

## Access Instructions

To install all node modules, simply run the command “*npm install*” in the root folder. This will install all the modules the server is dependant on.

After this is complete, run the command “*node server.js*”. This should display “*running...*” in the terminal. This means the server is running and you can now connect to the site. To do this, go to:

<http://ljw26.host.cs.st-andrews.ac.uk/CS3101>

From here you should be able to navigate the site.

## Overview

To build a web based front end system for the database we built in the first practical. The site is able to display a list of all books stored within the database, along with their age ratings and their prices. You can also see a list of all the authors on the site, and all the books they authored or co-authored. A table of reviews and ratings for books is also visible, as well as a table that displays how many times a book has been purchased.

There is also functionality to purchase a book, allowing a user to enter their email to log in and select the book they wish to purchase. If the email isn't contained within the database, the user won't be allowed further. The system also checks if the user is old enough to purchase the selected book before allowing the purchase to go through to the database.

As an extension, I implemented the ability for a user who doesn't currently exist in the database to register themselves. This asks the user for their first name, last name, email and date of birth. It will then check to see if the user entered email doesn't already exist within the database, and if not, adds the customer into the system. They will then be able to make purchases.

## Code Summary

Essentially all code was written by me. The server javascript file is completely bespoke. The ejs files within the views directory are also written by me, however the linkings to the bootstrap dependencies were copied from the website.

I used node.js to host my server, using express to define routings. Each route would be linked to a function. Within that function, any necessary tasks would be carried out before the next page would be rendered and returned as the HTTP response.

To make queries to the database, I used the mysql node.js module. This allows you to make connections to the database and carry out queries on it.

To display the results of the SQL queries, I used ejs, which is a way to display variables within HTML defined documents. This allowed me to pseudo-dynamically update pages. Every time a HTTP request was submitted, the response would render the new page with the query results in a suitable format dictated by bootstrap.

HTTP requests were mainly of the GET method, requesting new pages to display data from the database. However, two instances involved POST methods; when registering a new user, and when processing a purchase.

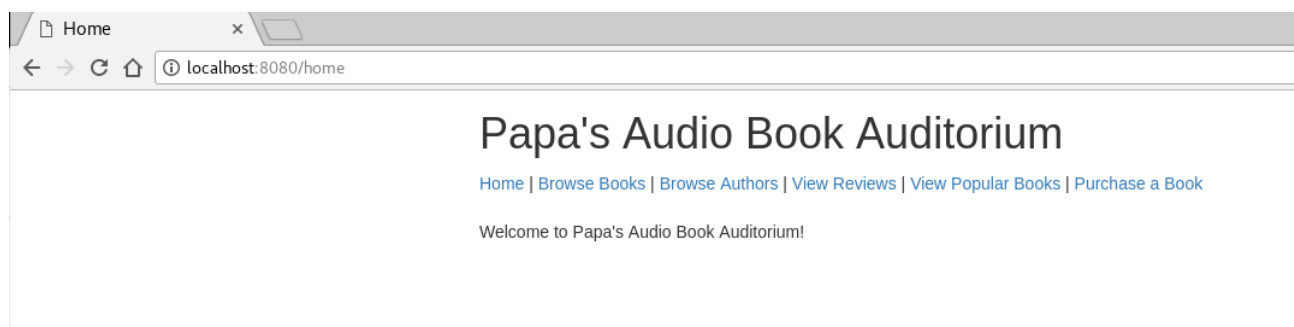
The mysql module automatically escapes all variables passed into queries to prevent SQL injection.

## Database Modifications

The only modification I made to my original database was to make the customer primary key a composite of their ID AND their email. This enforced that a users site account was dictated by their email. If their email already existed in the system when attempting to register, the registration would be forbidden. Reviews was also altered to make sure comments have been entered.

