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Disclaimer

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Abstract

TixTap offers an innovative platform that changes the way we experience movies by combining smooth socialization and easy ticket purchase mechanisms in the same place. The company has created a lively culture around cinema through its department dedicated to social networking activities. The users are actively engaged with curated information such as cinema updates, movie premieres, or thematic conversations.

Opinion sharing, personal experience exchange, and conversation participation are facilitated by engaging tools like likes, comments, and so on, which are intuitive and therefore help in creating a lively atmosphere that allows individuals to connect with one another as well as share their passion for movies on the app. TixTap also comes with a chat system feature, enabling users to connect with each other and dedicated admins, thereby promoting real-time communication among users. This facilitates real-time conversations, quick questions, and personalized customer support. TixTap empowers users with a convenient ticket booking experience.

Users can effortlessly reserve tickets, catering to diverse needs with options for:

- users can make their booking singularly or as a group, in this way, they are always at liberty to choose.
- Reserving a private cinema hall to watch a specific movie (renting cinema hall to watch a specific movie)
- Private screening reservations (booking the cinema for a private screening).
- Hassle-free online payment, flexible reservation modifications, and additional features like snack and beverage reservations elevate the user experience.

TixTap is a central hub for connecting cinemas in different areas, making it possible for bookings at discounted prices with exclusive features. In the end, it improves user experience of theaters generally by integrating socializing and convenience. This is a new idea for our department, presenting an exciting challenge that we are eager to tackle.

Chapter 1

Introduction

1.1 General background

We were on the verge of graduating after five years had taken us through studies, we longed for a challenge that would embody our exhaustive understanding in the field. What we searched for was an assignment combining our love for technology and the fast-changing film sector. The outcome has become TixTap which will instantly give information on anything cinema related! It is an invention meant to completely change the way people see films by making it easier to access them, thus leading to better viewing experience.

1.2 Objectives

TixTap's main focus is to improve your moviegoing experiences. This is done by making the entire process smoother from the moment you choose a film until the final scene . Think of yourself booking seats online while watching the most recent crowd-pleaser or low-budget independent film. This allows you ruin nothing by replacing it with ordering your favorite items and services together with the best fitting position.where you can order your favorite cinema snacks through the app. Our App is not just a matter of convenience. We embrace a lively online community for movie enthusiasts. TixTap should be your number one stop for connecting with other movie lovers and getting involved with various activities. Make an effort to express yourself among like-minded individuals. Sharpen your craft by thoroughly discussing diverse issues related to new flicks and old time cinema greats. There is a place for you at TixTap, don't forget this. Feel free joining dialogues that stimulate you because TixTap is here for all film students even if someone doesn't watch movies so much.

1.3 Significance

Modern movie audiences are interested in convenience and having access to one another. TixTap meets this need by simplifying the reservation procedure and creating online community for movie lovers. When it is set up in such a manner where you find your tickets easily, you can also get snacks immediately after they are bought, and there is a ground on which fans of movies come together, TixTap enables you to enjoy your time at the theater in a better way, with more fun and remembrance of things.

1.4 Organization

This study takes the form of a framework to take a reader through the project process. The background, aims, and significance are first provided in the introduction while another chapter exploring relevant previous work. The methodology explains the technical options available and restrictions specific to this type of research before discussing findings or appraising project's success. Conclusion deals more elaborately with how things evolved during its creation and what could be drawn from this experience. Finally, a conclusion summarizes key findings and outlines avenues for future research, and references provide comprehensive source attribution. This structure ensures clarity and facilitates understanding of the project and its impact.

