Lab 2 – FlixPicks Product Specification

Roxy Egger

Old Dominion University

CS411

Professor J. Brunelle

26 Feb. 2024

Version 1

Table of Contents

List of Figures

List of Tables

1. Introduction

Streaming services are a type of platform that allow users to watch movies and television shows on demand at the cost of a monthly subscription. Streaming services are becoming increasingly popular as a way to watch media at home compared to cable television. In 2022, streaming represented 34.8% of viewership, which is greater than cable television (Fischer, 2022). Cable television was previously the main way people watched television or movies in the home. However, one problem with streaming services is deciding on something to watch due to the large inventory. There are over 200 streaming platforms to pick from, each with their own library of content. (Cook, 2023). Some people are also subscribed to more than one streaming service. On average, Netflix subscribers spent 17.8 minutes a day picking something to watch in 2016 (Moscaritolo, 2016). A study conducted in 2020 revealed that subscribers spend 187 hours a year just searching for content to view, or about 30 minutes a day (Ward, 2020). The increasingly expanding libraries of streaming services creates choice overload, making it difficult for users to choose what to watch.

Streaming content is an isolating process. It removes the experience of going to a movie theater with their friends or family. FlixPicks aims to provide a solution by allowing users to build a comprehensive inventory of all their subscriptions in one place, recommend a show to watch, and allow the sharing of emotions and interactions.

1.1 Purpose

FlixPicks aims to provide a solution to the choice overload of picking content to watch on streaming services by providing features that allow users to select content and decide on what to watch more easily. FlixPicks is a website and a mobile application that offers features to help users get recommended content from the most popular streaming services and view other

available content. FlixPicks lists content from streaming services and does not host any content itself. Upon selecting media to watch from FlixPicks, the user will be redirected to where it is hosted on the streaming service that provides its platform.

FlixPicks provides five main features on the website to accomplish its purpose. Guest users, those who do not register a profile with the website, have access to two features. HotPicks provides a list of popular content on all streaming platforms and CineRoll selects a random piece of media to watch. Upon registering to the website, users are prompted to fill out a Taste Profile with the streaming services they are subscribed to and what movies that they liked from a list. The Taste Profile will be used to generate aggregated recommendations based on what that user liked. Registered users also have the ability to use CineWheel, which selects a random piece of media from a list given by the user. CineWheel displays a spinning wheel animation as a selection process. CineMap, another feature limited to registered users, displays an overlay on top of media being streamed through the use of a web browser extension. The overlay is able to be toggled on and off. The overlay shows the most replayed spots of a movie, known as Hotspots, and allows the user to leave and view comments and reactions that other FlixPicks users have left at certain points in the media.

The data gathered from these tools are used for analytics purposes and made available to FlixPicks admins. Representatives from streaming services are allowed to view the analytics data by registering with FlixPicks and paying for it.

1.2 Scope

FlixPicks prototype aims to help users find content to watch through viewing the FlixPicks website as a guest or registering an account. Users can access the guest website to use HotPicks or they can register to gain access to the Taste Profile, HotPicks, CineWheel, CineRoll,

and CineMap features. These features, the registration system, and the database system used to store information are programmed in Python. Movies displayed on FlixPicks are obtained from a third-party database that has access to different streaming platforms. FlixPicks does not host any content on the website itself, users are redirected to the streaming platform that hosts the media when deciding to watch it.

The prototype has a reduced scope compared to the real-world product because it is focused on demonstrating the key features in a proof-of-concept fashion rather than building the complete final product. The FlixPicks prototype only lists content from a limited number of streaming services such as Netflix, Hulu, and Amazon due to the reduction in overall scope from the real-world product and limited data available from the API being used. The prototype will only be available as a website and not a mobile application due to the limited time available and the complexity required to make phone applications.

1.3 Definitions, Acronyms, and Abbreviations

Administrator: An administrator of FlixPicks that can manipulate data on the website.

Android: An operating system for mobile devices manufactured by Google, Samsung, and other companies.

Apache Tomcat: An open-source implementation of the Java Servlet, Java Server Pages, Java Expression Language, and WebSocket technologies. Tomcat provides a "pure Java" HTTP web server environment in which Java code can run.

API: An application programming interface is an interface that allows for interactions between multiple software applications or mixed hardware-software intermediaries.

Choice Overload: The phenomenon that choosing between a large variety of options can be detrimental to the decision-making process.