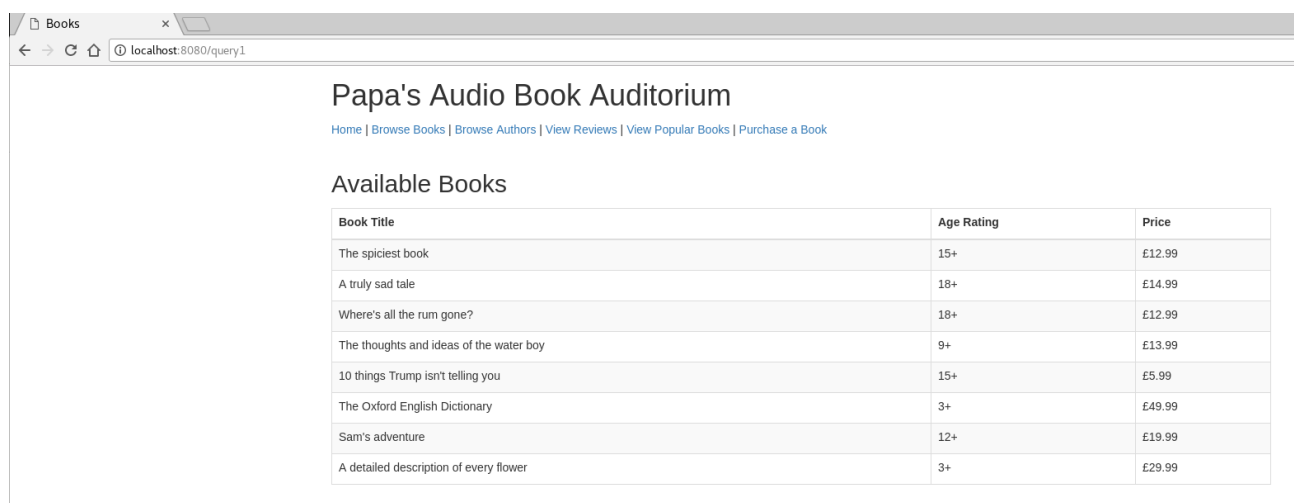
## Interface Design

### Home page



This is the home page. Each link in the navigation bar will take you to a new page.

### Books



Book title, age rating and price are displayed within a table.

## Authors

Papa's Audio Book Auditorium	
<a href="#">Home</a>   <a href="#">Browse Books</a>   <a href="#">Browse Authors</a>   <a href="#">View Reviews</a>   <a href="#">View Popular Books</a>   <a href="#">Purchase a Book</a>	
Authors	
Author	Books by author
Arthur Doyle	The thoughts and ideas of the water boy
Grumpy McLumpy	10 things Trump isn't telling you
Happy Gilmore	Sam's adventure
Jumpin Jack	The Oxford English Dictionary
Likea Boss	The spiciest book, A detailed description of every flower
Mad Lad	A truly sad tale
Simon Says	Where's all the rum gone?
Spoopy Boy	The spiciest book

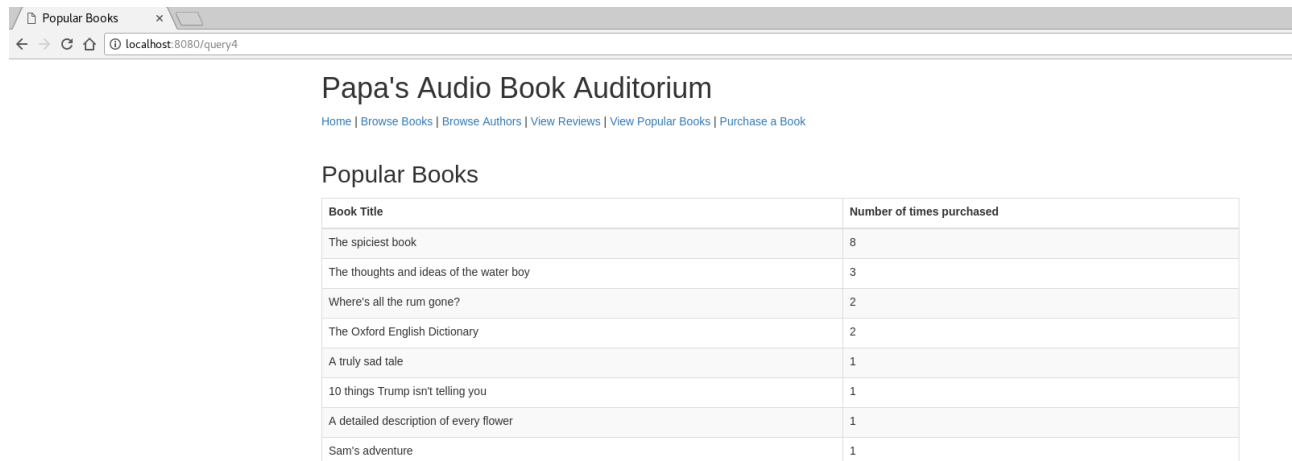
List of authors registered on the site, followed by all the books they've authored or co-authored.

