EntertainMe!

Information Analysis & Systems Design

Team #1

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Team
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Applications Used:

Microsoft Word, Excel, PowerPoint, Visio, Procreate, Figma, PostgresSql

Table of Contents

1.0 Introduction

1.3 Abstract

In an ever-expanding ecosystem of streaming services, how does one wade through thousands of TV shows and movies to get recommended the right content, especially when they are split between dozens of different streaming services? This is where EntertainMe! steps in to fill the gap. EntertainMe! allows a user to enter a movie or series and find alternate titles to watch based on what was entered across various streaming services. Users can create watchlists that contain all their previously watched content, where selecting on a title will recommend titles based that selected title. Furthermore, EntertainMe! allows users to perform user ratings that can potentially help others to determine what TV shows and movies they would recommend. EntertainMe! would be implementing a machine learning model, that will find titles that match what a user entered based on various metrics such as the genre, similar directors, same actors, length, release year, and other categories. Content owners utilizing EntertainMe! can pay a fee to have their own content promoted to more users. Overall, EntertainMe! is a must-have application for anyone who wants to be recommended new movies and TV shows without wasting time searching through a vast library of content.

2.0 Preliminary Investigation Phase

2.1 Summary of problems, opportunities and/or directives

Customers of multiple streaming services often run into the same problem of trying to decide what TV show or movie they should watch. Of the dozens of different streaming services each with 1000+ content options, there is no authentic way for a customer to know what they should be recommended based on the streaming providers they pay for. When sites like Netflix or Hulu recommend the next program to watch, it is always something streamed within their own service. Each streaming service recommends content based on your prior watch history by using algorithms that track end-user activity and store content recommendations on a database. Within Netflix, "The algorithm learns on its own and continues to gather information. Simply logging more hours on Netflix increases the quality of the Netflix recommendations sent to you" (Simplilearn, 2023). Streaming services' algorithms are trained based upon how their users interact with their platform. However, this does not allow users to leverage content hosted by other streaming competitors.

When streaming services recommend content, users do not get the option to view ratings or reviews. On Hulu, Netflix, HBO Max, and many others, users can see the match percentage based on their history, but nothing about user reviews or ratings. Contrarily, review sites like IMDB or Rotten Tomatoes let users' rate and review movies and TV shows, but they do not recommend content based on a previous history or rating. If there was an app that could solve these problems, users could have the option to be recommended content based on their own preferences, and how well the show is received by others.

With over 85% of American households subscribing to a streaming service, the need for accurate content recommendation between multiple services is crucial for viewers to have a better watching experience (Ariella, 2022). The EntertainMe! application would be a one-stop shop for content streaming recommendations. In the application, users would be recommended content based upon multiple factors, ratings, prior watch history and user reviews. Users can also rate and review content they have seen to assist in their own recommendation, as well as another user. The target customers for EntertainMe! would be TV/movie enjoyers who have multiple streaming services that need good recommendations based on their history/ratings across the streaming apps.

EntertainMe! works by using machine learning algorithms to take data from multiple streaming services and a user's account based on what they have previously watched, and can determine a list of items it thinks the user would most be interested in. Viewers would create an account and input the previous movies and TV shows they have seen from their respected services. A potential algorithm for this would be a Content Based algorithm that, "uses the attributes of an item, such as its metadata, tags, or text, to make recommendations that are similar to items the user has previously interacted with" (Hinkle, 2021). Users can review the movies and TV shows they've seen to help the algorithm determine which shows to recommend to other users.

When users utilize EntertainMe!, streaming services can benefit from their content being advertised to users who may not currently subscribe to their service. This will allow for higher viewer retention across the multiple streaming services. Viewers can find programs that are right for them. Users will be more inclined to continue watching, being entertained while driving up traffic for the streaming service.

2.2. Preliminary project plan

2.2.1. Master Schedule for entire project

ID	Task Name	Duration	Start	Finish	Resource Names	% Complete
1	**Introduction**	**3 Days**				
1.1	Cover page, showing your system's name and your system's logo.	2 Days	1/21/2023	1/22/2023	Brandon	4.91%
1.2	Table of Contents, this document	2 Days	1/21/2023	1/22/2023	Brandon	12.81%
1.3	An abstract of the project, include the goals, and a summary.	3 Days	1/21/2023	1/24/2023	Brandon	18.71%
2	**Preliminary Investigation Phase**	**3 Days**				
2.1	Summary of problems, opportunities and/or directives.	2 Days	1/25/2023	1/27/2023	Trevor	25.92%
2.2	Preliminary project plan	1 Day	1/27/2023	1/28/2023	Trevor	30.82%
3	**Problem Analysis Phase**	**3 Days**				
3.1	Analyze current problems and opportunities	2 Days	1/27/2023	1/29/2023	Brandon	35.93%
3.2	Establish system improvement objectives	1 Day	1/29/2023	1/30/2023	Brandon	40.83%
4	**Requirements Analysis Phase**	**1 Day**				
4.1	Identify requirements for new system	1 Day	2/26/2023	2/26/2023	Brandon, Remi	46.94%
5	**Decision Analysis Phase**	**5 Days**				
5.1	Identify candidate solutions	1 Day	1/23/2023	1/23/2023	Remi	51.95%
5.2	Analyze alternative solutions	4 Days	1/24/2023	1/27/2023	Remi	61.85%
5.3	Recommend a final "best" solution	1 Day	1/28/2023	1/28/2023	Remi	65.75%
6	**Design Phase**	**15 Days**				
6.1	Design the application architecture	1 Days	3/6/2023	3/6/2023	Remi	68.95%
6.2	Construct detailed models	15 Days	2/23/2023	3/10/2023	Team	75.86%
6.3	Design the system database	14 Days	2/23/2023	03/09/2023	Brandon	82.40%
6.4	Design the system interface	5 Days	3/6/2023	3/10/2023	Trevor	88.66%
9	**Alphabetical Glossary & Index**	**1 Days**	3/14/2023	3/15/2023	Team	93.00%
10	**Bibliography, References & Citations**	**2 Days**	1/25/2023	1/27/2023	Team	97.00%
11	**Contacts**	**1 Day**	1/21/2023	1/21/2023	Team	99.00%
11.1	Contact Information and Expertise of Stakeholders	1 Day	1/22/2022	1/23/2022	Brandon	100.00%

