



An-Najah National University
Faculty of Computer Engineering

AUDIUAL

Authors

Adam Siksik
Obada Qasrawi

Supervisor

Dr.Emad Natsheh

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Chapter 1

Abstract

Books were and still are one of the most important sources of joy or knowledge wither you want to read a book about mystery or a book about a guy who goes around the world in 80 days or simply wanna spend your time in an honest and harmless way books are always your go to destination. But with the invention of videos and the sites such as YouTube people slowly started going away from books and preferring to watch a video since it takes less effort.

Here comes our project into play. Audiual is an application that has a wide variety of books that can be enjoyed by all kinds of people with books ranging from Romance,Mystery or Action. Audiual helps people enjoy books without even reading them where each book has its own content and audio that is played anytime a user clicks on a book. The user can also search for a book,add it to favourite or put it on his to watch later list.there is also a recommendation system for the user that works on his most recent book activities that helps him pick the most suitable books for him.

Chapter 2

Introduction

2.1 Background

The percentage of the U.S. adult population reading any books has declined by -7 percent over the past decade. dropped dramatically over the past 20 years. Less than half of the adult American population now reads literature. with this static we can be sure that people are gradually moving away from books and finding other replacement like video sites or simply movies. and with every thing being technological and electrical nowadays it only makes since that books should also be the same.

2.2 Why E-books?

The features that an e-book can provide are countless from the user not needing to read. To him being able to make his own collection of books without even needing to buy a shelf or making sure to keep the books in a good condition e-books are easy to use and save both money and time. and with sites that provide e-books services the user can easily browse the collection and see different kind of books that he might not have even had the chance to come across.

With a lot of studies and statistics being made about the increase of e-book usage and the future of it for example one-fifth of American adults (21%) report that they have read an e-book in the past year and that's only in the past year.

And with the COVID-19 pandemic less and less people were unable to leave their homes to go to their jobs schools or almost anywhere with something like that in mind it would make a lot more sense if a person can find a book from his home without needing to go to the library

2.3 Objectives

In this app we aim to create an e-book library that is easy to access and provide features that help our users and make it easier for them to find what they want. we also want to make it more of an educational app than an entertainment one not to say that entertainment isn't one of our goals.

Chapter 3

Constraints and Earlier course work

3.1 Constraints

In term of constraints we faced a lot of them from both the front end and the datasets we had. for the dataset we barely found any datasets and the ones we found either had missing data or didn't have the information we wanted forcing us to make our own dataset and integrate it with the datasets we found on the internet. for front end flutter web version was hugely underdeveloped making a lot of dependencies and features not work on the web version forcing us to remove features or try to find other dependencies that are compatible with it.

3.2 Earlier Coursework

A lot of courses helped us with our project but to mention the most important ones that had the most effect on our project:

- **Software and Advanced Software Engineering:**

Giving us a knowledge and an idea on the software requirements and the concept of architecture it helped us write and produce a code that is up to the programming standards. Advanced software helped us with understanding our API and how the backend works inside our project.

- **Distributed Operating System**

DOS gave us a good understanding on how the rest API works and how it connects with both the back and the front end it also helped us with our Nodejs programming and coding since we used it in our course project

Chapter 4

Literature review

4.1 Competition

When you think about there are a lot of apps that provide the audio book services some of them on the web and others on the mobile store some people would think that that would be a turn off or a threat to us since it means we will have a hard time compete in the market but its quite the opposite.we have seen other apps and websites and the services they provide and came up with the idea of taking these services and try to add on them hoping to make an app that has all the quality and less of the annoying problems these sites have

4.2 Why choose AUDIUAL?

In our project we didn't only try to create an app that plays books or help you enjoy a book without the need to read it.we had the idea of making it more of an informational app that helps people who have a hard time speak other languages get familiar with it without the need to take an online course or the hard work of studying other languages in our app you can help your pronunciation and the way you view words and understand them

Chapter 5

Methodology

5.1 Technologies:

A project like this require a lot of technologies wither its the front or back end the APIS that are used the database and the features it provides there are a lot of thing that we will talk about in this chapter

5.1.1 Database:

We decided to use the MongoDB atlas in our project which is a cloud database that is both simple and very fast it uses NOSQL database and gives permission for user to create and manage its database. MongoDB is mostly used when you want a NOSQL Database that has high performance and is able to scale and offer both low latency and security.