CineRoll: A feature that selects a movie at random or based on the user's taste profile.

CineWheel: A feature that randomly selects a movie from a list of movies selected by the user.

CineMap: An overlay that goes over top of media streamed from a streaming service to provide comments and show the most replayed parts.

Collaborative Filtering: An algorithm that uses the similarities between media and similarities between users to generate recommendations.

CSS: Cascading style sheets is a markup language used for customizing the appearance of a document written in another markup language such as HTML. CSS is a cornerstone technology of the world wide web, alongside HTML and JavaScript.

Git: Software for tracking changes in any set of files, usually used for coordinating work among programmers collaboratively developing source code during software development.

Guest: A user that has not signed into or created an account with FlixPicks.

HotPicks: A list of popular and trending media from various streaming services.

Hotspot: A part of a movie or TV show that is often replayed or revisited.

HTML: HTML is the standard markup language for creating web pages. HTML elements tell the browser how to display the content and define the structure of web pages.

IDE: An integrated development environment is a software application that provides comprehensive facilities to computer programmers for software development.

iOS: An operating system used for mobile devices manufactured by Apple Inc.

JavaScript: A scripting or programming language that allows you to implement complex features and interactivity on web pages.

Library: Aggregated content that is dynamically generated when a user logs in based on what is available on their subscriptions and on their taste profile.

MySQL: An open-source relational database management system.

Netflix: A subscription-based streaming service that allows members to watch TV shows and movies on internet-connected devices.

Quick Click: A link from FlixPicks that redirects the user to the selected streaming media.

Reactions: Small images that can be used in CineMap to express an emotion.

Registered User: A user that has created a FlixPicks account.

Representative: A representative from a streaming service to whom data from FlixPicks will be sold.

Stakeholder: A person with interest or concern in something, especially a business.

Streaming: A method of transmitting or receiving data over a computer network as a steady, continuous flow, allowing playback to start while the rest of the data is being received.

Streaming Service: A streaming service is a digital platform that delivers multimedia content over the internet, allowing users to watch or listen to it in real-time without downloading. Examples include Netflix, Spotify, and Disney+.

Subscription: A streaming service that the user pays in monthly installments for access to the content it has.

Survey: A survey to establish the initial information for recommendations in the Taste Profile.

Taste Profile: A profile made for a user by the FlixPicks service to tailor recommendations to them.

User Roles: Guest, Registered User, Representative, and Administrator are the user roles for FlixPicks.

1.4 References

Clark, Travis. (2022, April 20). How Netflix, Disney+, HBO Max, and more major streamers compare on content and cost. https://www.businessinsider.com/major-streaming-services-compared-cost-number-of-movies-and-shows-2022-4

Cook, Sam. (2023, September 06). The Complete List of Streaming Services – 200+ Services. https://flixed.io/us/en/complete-list-streaming-services

Durrani, Ana. (2023, March 27). The Average American Spends Over 13 Hours A Day Using Digital Media—Here's What They're Streaming. https://www.forbes.com/home-improvement/internet/streaming-stats/

Fischer, Sara. (2022, August 18). Streaming surpasses cable as top way to consume TV. https://www.axios.com/2022/08/18/streaming-surpasses-cable-tv-market-share

Glover, Emily. (2023, March 9). Nearly 50% of people pay for streaming services they don't use. According to new Forbes survey. https://www.forbes.com/home-improvement/internet/streaming-survey/#:~:text=According%20to%20the%20survey%20findings,services%20the%20average%20person%20uses.

Moscaritolo, A. (2016, July 21). Netflix users waste a ton of time searching for something to watch. PCMAG. https://www.pcmag.com/news/netflix-users-waste-ton-of-time-searching-for-something-to-watch

Natal, G., & Saltzman, B. (2022, January) Decisions, decisions, decisions: decision fatigue in academic librarianship. The Journal of Academic Librarianship, 48(1) https://doi.org/10.1016/j.acalib.2021.102476

O'Brien, Clodagh. (2023, June 14). The Unstoppable Success of Netflix. https://digitalmarketinginstitute.com/blog/the-unstoppable-success-of-netflix#:~:text=Netflix's%20marketing%20budget%20has%20remained,to%20the%20New%20York%20Times.