2.2.2. Resource assignment for entire project

Personnel

- 2 Software Engineers
- 1 System Analyst
- 1 System Architect
- 1 Database Administrator
- 1 Network Specialist
- 1 Security Analyst

Software

- Python
- Visual Studio Code
- Netflix, Hulu, HBO Max API
- Microsoft Visio
- Postgres SQL
- React
- Figma

Hardware

- Laptops
- External Keyboards/Mice
- Secondary Monitors
- Windows Server
- Router

3.0 Problem Analysis Phase

3.1 Analyze current problems and opportunities

With the ever-growing list of streaming platforms appearing each year, we are developing more and more silos of entertainment. This makes it harder for users to find shows that fit their tastes across the various platforms. If someone liked a particular show on Netflix, there is no way to get a recommendation for a similar show on Hulu. We also live in an era of family sharing where a user may be sharing a single profile with siblings as an example. The algorithm that provides recommendations would then factor in shows that the user may have never seen or did not like. Even if you are the sole user, just because two shows are alike, does not make them both good. The streaming platforms do not provide user ratings, which require you to go elsewhere to determine if something is worth watching.

3.1.1. Define cause and effect for each problem

CAUSE-AND-EFFECT ANALYSIS		
Problem or opportunity	**Causes**	**Effects**
1. Cannot find recommendations across services.	1.1 Streaming platforms are silo' d from one another	1.1 Because each service wants you to use them and not the competitor
2. You can only have so many profiles on one account	2.1 Meant to be shared with family only, based on some ideal family size	2.1 Share profiles means recommendations are not tailored to one user
3. Streaming services do not provide user ratings or feedback on the movie or series	3.1 Input from users can be biased	3.1 Biased reviews can affect shows viewership
	3.2 Bad reviews make users skip watching	3.2 Loss of viewership causes show to be canceled

3.1.2. Update problem statements from Preliminary Phase if needed

No updates to problem statements needed.

3.2 Establish system improvement objectives

3.2.1. State new system objectives

EntertainMe! Will provide the user with the ability to enter a series or movie that they have watched and provide recommendations regardless of the service the input title. It will allow the user to see recommendations based on various metrics to define the type of comparison that they want to find in the new title. The user can add any of the results to their watchlist. It will also allow them to read user reviews of the recommended titles and leave a review of their own.

3.2.2. List system constraints

3.2.2.1. Schedule

EntertainMe! will finish the planning stages on 03/23/2023. This gives us roughly 90 days to plan, review, and adjust prior to starting development starting in April 2023. We plan to have the application in production for 06/15/2023.

3.2.2.2. Cost

Cost Value Analysis		
Expected Revenue (Years 1 - 6)		$600,000.00
Development Cost		
Total Personnel Cost	$70,900.00	
Total Hardware Cost	$10,200.00	
Total Development Cost		$(81,100.00)
Expected Operating Costs (Years 1 to 6)		$(204,305.62)
Total Profit		$314,594.38
**In-depth analysis is presented in 5.2.2* **All formulas are derived from 5.2.2* **Note: Preliminary estimates do not consider the time value of money*		

Cost Value Analysis		
Expected Revenue (Years 1 - 6)		=SUM('NetPresent Value'!B10:H10)
Development Cost		
Total Personnel Cost	='Estimated Costs'!E10	
Total Hardware Cost	='Estimated Costs'!E17	
Total Development Cost		='Estimated Costs'!E20 * -1
Expected Operating Costs (Years 1 to 6)		=SUM('Payback Analysis'!B5:H5)
Total Profit		=SUM(C3:C8)
**In-depth analysis is presented in 5.2.2* **All formulas are derived from 5.2.2* **Note: Preliminary estimates do not consider the time value of money*		

3.2.2.3. Technology

EntertainMe! will use state of the art web platform using a Python backend, with machine learning models to deliver the best possible recommendations for our users. We will use a Postgres database to store relevant data.

3.2.2.4. Policy

No policy requirements needed for the system.