5.1.2 Flutter:

Flutter is a framework that uses the Dart programming language we decided to use flutter for the various features that it provides like:

- **Hot Reload:**

It helps to instantly see the changes that the code did on your project with a simple key press your project will refresh and show the changes that occurred.

- **Cross-Platform Development:**

Flutter help to write a code that can work on different types of platforms like Samsung and iPhone.

- **Widget Library:**

With a huge library of widget ranging from navigation bars, menus or forms flutter has a lot of built in widget libraries that can make the work of the developer much more easier and save a lot of time.

5.1.3 ExpressJS:

Express is a web server framework that uses NodeJs its known for its robustness quickness and also simplicity these is also a lot more features that helped us decide to use it like:

- **Middleware:**

Middleware is well know for helping developers build applications more efficiently. Where it acts inside our project as the connective tissue between applications, data, and users.

- **Routing:**

Express has one of the most highly advanced routing methods that help with making our make end more efficient and simple.

- **Allows to create REST API:**

Which will be our architectural style for our APIS it will help us in our HTTP methods in order to access or use our data whether they are get ,post,put or delete.

- **Easy to Learn**

Its easy to learn since we have a good understand on how to program using JavaScript so we didn't have to learn a new language in order to work with Express.

5.1.4 Mongoose

Mongoose is an Object Data Modeling (ODM) library for MongoDB and Node.js. We used it in our project to manage relationships between data and provide schema validation. Mongoose also has a lot of features like:

- Predefined Structure can be implemented on the collection.
- Constraints can be applied to documents of collections using Mongoose.
- Mongoose module built on the top of MongoDB driver and provides easily abstraction of the query and define a query which will make it faster and easier for us to return results.

5.2 Features:

In this chapter we will talk about the features that our application provides for the user and the services it has.

5.2.1 Home Screen:

When the user first launches our app he will be greeted to a list of books each has its own genre and category where he can browse different type of books and see which of them are to his taste.

[image of the home page]

On the top left of the home page there resides the navigation bar and upon clicking on it a list of tabs are displayed each with its own functionality and page

[image of the nav bar]

5.2.2 Login Screen:

Most functionality in our application such as reading and searching for a book don't require the need to login or create an account but if the user wants to like a book or decide to put a book on the watch later list then an account is needed.

After the user clicks on the login image the login page is displayed which has two text field one for the email and the other for the password where the user can enter his/her credentials

[image of login screen]

If the user enter wrong information then an error label will be displayed telling the user that their login attempt is successful

[image of wrong password]

.provided they are correct the user is escorted to the home page again but with his account being in session.

[image of user after login]

but before we keep going with the home page lets talk about the sign up page on the bottom of the login page their was a link for user to create an account using email when clicking it the sign up page will be displayed with three field an extra one for password confirmation.

[image of sign up page]

Pointing out that we implemented front end validation on all three fields and whether the user put an invalid format for the email or the password are not identical then an error message will appear and the user will no longer be able to create an account.

[image of error in sign up page in email]

[image of error in sign up page in password]

Upon a successful insert for user data the user is then greeted to another page which has a number of text fields and some buttons these will be used to save some of the user personal data like name,date of birth or the genres and categories that he likes which can be user to recommend books to him.

[image of the info page]

OK now lets say a user creates an email but unfortunately forgot the password that he used or he simply decide that he wanted to change it for any reason possible.

On the login screen if the user clicks on the forgot Password link a new page will displayed telling the user to enter the email he has in order for the application to send him a reset key.

[image of forgot password page]

After filling the field and submitting it the user will be escorted to another page asking him to enter the key that he received via the email that he entered previously and when the user checks his email then he see a message with a code inside it telling him to use this key to reset his password/

[image of email]

After entering the code the user will be asked to enter a different password which after submitting it will now be the new password that the user has

5.2.3 User Pages:

Now assuming that the user just logged in his account and wanted to start using the app in the navigation bar the login/sign up button switched into a view account button where if the user clicks on it he will then be sent to a screen that shows the data that the user has

[image of the user profile]

With a button in the bottom that the user can use in order to change his username if he wants to and on the top right a button that if pressed will logout of this account and send the user into the home page again.