Chapter 2

Theoretical Background and Previous Work

2.1 Theoretical Background

Even though we were very interested in the project, our team was new to the process of creating mobile applications hence we had a hard time learning how to use Flutter for the purposes of the mobile app and Node.js as well as Firebase were still new to us. Wanting to know more, we opted to learn whatever we could afford. YouTube tutorials were our best friends during this period [1] [2] [3]

2.2 Previous Work

According to our findings, there is no other cinema application that rivals ours in terms of features including but not limited to booking movie tickets or snacks reviews user opinions chats between various users just watching the same film and many others It is intended to facilitate ease eliminate queuing up at the movie place and save time for movie lovers Our solution also provides an overview for each particular movie based on viewers' experiences, But our features don't stop at ticket booking! we make offer a bulletin board which enables our customers reach our cinema management in case they have any questions in mind or want to make suggestions about our services. The bulletin board creates an interaction between our clients whereby they can talk concerning any film or cinema matters specifically

Chapter 3

Methodology

3.1 Standards and Specifications

3.1.1 Backend development

When developing the backend, the process was broken down into several parts:

- **Models:** The models represent the structure of the database. To design and communicate with the models, the team used the Mongoose library, which is an Object Data Modeling (ODM) layer for MongoDBAtlas. With Mongoose, they were able to construct schemas that governed the structure, validation guidelines, and behavior of the data.
- **Routes:** Routes were used to represent the APIs and their routes. These routes were responsible for manipulating data and communicating with both the database and the frontend to send responses. The routes were written in Node.js.
- **API:** The team opted for RESTful APIs to expose backend functionality. They used different endpoints and HTTP requests such as GET, POST, DELETE, and PUT to interact with the backend.
- **Middleware:** Multiple middlewares were used for different purposes. For example, Multer was used for image file handling, while Express and Bodyparser were used for other middleware functionalities.
- **Uploads:** A folder was created on the server to contain all uploaded files. The location of a file in the server corresponds to the one saved in a database. There is a directory where we save all pictures required for this multimedia design project, the "images" folder, the users' images in another folder known as "userimages", and the final one is for snack pictures which we have called it "snackimages".

3.1.2 Frontend development

To bring TixTap to life, the creation of both a web app and a mobile app were necessary. A Flutter framework was utilized in the process. It is similar to a magic box because it helps us in writing the same codes across both web and mobile app versions of the same app. Owing to the fact that both applications are developed using similar codes, it saves us a lot of time and effort. Flutter has an added advantage of being at no cost whatsoever considering the extent to which

it is open source. It implies that there's such a huge wealth of resources and tutorials meant to help us achieve our desired potential when creating TixTap. Moreover, it is super-fast and powerful, making it an excellent choice for our needs. We implemented Dart while working with Flutter because Google came up with this new language. It's like a perfect teammate for Flutter, allowing us to build the app smoothly.

3.1.3 Database

We made use of MongoDB Atlas, This service is like a high-tech storage locker for all of TixTap's data. and whose size easily changes with increasing use of our app such as scalability. In order to rank all the different kinds of information on TiXtap, the various sections within MongoDB Atlas were created; including user accounts and movie listings. This makes it possible for anyone to see exactly what they're looking for without spending much time searching for it.

We employed Firebase, a real-time system to power our chat. With Firebase, people can chat with one another as well as make instant connections, thus enhancing fast growing online communities. Hence, through incorporating it there is an incessant smooth conversation in the application for TiXtap.

3.1.4 External API

We painstakingly searched through multiple data sources and found RapidAPI[4] to be our ultimate choice for enhancing user experience. This library contains various APIs that help us get elaborate movie information such as names, rates and descriptions at a cheaper cost. RapidAPI's [5] user-friendly integration capabilities streamline this process, solidifying its role as an essential tool for our development.

3.1.5 Mobile Application

Our project is aimed at bringing the modern technology and innovation into cinemas so that users can book movie tickets, make orders for snacks and also interact with the viewing community. TixTap ensures its users a all-round experience of the cinemas, assisting in making bookings and learning from other people's experiences.

Login and Account Creation

- Login: Users can log in using their email and password.
- Sign up: Anyone who is new to the system can sign up using an name, email, and password.
- Forgot Password: The user will be able to reset their lost password through a link that is sent in their email

Movie Display Interface

- Animated Interface: The current software program has an animated interface that shows all films available within a week from today on one screen making it appealing visually due to its interactive nature with people viewing it.