4.0 Requirements Analysis Phase

4.1 Identify requirements for new system

4.1.1 List, describe, and defend functional requirements

Requirement	Inputs	Outputs	Processes	Storage	Control
Ability to search a title and get recommendations.	The user will enter a movie or show to search	The system will return a list of recommendations	Machine learning algorithm that calculates recommendations	System will store recommendations for the user in a database	System process search request and returns recommendations
Add title to watch list	The user will mark the title as seen	Added to the users watch list	Watchlist items will have recommendations calculated for them	Watchlist will be stored in database	System allows user to manage their watchlist
Leave a like/dislike	When interacting with a title the user can click like or dislike	Will be used to calculate recommendations based on their input	Machine Learning model will leverage this data for decision making	The reaction to the title will be store in the database for ML model to access	System will factor user's likes and dislikes in future recommendations
User login	User will enter their credentials	System will display status of login attempt	System will confirm login credentials	Username and encrypted password stored in database	System will confirm login details
Vendor can promote title	Content owners select a title to promote	System outputs a confirmation page	Promoted content will be given a greater weight than other titles	History or promoted titles will be stored in the database	System will process a title promotion request

4.1.2. List and defend non-functional requirements

Requirement	Performance	Ease of Use	Cost Savings	Timelines and deadlines	Training	Quality Management	Security and Audits
User Friendly	Users can navigate through the webapp without training	Webapp is easy to navigate and interact with.	Intangible benefit: will increase user engagement and popularity	1 month of development and testing	N/A	Biweekly	N/A
Scalable	Handle addition of new features	Maintain quality	100% cost savings in business productivity	3 weeks of development and testing	N/A	QA	Software application needs to follow security best practices
Security	Check the "I am not a Bot" checkbox upon user account creation	Checkbox available as part of signup	Intangible benefit: increases security and legitimacy of user ratings and reviews	1 day of development work and testing	User guide or Video tutorial	Weekly	Need to ensure there are no bots accessing the system.
Compatibility	Webapp supports most common browsers	GUI looks the same when using different browser	10% cost savings in business productivity	1 week of development work and testing	N/A	QA	No unauthorized 3rd party ads are displayed on browser
Capacity	The system needs to handle at least 200 concurrent connections	User can access the webapp without issues related to possible overload of the system	Intangible benefit: will avoid down time	2 weeks of development work and testing	N/A	QA	Webapp is operational for all concurrent users

5.0 Decision Analysis Phase

5.1. Identify candidate solutions

There are two possible solutions for developing the EntertainMe! webapp. The first option would be to host the EntertainMe! webapp on an On-Prem Windows OS backend server using a backend/frontend solution and a Postgres local database to store user data. The backend and frontend will be written in Python, hosted using Nginx (reverse proxy) as a service and will be accessible using an URL through a web browser. In this system, the end-user will be able to perform a search by entering a movie or series name and find alternate titles to watch based on what was entered. Furthermore, the system will allow end-users to perform user ratings that can potentially help others determine what movies or series they would praise. However, to perform these actions, you must be logged in as a regular user. Content owners will be able to promote titles based on their interest by making payments through the webapp. Users and Content Owners will be allowed to create accounts through the webapp User Interface (UI). A machine learning model will be implemented as part of the solution. Allowing the webapp to provide more accurate recommendations using various metrics, resulting on a reduction of end-user browsing time when trying to find something interesting.

The second option would be to utilize a cloud base infrastructure such as AWS to host the EntertainMe! webapp using containers. The webapp would be deployed to a Linux based AWS (EC2) backend server using Docker containers to host the backend, frontend, and database on separate containers. An internal network would be created using docker-compose, which will allow the different containers to internally communicate with each other. The backend and frontend containers will be created using Python, and a combination of Nginx for the frontend, the database will be created using Postgres and will be fully cloud based. The webapp will be accessible using an URL through a web browser. Any user will be able to perform a search on the webapp. However, a login would be required to perform any actions on the webapp, which would help obtain more accurate results based on the Machine Learning model implemented on the backend. The login can be performed using Single Sign-On (SSO). Furthermore, the system must connect to at least one streaming service API to always provide the most accurate live data.

5.2. Analyze alternative solutions

5.2.1. Feasibility Analysis

	Operational Feasibility
On-Prem Deployment	Based on the team's previous experience, the developers will be able to develop a system that complies with all customer requirements. The On-Prem solution will not require additional capabilities such as Single Sign-On (SSO), containerization using Docker, and provisioning of AWS backend servers. This will allow the team to perform additional testing on the system as well as ensuring the product is scalable.
Cloud based Deployment	The cloud-based deployment solution will not be able to fulfill all customer requirements on time. Integration with streaming services APIs could quire a legal partnership between the streaming service provider and EntertainMe!. Obtaining permission could be a costly and lengthy process.

	Technical Feasibility
On-Prem Deployment	An On-Prem deployment solution would be technically feasible. All technical requirements would be met on time for the successful completion of the project. The confidence level on the development team is high, based on previous experience using Python and Postgres database on a traditional webapp. Future system updates would be simple and will not require additional training.
Cloud based Deployment	The developers will be required to learn Docker, implementation of Single Sign-On (SSO), and AWS infrastructure configuration in a short amount of time. This is a high risk that could potentially delay the completion of the system.