Apart from the user being able to see his profile since he is in an account now he can now like a book and put it on a list if he ever wants to ever check it again.

[image liked page]

From this page we will see a list of books that if you click on anyone of them you will see a highlighted heart icon indicating that this book is liked by the user and if clicked on it again will remove the book from the list.

We will go back to the book after explaining the rest of the pages that the user can use.

[image of a book that is liked]

[image of remove like]

[image of list after its unliked]

Apart from the user being able to like a certain book he can now add a book to a watch later list where he can view it later whenever he is free by clicking the clock icon in the book page

[image of watch later page]

and with a user having an account in session we can track the history of the books that he browsed which will help us not only show him what are his most recent books that he read but can also help us create a content based recommendation system that we will talk about after this.

[image of history page]

5.2.4 Recommendation System:

We decided to use a content page recommendation system which will take a look into the most recent activities that the user did and from it create a list with some books that the user might be interested in.

[image of recommendation list]

So if in the history page lets say a user has a lot of action books then the application will simply decide that the user has a lot of interest in action book and due to that it will show a lot of action books his recommendation list.

If he also has mixed genres of books that he read then the recommendation list will be mixed with different categories of books that are similar to the ones he read.

[image of recommendation list with different type of books]

5.2.5 Search System:

We decided to implement two types of search a simple one with only the title and another one with more data such as author,genre and year of publication with each of the two search redirecting the user to another page with a list of the books that are similar the criteria the user searched for

[image of the search]

[image of the search page]

5.3 Book page and Book display:

Upon clicking on one of the books whether on the homepage, liked page or search page a page will display with the description of the book and an image that shows the cover of the book.

[image of the book]

On the bottom you will see a list of books that are related to the book you are viewing right now which will have the same genre as the book.

[image of list]

Each book has two types of browse methods you can either decide to open a book with an already existing list of audios that after picking one of will be played when you open the book.

[image of the list of audios]

When you pick a certain audio track to play the book will be displayed as a PDF and the user may browse through the content of the book as if he is reading a normal book with the ability to skip to any page he likes.

[image of the book]

On the bottom of the page we can see the audio controls where you can play, stop, raise volume or lower it or fast forward or backward in the audio track.

[image of the audio bar]

Back to the book page if the user decides to use the second option which is the Text To Speech option a similar page will open to the previous one but without the audio bar at the bottom of the screen

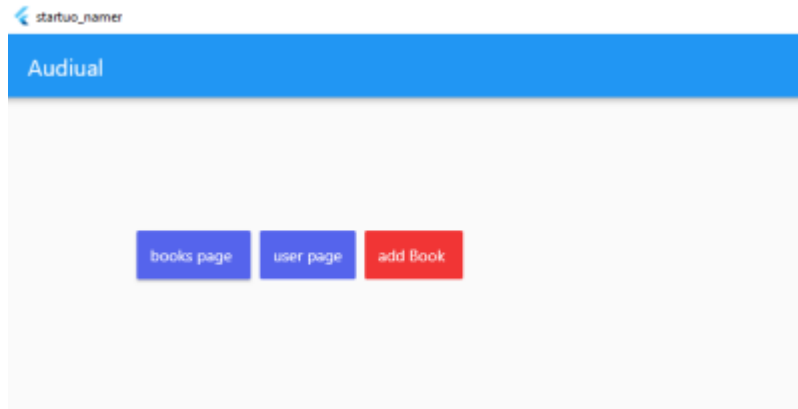
[image of the book tts]

Here the user can highlight a certain text or paragraph and after clicking on it the option 'listen' will appear. If the user clicks on it the text will be played as audio for the text to speech library that we added.

[image of highlighted text]

5.4 Admin Page:

We decided to create an admin application that can be used to add books to our database or delete ones on command.