Pattison, S. (2023, September 17). 35 streaming services statistics you need to know in 2023. Cloudwards. https://www.cloudwards.net/streaming-services-statistics/#:~:text=Although%20we%20may%20only%20think,Netflix%20the%20%231%20Streaming%20Service%3F

Ward, Amelia. (2020, August 20) People Spend 187 Hours A Year Searching For Something To Watch on Netflix. https://www.ladbible.com/entertainment/tv-and-film-people-spend-187-hours-a-year-browsing-netflix-20200820

1.5 Overview

This product specification provides the hardware and software configurations, interfaces, and features included in the FlixPicks prototype. The information found in later sections of this document will go into further detail on the features and requirements of the FlixPicks prototype.

2. General Description

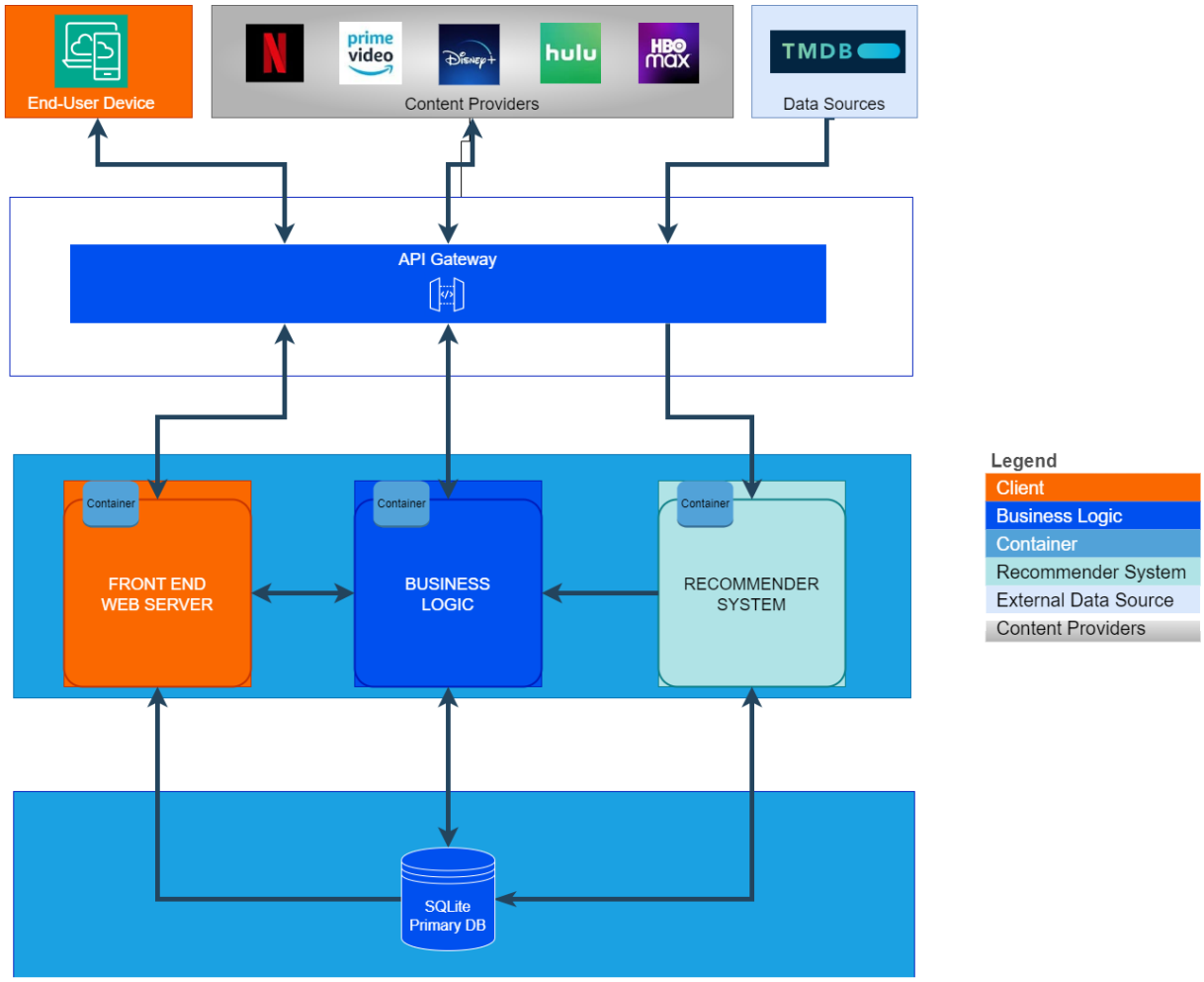
The FlixPicks prototype is a proof of concept that demonstrates a mockup of the FlixPicks website that allows for user registration and demonstration of the Taste Profile, HotPicks, CineWheel, CineRoll, and CineMap features. The FlixPicks prototype only lists content from a limited number of streaming services such as Netflix, Hulu, and Amazon due to the reduction in scope. The prototype has a reduced scope compared to the real-world product because it is focused on demonstrating the key features in a proof-of-concept fashion rather than building the final product. Testers for FlixPicks will have access to every feature in the prototype and be able to use the database to simulate fake users and data in order to verify that every feature works.