	Economic Feasibility
On-Prem Deployment	The On-Prem deployment solution would require a one-time hardware purchase. The hardware will consist of two backend servers, one network switch, two monitors, and one Uninterruptible Power Supply (UPS). A hardware wholesale company has agreed to a business partnership that would provide the hardware at no cost, in exchange for advertisement of their products on the EntertainMe! site.
Cloud based Deployment	The cloud-based deployment solution would require multiple monthly costs that the development team would be accountable for. Those costs may include: EC2 instance, Postgres database, and S3 bucket. For a small start-up business, committing monthly payments to infrastructure would be a more costly solution. Furthermore, additional resources would need to be hired, to complete the project.

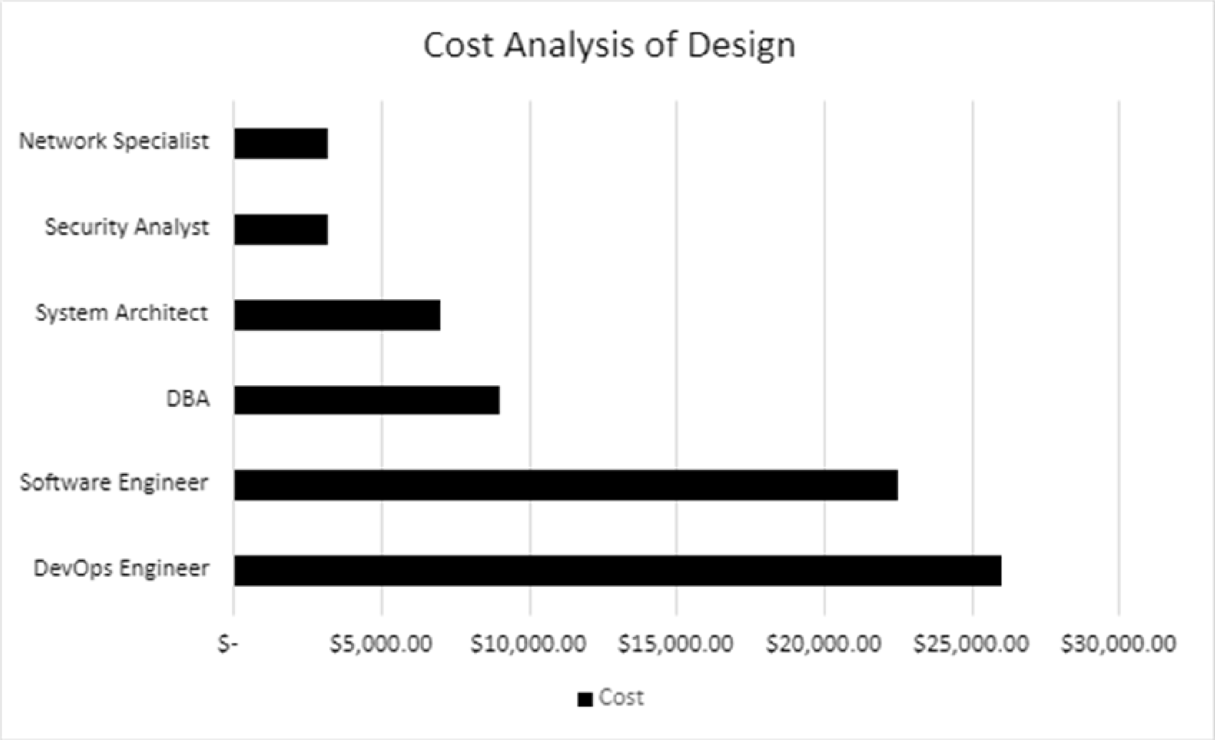
	Schedule Feasibility
On-Prem Deployment	Due to the 12 weeks' timeline for the software development of the system, it has been determined that using On-Prem deployment is the best option for an on-time delivery. The development team has previous experience of building a traditional webapp that could be deployed to an On-Prem backend server.
Cloud based Deployment	Developing a cloud-based containerized solution may be more efficient, in terms of technology and long-term solution. However, due to the short delivery timeline, it's not possible to implement a fully functional product that can also be deployed to the cloud using AWS and docker containers.