## Reviews

Papa's Audio Book Auditorium		
<a href="#">Home</a>   <a href="#">Browse Books</a>   <a href="#">Browse Authors</a>   <a href="#">View Reviews</a>   <a href="#">View Popular Books</a>   <a href="#">Purchase a Book</a>		
Book Reviews		
Book Title	Average Rating	Comments
10 things Trump isn't telling you	3	"cheeky trump"
A detailed description of every flower	5	"so many flowers!"
A truly sad tale	4	"truly sad"
The Oxford English Dictionary	3	"so many words", "goes on forever"
The spiciest book	5	"super spicy"
Where's all the rum gone?	1.5	"not very good", "poor"

Lists all books with reviews, their average rating and the collection of their comments.

## Popular books

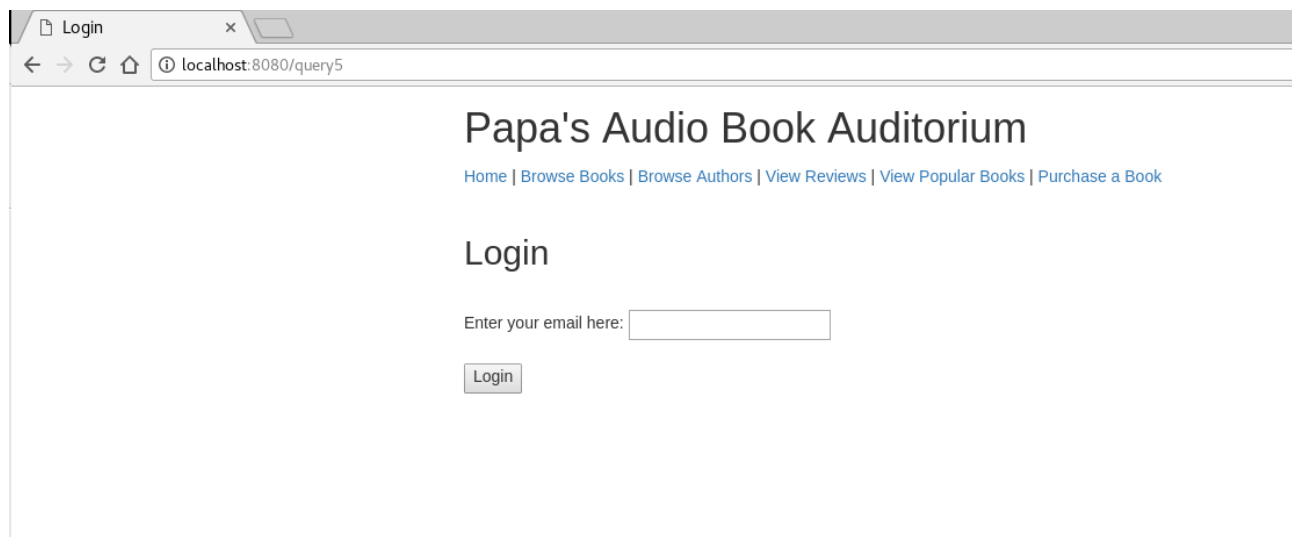


The screenshot shows a web browser window with the title 'Popular Books' and the URL 'localhost:8080/query4'. The page content includes the site name 'Papa's Audio Book Auditorium', a navigation bar with links to Home, Browse Books, Browse Authors, View Reviews, View Popular Books, and Purchase a Book, and a table titled 'Popular Books'.