Posts

Types of Posts: User can choose Type of Post include the following:

- Question: For asking questions about movies.
- Discussion: For starting off discussions about movies.
- Announcement: For announcing new movies or special offers.

Ticket Booking

- Branch Selection: Users have the opportunity to select a cinema branch within their city.
- Seat Map: The option of choosing a seat is enabled by an interactive map of seats on the booking interface for tickets.
- Snack Selection: Users can choose snacks when booking a ticket.
- Full Hall Booking: Users can use the application for booking cinema hall for certain events

Chat

- There is an opportunity for people to make friends so as to talk about movies, express their views and give suggestions.

Notification

- Users receive notifications related to posts such as comments and likes.
- A reminder when the scheduled movie is about to start showing.

Cart and Payment

- Cart Section: There is a place where members can add snacks into their carts.
- Movie Selection: Pick the movie at checkout where you would like to eat the snacks.

Card Recharge

- TixTap allows users to add funds to their cards.

View Booked Tickets

- TixTap have Tickets Section, Where users can view the tickets they have booked.

Edit Profile

- Edit Personal Information: Users can modify their information including name, email, etc., at the page "Edit Personal Information."

TixTap offers a complete solution for cinema fans to book tickets, select snacks and interact with other members of the cinema world. These numerous features are meant to improve user experience and at the same time make booking a ticket easier and enjoyable.

3.1.6 Website

Login and Forgot Password

- Only admins are allowed to log in.

Home Page

- Today's movies schedule is shown to you
- Admins can view upcoming movies for the next days.

Reports

- Overview of cinema performance in terms of profits.
- Most profitable branch, popular snack and favorite movie are revealed

Branches Management

- Admins can add, edit, or delete branches.

Movie Management

- Admins have the ability to add films through a page that shows them for selection, choosing the branch, time, and price at which each will be shown.

Snack Management

- Admins can add snacks with name, image, description, and quantities.
- there are snacks available in different sizes and costs depending on the size variation (smallest – medium-large)

Admin Activity Tracking

- Track each admin's activities.
- Identify active admins and trace issues to specific admins if problems occur.

Admin Profile Editing

- Admins can edit their profile.

Booked Tickets

- View all types of booked tickets.

Special Reservations

- Admins do get detailed information on any special bookings for approval.
- Admin provides price, price description, and any additional details for the reservation.

Our Website is tailor-made for administrators such that they have absolute rights and control for dealing with all features annexed in that site and TixTap is edified for admins making sure they have everything they need in order to run cinema halls effectively and make customers much happier as well as enhance customer satisfaction by having more effective tools.

3.2 Constraints

- **Initial Software Acquisition and Integration:** At the beginning of our project, we dealt with acquiring and combining new software applications. While the obstacles like downloading and getting used to it were faced at first, they were surpassed successfully leading to a smoother flow of work.
- **Using heavy software for the project stressed the laptops and drained the battery, charging and speed.** As a result, we had to pause to charge those devices before resuming our work.
- **Mastering New Programming Languages: A Rewarding Challenge** One of the most significant barriers that we had to overcome while developing the solution was language adaptation. Our entry in the programmer world has been pretty tough as new approaches required constant efforts, and determination in order to learn them.

Despite this, frequent practice and a determination to finding solutions make the early tough moments look easy and with great improvements too resulted in the work flow being smooth. This positive transformation through learning the other languages also made us better technical writers which enabled us to enjoy writing software more than ever before.

- **Collaborating in Choosing the Right Storage Solution** represented a crucial moment in making the development decision-making process. The aim was to find a shared workspace that team members could easily get access to and share information. Consequently, we had to look at different options before settling on anything else. It thus turned out that the most appropriate means would be Mongo Atlas.
- we struggled to find a suitable external API for our app to fetch movie information, but we eventually found one called RapidAPI.^[4]

Chapter 4

Discussion and Analysis

The development of a mobile app named TixTap designed for movie enthusiasts achieved three milestones in terms of how well it works, how users experience it, and what possibilities it opens up for film-goers.