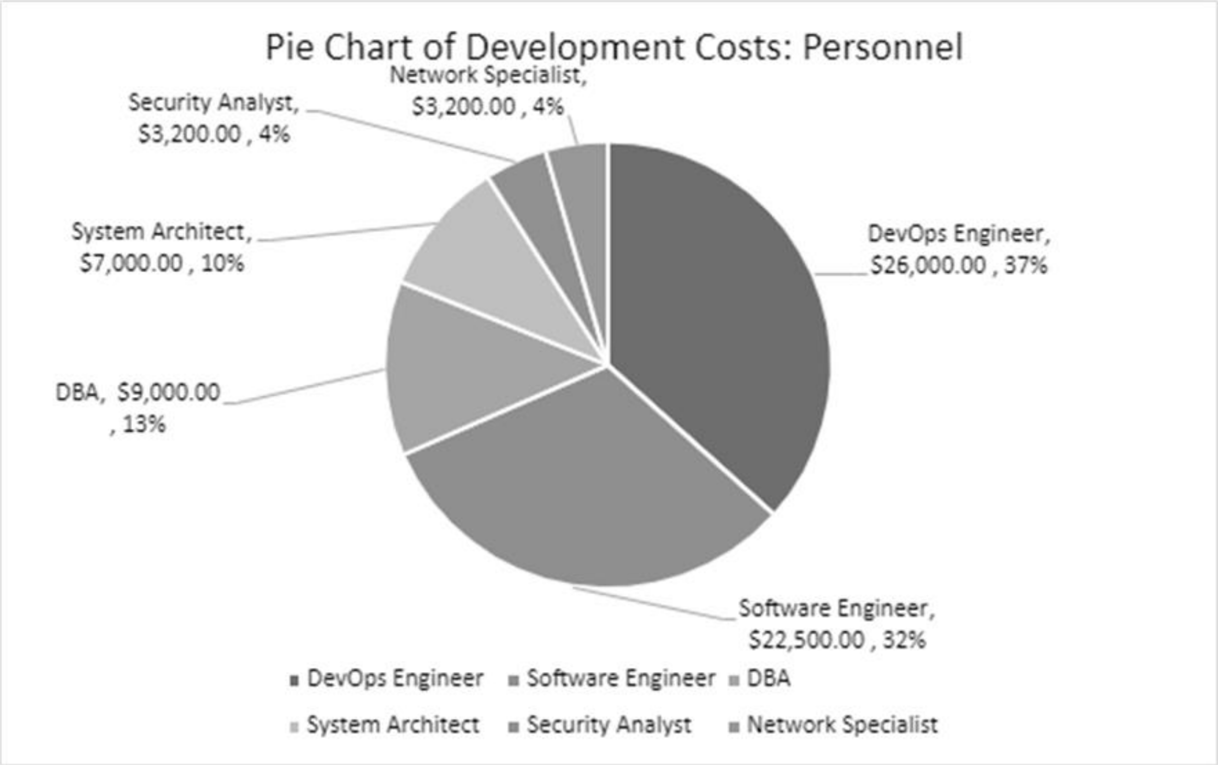
5.2.2. Cost-Benefit Analysis

Estimated Costs for Development and Operations				
Development Costs				
Personnel:	Number:	Hourly Rate:	Hours:	Amount:
System Analyst	1	$65.00	400	=B4*C4*D4
Software Engineer	2	$45.00	250	=B5*C5*D5
DBA	1	$60.00	150	=B6*C6*D6
System Architect	1	$70.00	100	=B7*C7*D7
Security Analyst	1	$40.00	80	=B8*C8*D8
Network Specialist	1	$40.00	80	=B9*C9*D9
Subtotal (Personnel Costs)				**=SUM(E4:E9)**
Equipment and Contract Expenses:	Quantity:	Unit Cost:		Amount:
Laptops	3	$900.00		=B13*C13
SQL Database	2	$900.00		=B14*C14
Monitors	6	$200.00		=B15*C15
Servers	3	$1,500.00		=B16*C16
Subtotal (Equipment Costs)				**=SUM(E13:E16)**
Total Development Costs				**=E17+E10**
Projected Annual Operating Costs				
Personnel:	Number:	Hourly Rate:	Hours:	Amount:
DBA	1	$50.00	100	=B24*C24*D24
System Analyst	2	$65.00	125	=B25*C25*D25
Subtotal (Personnel Costs)				**=SUM(E24:E25)**
Equipment:	Quantity:	Unit Costs:		Amount:
Service Agreement for Server	2	$1,500.00		=B29*C29
Service Agreement for Database (monthly)	12	$300.00		=B30*C30
Subtotal Equipment Costs				**=SUM(E29:E30)**
Total Annual Operating Cost				**=E26+E31**