Book Title	Number of times purchased
The spiciest book	8
The thoughts and ideas of the water boy	3
Where's all the rum gone?	2
The Oxford English Dictionary	2
A truly sad tale	1
10 things Trump isn't telling you	1
A detailed description of every flower	1
Sam's adventure	1

Lists book title and the amount of times the book has been purchased, ordered by most popular.

## Making a purchase



The screenshot shows a web browser window with the title 'Login' and the URL 'localhost:8080/query5'. The page content includes the site name 'Papa's Audio Book Auditorium', a navigation bar with links to Home, Browse Books, Browse Authors, View Reviews, View Popular Books, and Purchase a Book, and a 'Login' section with a text input field for email and a 'Login' button.

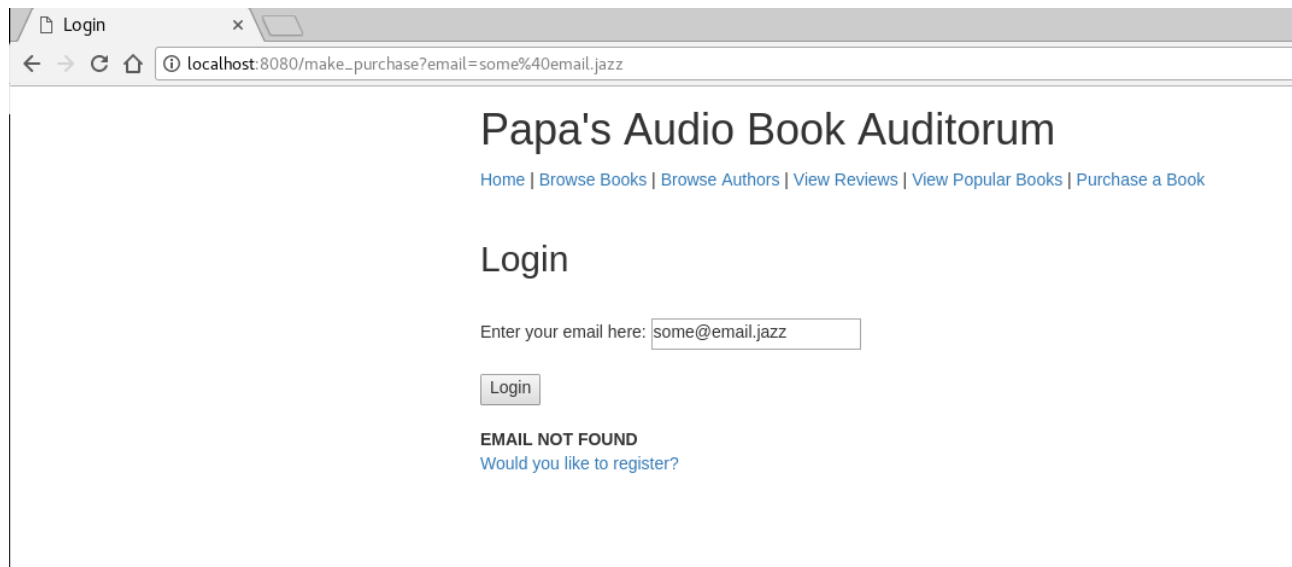
Provides you with a login screen. Login screen requires you to enter an email address. Uses HTML5 input type *email* which ensures only a valid email address can be input.