2.1 Prototype Architecture Description

The prototype consists of a backend written in Python and SQLite and a frontend website written in HTML, CSS, and JavaScript. The frontend and backend are hosted in separate Docker containers running on the host machine and the prototype is accessed via a web browser. Figure 1 shows the major functional components of the FlixPicks prototype.

Figure 1

FlixPicks Prototype Major Functional Component Diagram



2.2 Prototype Functional Description

In the prototype, guest users have the ability to see general recommendations from streaming services based on popularity. Guest users also are able to see all available features but can only use the HotPicks function. Registered users are able to see and use all the available features, such as CineWheel, CineRoll, and CineMap, and have a Taste Profile. The FlixPick database analyzes the Taste Profile results to create initial recommendations and uses collaborative filtering to give better recommendations as the user continues to use FlixPicks. The

prototype has partial support for analytics and user feedback. The prototype has the ability to create and edit movie data and simulate users and interactions, which is cut from the final product due to only being necessary for the prototype. Table 1 shows the features that are implemented on the prototype and the features that are implemented on the real-world product.

Table 1

FlixPicks Feature Description and Prototype Implementation

Category	FlixPicks Feature	RWP	Prototype
Subscription Service Management	User Account Registration	Fully Implemented	Fully Implemented
	Account/Subscription Service Management	Fully Implemented	Fully Implemented
	User Subscription Integration	Fully Implemented	Partially Implemented
	User Tier Level Feature Access	Fully Implemented	Partially Implemented
Taste Profile	Taste Profile	Fully Implemented	Fully Implemented
	Taste Profile Survey	Fully Implemented	Fully Implemented
	Taste Profile Content-Based Filtering	Fully Implemented	Fully Implemented
	Taste Profile Collaborative Filtering	Fully Implemented	Fully Implemented
Recommendations	Recommendations	Fully Implemented	Fully Implemented
	Filtered Recommendations (Criteria based)	Fully Implemented	Fully Implemented
Movie Library	Browse/Search Filtering	Fully Implemented	Fully Implemented
	HotPicks	Fully Implemented	Fully Implemented
CineRoll	CineRoll	Fully Implemented	Fully Implemented
CineWheel	CineWheel	Fully Implemented	Fully Implemented
CineMap	CineMap Overlay	Fully Implemented	Fully Implemented
	CineMap Commenting	Fully Implemented	Partially Implemented
	CineMap Export Data	Fully Implemented	Partially Implemented
	CineMap Data Analyzing	Fully Implemented	Partially Implemented
Analytics	Data analytics testing	Fully Implemented	Partially Implemented
	Analytics	Eliminated	Fully Implemented
	Summary reporting for user/stakeholders	Eliminated	Fully Implemented
Simulation	Simulation	Eliminated	Fully Implemented
Movie Info	Create/edit Movie Info	Fully Implemented	Partially Implemented
Feedback	Feedback	Fully Implemented	Partially Implemented

2.3 External Interfaces

The FlixPicks prototype requires a computer equipped with Docker and a web browser to access. APIs containing information about movies being streamed are used to get the movie data. Secure transfer protocols and ports are utilized for the transmission of data in the application.

2.3.1 Hardware Interfaces

The prototype requires a desktop or laptop computer running an operating system that has the ability to run Docker and a modern web browser such as Windows, Linux, or macOS. The computer must have internet access. Mobile devices are not supported for the prototype.

2.3.2 Software Interfaces

Various software is used in the development of the prototype. The backend of the project is made in Python and SQLite while HTML, CSS, and JavaScript are used for the frontend. The VSCode IDE is used along with GitHub to manage development and issue tracking. The API used is TMDB. The backend and the frontend for the prototype are ran in separate Docker containers that are hosted on the local machine. A modern web browser such as Google Chrome must be used to access the prototype.

Appendix A – Site Map