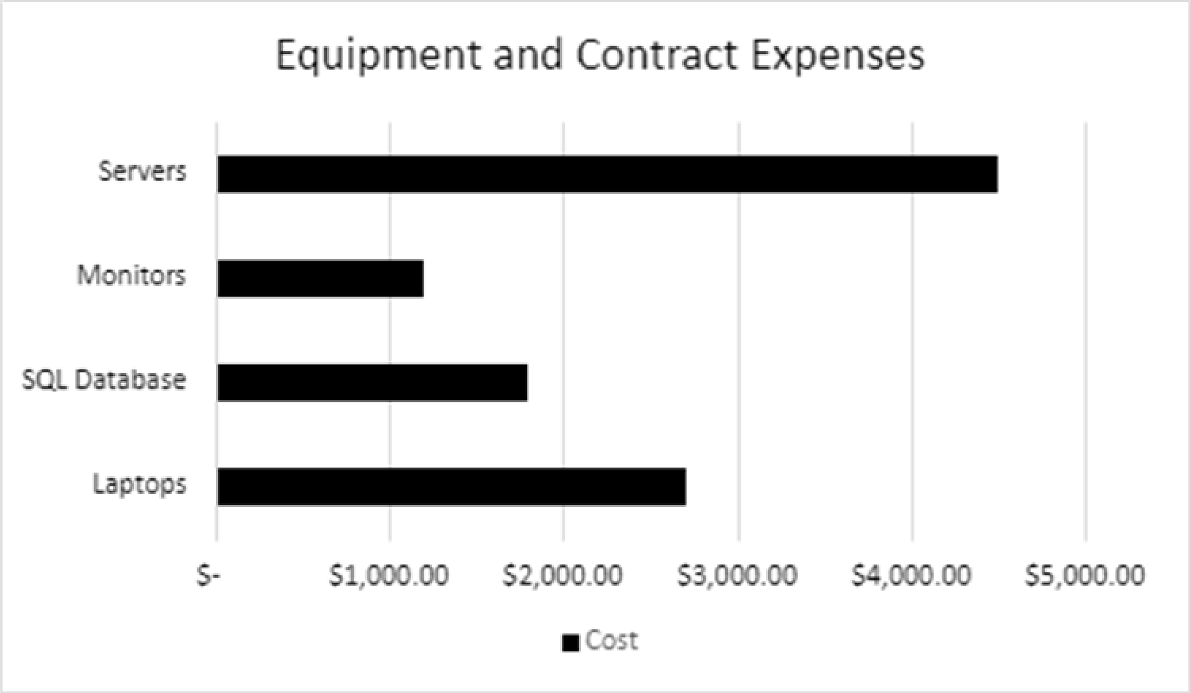
Estimated Costs for Development and Operations				
Development Costs				
Personnel:	Number:	Hourly Rate:	Hours:	Amount:
System Analyst	1	$65.00	400	$26,000.00
Software Engineer	2	$45.00	250	$22,500.00
DBA	1	$60.00	150	$9,000.00
System Architect	1	$70.00	100	$7,000.00
Security Analyst	1	$40.00	80	$3,200.00
Network Specialist	1	$40.00	80	$3,200.00
Subtotal (Personnel Costs)				**$70,900.00**
Equipment and Contract Expenses:	Quantity:	Unit Cost:		Amount:
Laptops	3	$900.00		$2,700.00
SQL Database	2	$900.00		$1,800.00
Monitors	6	$200.00		$1,200.00
Servers	3	$1,500.00		$4,500.00
Subtotal (Equipment Costs)				**$10,200.00**
Total Development Costs				**$81,100.00**
Projected Annual Operating Costs				
Personnel:	Number:	Hourly Rate:	Hours:	Amount:
DBA	1	$50.00	100	$5,000.00
System Analyst	2	$65.00	125	$16,250.00
Subtotal (Personnel Costs)				**$21,250.00**
Equipment:	Quantity:	Unit Costs:		Amount:
Service Agreement for Server	2	$1,500.00		$3,000.00
Service Agreement for Database (monthly)	12	$300.00		$3,600.00
Subtotal Equipment Costs				**$6,600.00**
Total Annual Operating Cost				**$27,850.00**