### Login

Enter your email here: This isn't an email|

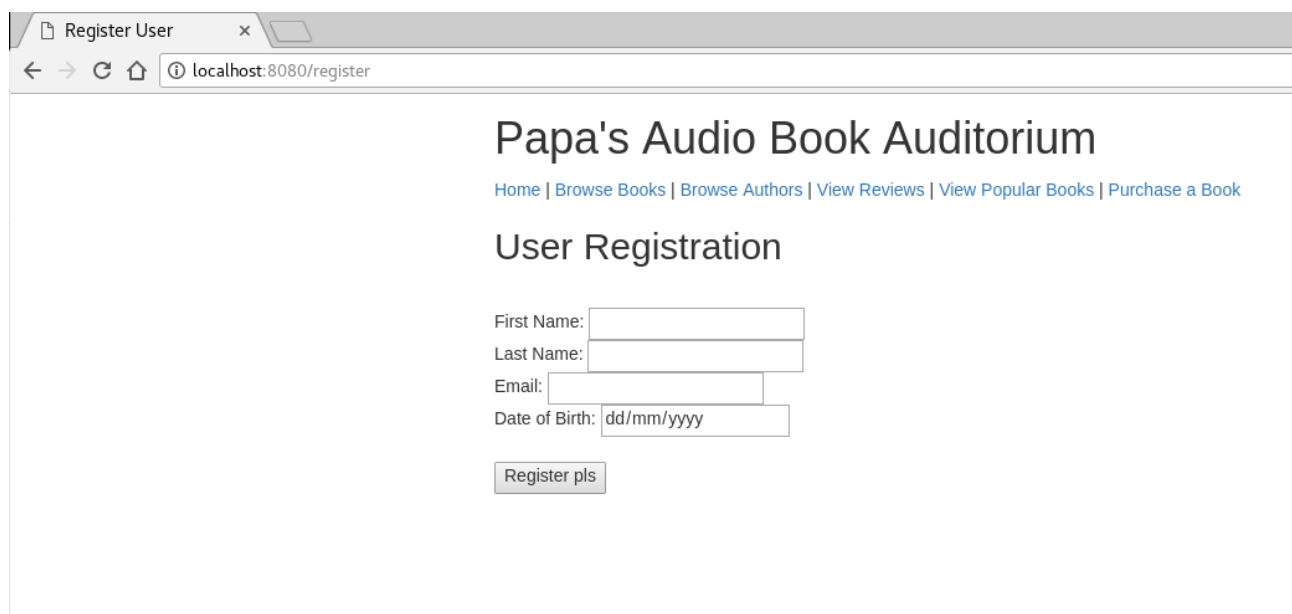
! Please include an '@' in the email address. 'This isn't an email' is missing an '@'.

This is displayed when attempting to submit an erroneous email.



When an email is submitted that isn't registered, this page is displayed.

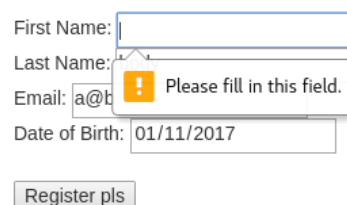
## Registering new users



Clicking “Would you like to register?” takes you to this page. Email entry is, again, of input type “email”. Date of birth entry is of input type “date”, which will automatically submit the input of the date in the format YYYY-MM-DD. **THIS INPUT TYPE IS NOT SUPPORTED IN SAFARI.**

All inputs are set as “required” and will display a message if submission is attempted without a given input.

### User Registration



Register User

localhost:8080/register\_user

## Papa's Audio Book Auditorium

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### User Registration

First Name:

Last Name:

Email:

Date of Birth:

Email already taken

This page is displayed if you attempt to register with an email that is already registered.

Welcome!

localhost:8080/register\_user

## Papa's Audio Book Auditorium

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### Welcome some body

You may now purchase books!

This page is displayed when a user has successfully been registered.