- For a seamless movie experience, all you require for a fantastic movie is easily accessible through TixTap. You can easily order your best snacks, find out about movies' time slots, as well as buying tickets at your comfort. Enjoy your movie without having to stand in big lines thanks.
- Many movie enthusiasts are drawn together by passions for film. Within these systems, one can discuss recent releases, revered old movies, anything really. Forums have integrated into versions of this software where individuals using such interface join communities that share their passion for cinematic works in general terms boundaries among any particular genre (for example horror) are crossed when communal conversation on movies takes place leading towards an individual's discovery within a specific genre while giving room for artistic expression cutting across genres themselves at large as opposed to adhering rigidly by those defined within these categories – horror film reviews would allow anyone interested into genre know more about its elements which can be found there rather than being too serious). You will easier find people who love movies like you do by this instrument irrespective of whether you are airing your views or simply taking part in discussions.
- Achievement runs the show at TixTap because it rides on robust technology, MongoDB Atlas for handling data processing and management while its RESTful APIs make data movement smooth and easy.

Discussion

TixTap, an app that has changed the way people go to the movies forever With a well-designed user interface and user friendly design, TixTap has simplified the movie going experience for its users. Customers can look at movie timings and make bookings, purchase refreshments as well as connect with other people.

We must, no doubt, also need a website that holds the toolkit apart from the user interface so as to make it easier for administrators and not to stop there, our attention was in no way stopped on the app, as to evolve it and provide faster

workflow we created a dedicated site.

The material on the website can be managed very easily by the administrators as they could add new movies, authorize reservation for tickets, manage snack menu and change any other content associated with the services. They can also communicate with users on the web like answering their questions or announce movie times and special events.

The website also provides analytical tool to monitor user behavior and better understand their needs, helping to develop the app and deliver better service to users.

Thanks to this integrated approach, TixTap is more than just a ticket booking app, it is an interactive platform that enhances the experience of movie lovers and facilitates the work of administrators, making it the perfect choice for film enthusiasts seeking a smooth and easy cinema experience.

Chapter 5

Conclusion and Future Work

5.1 Conclusion

TixTap is a service which allows people to book tickets, preorder concessions and discuss films online. This platform gives them an easy access into cinema related spaces and this way they get to know more people who are interested in watching movies like themselves.

5.2 Future Work

- An easy way to expand on the community features could include adding aspects such as up voting and down voting, social media tie-in capabilities as well as suggestions depending on conversations within groups about films along with other functions which will help maintain interest among members of such forums as those provided by this website.
- Post System Update where we working on the post system design aimed at enabling our users to share more dynamic content. We are planning to introduce new features like image uploads, video attachments, and sharing options. Thanks to this, our users will be able to give more clear opinions, build stronger relationships within the community, and thus make the platform more attractive in general.
- We intend to include multiple payment options in the TixTap application in order to give users more choices so that they can easily pay using credit card, PayPal, Jawwal Pay, among others. Our goal is to accommodate the various choices members within the different units would prefer to make thus they will have a range of options to choose from.
- Addition of Artificial Intelligence (AI) makes experience better for users based

on TiXtap mobile application. Data collection on personal interests will be done by this AI so that when giving movie choices or snack flavors, it considers what you love or hate most. When people's tendencies are taken into account; the internet –might propose things they didn't know about themselves which otherwise would not have occurred yet. Our goal is to increase satisfaction levels among those who use our product while keeping them interested at all times through our recommenders recommendations based on their consumption patterns.

- IOS Support: The first priority will be making support for iPhone users, which would help the program. That way, it will allow people who own both iPhones and iPads to use them without any problems; hence, TixTap will be able to cover more users.

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