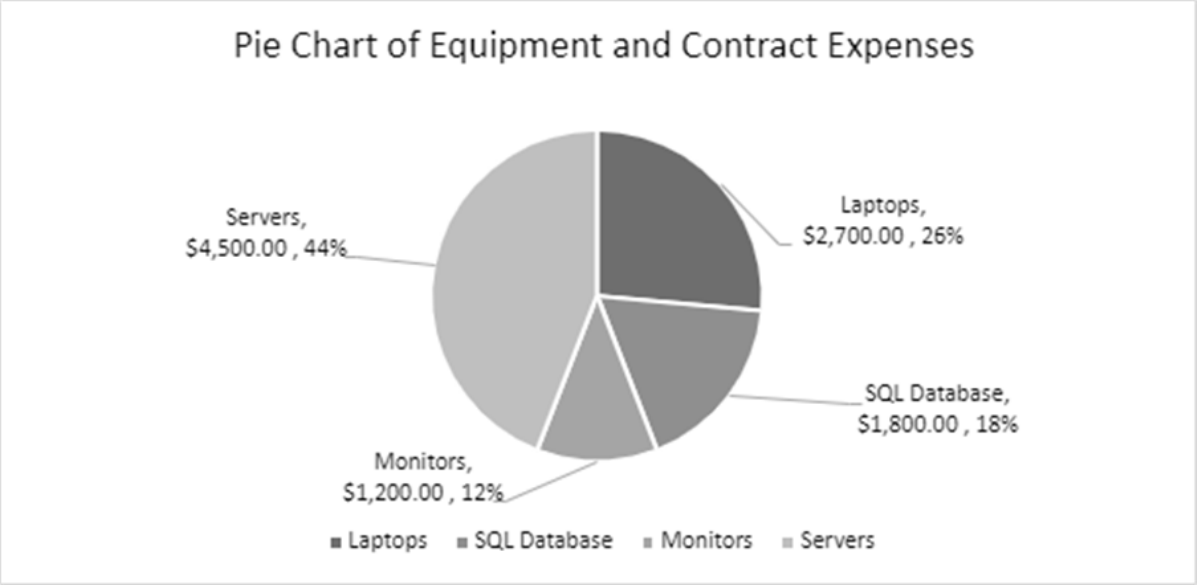
5.2.2.1. Chart cost analysis of design



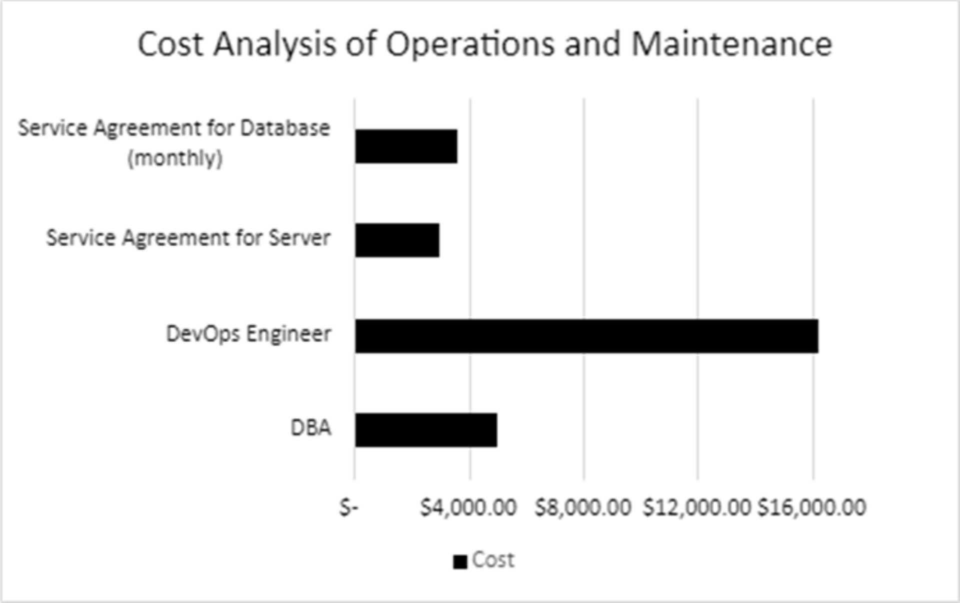


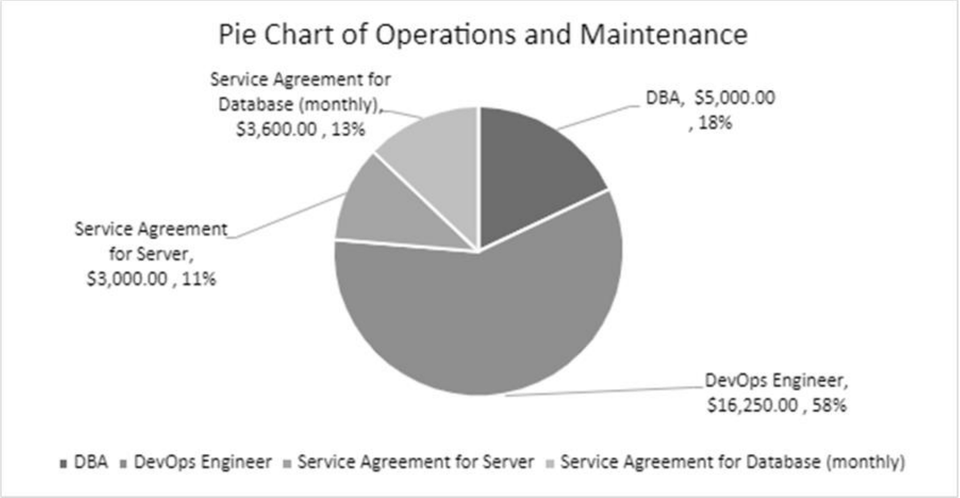
5.2.2.2. Chart cost analysis of hardware, software, miscellaneous purchases





5.2.2.3. Chart cost analysis of system operation, and maintenance





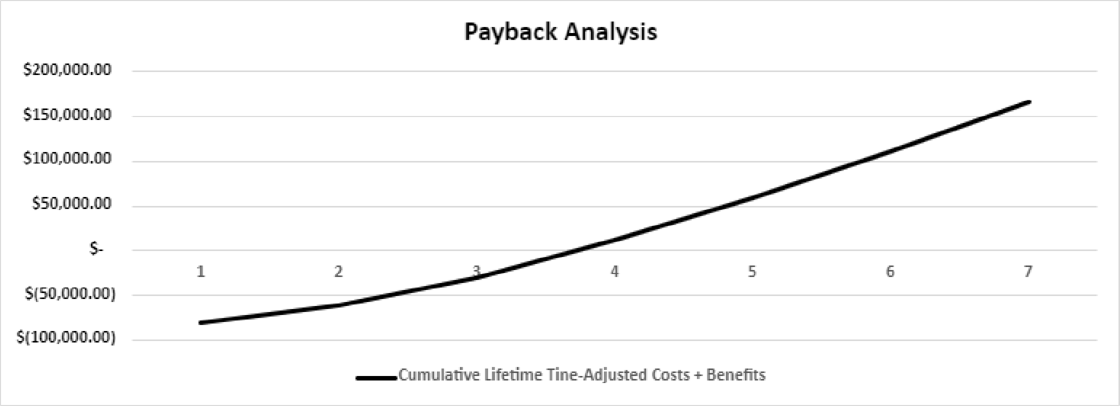
5.2.2.4. Chart cost analysis of training

Our development and operations (DevOps) team will develop a detailed user guide demonstrating the capabilities of the EntertainMe! webapp. The user guide will consist of multiple sections related to how to utilize the different features on the webapp. Furthermore, a 10-minute tutorial video will be created and uploaded to YouTube. The user guide will be available within the webapp along with the short video. The cost of the training material will be factored into the development costs.