## Purchasing books

Book Purchase

localhost:8080/make\_purchase?email=y%40boi.org

## Papa's Audio Book Auditorium

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### Purchase a book

Purchase a book for y@boi.org:

Audio book:

Once logged in, you are shown a drop down menu of all the books you can purchase.

If a customer attempts to buy a book rated above their age, this message is displayed.

This is displayed when a purchase is successful.

# Database Operations

## Registering user

When registering this user:

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### User Registration

First Name:

Last Name:

Email:

Date of Birth:

Database before operation:

12	13	Someone	Eise	some@email	2017-11-12
13	14	sandy	witch	s@ndy.witch	2017-11-03
14	15	New	User	New@User.com	2017-11-15
15	18	some	body	a@b	2017-11-01
	NULL	NULL	NULL	NULL	NULL

Database after operation:

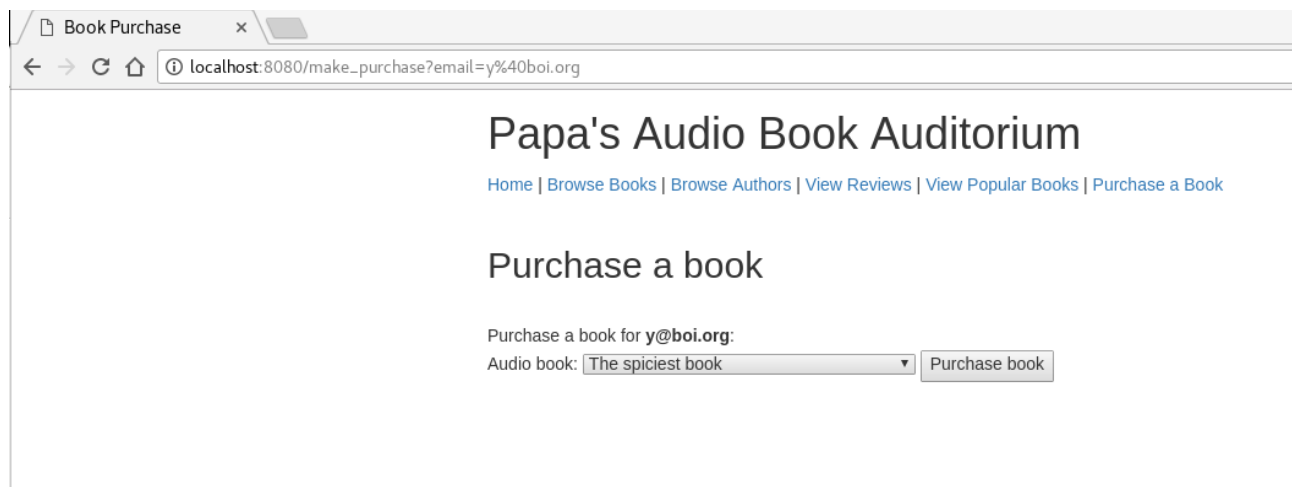
4	15	New	User	New@User.com	2017-11-15
5	18	some	body	a@b	2017-11-01
6	19	New	User2	new@user2	2017-12-01
	NULL	NULL	NULL	NULL	NULL

New user has been added to database.



## Purchasing book

Purchasing a book with customer 1:



Book Purchase x

localhost:8080/make\_purchase?email=y%40boi.org

### Papa's Audio Book Auditorium

[Home](#) | [Browse Books](#) | [Browse Authors](#) | [View Reviews](#) | [View Popular Books](#) | [Purchase a Book](#)

## Purchase a book

Purchase a book for y@boi.org:

Audio book:

Database before operation:

18	10	9154853124521	2017-11-30
19	1	9851573512552	2017-11-30
20	1	9841351545512	2017-12-01
NULL	NULL	NULL	NULL

Database after operation:

18	10	9154853124521	2017-11-30
19	1	9851573512552	2017-11-30
20	1	9841351545512	2017-12-01
21	1	9876543210123	2017-12-01
NULL	NULL	NULL	NULL

New purchase has been added to the purchase log.

**Word count: 907**