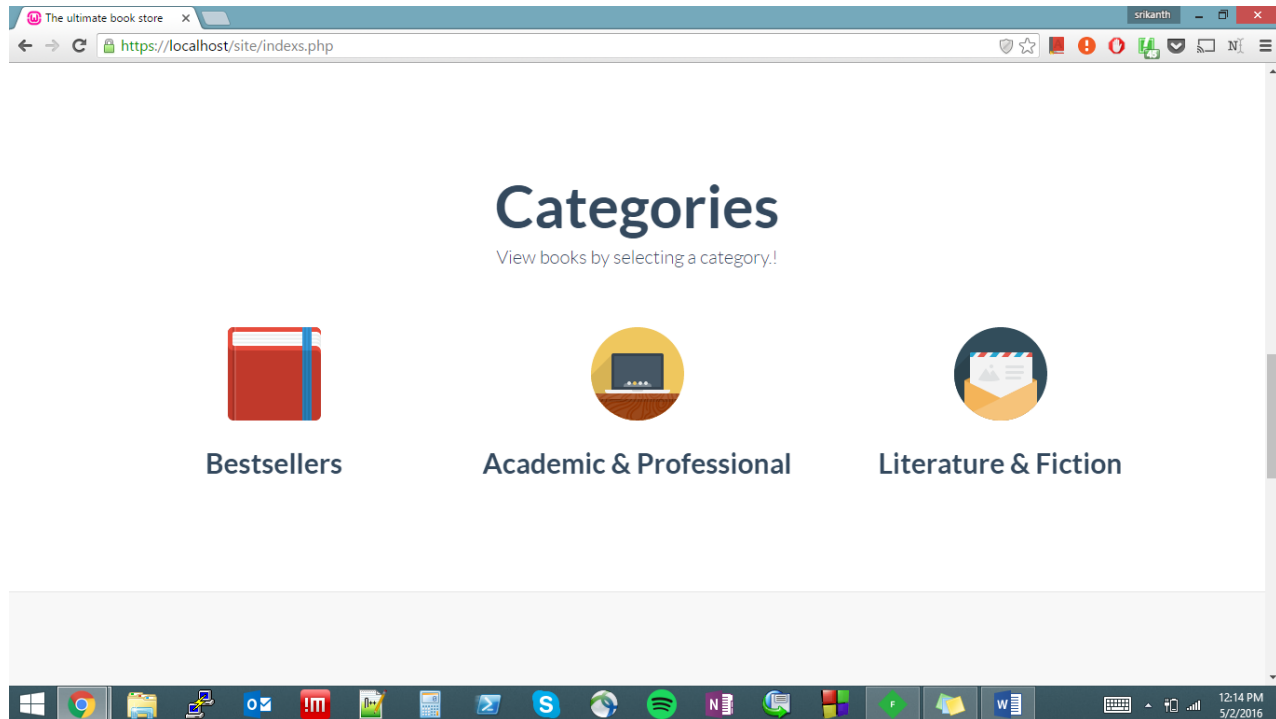
Bestsellers Academic & Professional Literature & Fiction

Purchase Books in a Click! Cart Contact Us

Item	Description	Price
	Clara Callan: A Novel Richard Bruce Wright	$20
	Under The Black Flag: The Romance And The Reality Of Life Among The Pirates David Cordingly	$87
	The Testament John Grisham	$90
	Hitler's Secret Bankers: The Myth Of Swiss Neutrality During The	$56