The Admin can view all the users that exist in the database

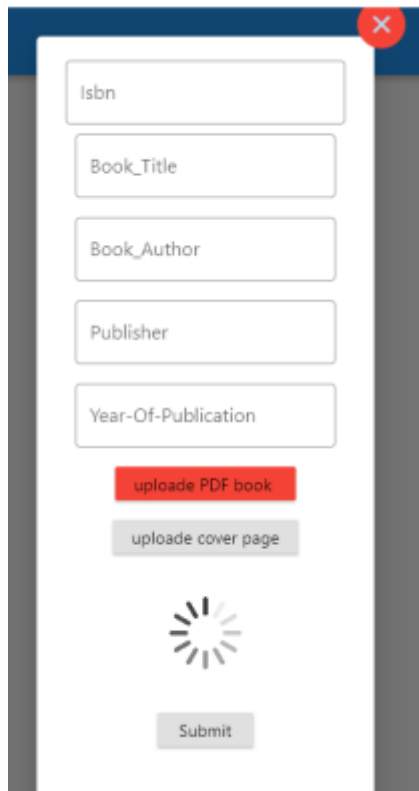
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Where he can view the users email password and other credentials with the ability to edit or modify them using the pen icon on the side of it.

books controlling page			
Enter A book to Search			
ISBN	Image-URL-L	choose local image	Book-Title
0060973129	http://images.amazon.com/images/P/0060973129.01.LZZZZZZZ.jpg	choose image	Decision in Normandy
0374157065	http://images.amazon.com/images/P/0374157065.01.LZZZZZZZ.jpg	choose image	Flu: The Story of the Great Influenza Pandemic of 19'
0393045218	C:\Users\user\Desktop\tree.jpg	choose image	The Mummies of Urumchi
0399135782	http://images.amazon.com/images/P/0399135782.01.LZZZZZZZ.jpg	choose image	The Kitchen Wife
0425176428	http://images.amazon.com/images/P/0425176428.01.LZZZZZZZ.jpg	choose image	What If?: The World's Foremost Military Historians In
0671870432	http://images.amazon.com/images/P/0671870432.01.LZZZZZZZ.jpg	choose image	PLEADING GUILTY
0679425608	http://images.amazon.com/images/P/0679425608.01.LZZZZZZZ.jpg	choose image	Under the Black Flag: The Romance and the Reality c
074322678X	http://images.amazon.com/images/P/074322678X.01.LZZZZZZZ.jpg	choose image	Where You'll Find Me: And Other Stories

Same thing can be done with the book with the ability to view them and also modify the data that they have.

The admin can also add a book to the database when he clicks on the add book button from there a new window will open that asks the admin to enter the credentials for the book from the ISBN to the year of publication and the button to upload a PDF that will be used to view the book from and audio that will play when the user will click on the book



Isbn

Book_Title

Book_Author

Publisher

Year-Of-Publication

upload PDF book

upload cover page

Submit

Chapter 6

Results & Discussion

In the end of this project we can say that we made an application that provides these services to the user:

- The ability to create an account that can be used to add books to watch later or save book that the user likes and a recommendation for him
- The ability to search through a variety of books in our datasets whether by author,title,year of publication or genre.
- Display a the pages of a specific book with audio record narrating the content of the book.
- The ability to use the text to speech service to help the user decide what text he wants to listen to.

Chapter 7

Conclusion & Future Work

7.1 Conclusion:

Our project is an application that aims to help people who are reluctant about reading books or the ones who used to browse book a lot but stopped due to either the pandemic or thinking that watching videos are easier and more enjoyable than reading a book to understand the joy that a book might have on their soul.

It also can be a good way to our users to learn how to pronounce word in other languages since most people have a hard time with their pronunciation when the user listens to the the audio track or even the text to speech while reading the words from the book it will help them have a better understating and easier time learning that language.

7.2 Future Work:

This application is still in its beginning with a better dataset and more time to work and with flutter being a new framework that has a lot of problems that can be fixed in the future we can say that these are the features we are looking to add to our project:

Audio and PDF on Web:

Since flutter doesn't support a lot of the features on web we had a hard time working on our web version and finding alternative methods for them.

Better Dataset to work with:

Our dataset was highly lacking in terms of book content and the ability to find audio tracks to play while also missing key information like book categories which we added by hand to our application to some books.

Review System:

We highly wanted to add a review system to both the audio and the books but with limited time on hand we had to cut some features from our project with this being one of them

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