5.2.2.5. Analysis of budget, costs, and business benefits

System Payback Analysis							
Year	**0**	**1**	**2**	**3**	**4**	**5**	**6**
Cashflow Description							
Development Cost	=-1*'Estimated Costs'!E20						
Operation & Maintenance Cost		=-1*'Estimated Costs'!E33	=(C5*0.08)+C5	=(D5*0.08)+D5	=(E5*0.08)+E5	=(F5*0.08)+F5	=(G5*0.08)+G5
Discount Rate 12%	1	=1/POWER((1+0.12),C2)	=1/POWER((1+0.12),D2)	=1/POWER((1+0.12),E2)	=1/POWER((1+0.12),F2)	=1/POWER((1+0.12),G2)	=1/POWER((1+0.12),H2)
Present Value of Annual Costs	=B4*B6	=C5*C6	=D5*D6	=E5*E6	=F5*F6	=G5*G6	=H5*H6
Cumulative Time-Adjusted Cost Over Lifetime	**=B7**	**=B8+C7**	**=C8+D7**	**=D8+E7**	**=E8+F7**	**=F8+G7**	**=G8+H7**
Benefits Derived from Operation of System	0	$50,000.00	$70,000.00	$90,000.00	$110,000.00	$130,000.00	$150,000.00
Discount Rate 12%	1	0.893	0.797	0.712	0.636	0.567	0.507
Present Value of Annual Costs	=B10*B11	=C10*C11	=D10*D11	=E10*E11	=F10*F11	=G10*G11	=H10*H11
Cumulative Time-Adjusted Benefits Over Lifetime	**=B12**	**=B13+C12**	**=C13+D12**	**=D13+E12**	**=E13+F12**	**=F13+G12**	**=G13+H12**
Cumulative Lifetime Tine-Adjusted Costs + Benefits	**=B8+B13**	**=C8+C13**	**=D8+D13**	**=E8+E13**	**=F8+F13**	**=G8+G13**	**=H8+H13**

System Payback Analysis							
Year	**0**	**1**	**2**	**3**	**4**	**5**	**6**
Cashflow Description							
Development Cost	$(81,100.00)						
Operation & Maintenance Cost		$(27,850.00)	$(30,078.00)	$(32,484.24)	$(35,082.98)	$(37,889.62)	$(40,920.79)
Discount Rate 12%	1	0.893	0.797	0.712	0.636	0.567	0.507
Present Value of Annual Costs	$(81,100.00)	$(24,866.071)	$(23,977.997)	$(23,121.640)	$(22,295.868)	$(21,499.587)	$(20,731.744)
Cumulative Time-Adjusted Cost Over Lifetime	**$(81,100.00)**	**$(105,966.071)**	**$(129,944.069)**	**$(153,065.709)**	**$(175,361.577)**	**$(196,861.163)**	**$(217,592.908)**
Benefits Derived from Operation of System	0	$50,000.00	$70,000.00	$90,000.00	$110,000.00	$130,000.00	$150,000.00
Discount Rate 12%	1	0.893	0.797	0.712	0.636	0.567	0.507
Present Value of Annual Costs	0	$44,642.86	$55,803.57	$64,060.22	$69,906.99	$73,765.49	$75,994.67
Cumulative Time-Adjusted Benefits Over Lifetime	**0**	**$44,642.86**	**$100,446.43**	**$164,506.65**	**$234,413.64**	**$308,179.13**	**$384,173.80**
Cumulative Lifetime Tine-Adjusted Costs + Benefits	**$(81,100.00)**	**$(61,323.21)**	**$(29,497.64)**	**$11,440.94**	**$59,052.06**	**$111,317.97**	**$166,580.89**



Net Present Value System Analysis							
Year	**0**	**1**	**2**	**3**	**4**	**5**	**6**
Cashflow Description							
Development Cost	=-1*'Estimated Costs'!E20						
Operation & Maintenance Cost		=-1*'Estimated Costs'!E33	=(C5*0.08)+C5	=(D5*0.08)+D5	=(E5*0.08)+E5	=(F5*0.08)+F5	=(G5*0.08)+G5
Discount Rate 12%	1	=1/POWER((1+0.12),C2)	=1/POWER((1+0.12),D2)	=1/POWER((1+0.12),E2)	=1/POWER((1+0.12),F2)	=1/POWER((1+0.12),G2)	=1/POWER((1+0.12),H2)
Present Value of Annual Costs	=B4*B6	=C5*C6	=D5*D6	=E5*E6	=F5*F6	=G5*G6	=H5*H6
Total Present Value of Lifetime Costs							**=SUM(B7:H7)**
Benefits Derived from Operation of System	0	$50,000.00	$70,000.00	$90,000.00	$110,000.00	$130,000.00	$150,000.00
Discount Rate 12%	1	0.893	0.797	0.712	0.636	0.567	0.507
Present Value of Annual Costs	=B10*B11	=C10*C11	=D10*D11	=E10*E11	=F10*F11	=G10*G11	=H10*H11
Total Present Value of Lifetime Costs							**=SUM(B12:H12)**
NET PRESENT VALUE							**=H8+H13**

Net Present Value System Analysis							
Year	**0**	**1**	**2**	**3**	**4**	**5**	**6**
Cashflow Description							
Development Cost	$(81,100.00)						
Operation & Maintenance Cost		$(27,850.00)	$(30,078.00)	$(32,484.24)	$(35,082.98)	$(37,889.62)	$(40,920.79)
Discount Rate 12%	1	0.893	0.797	0.712	0.636	0.567	0.507
Present Value of Annual Costs	$(81,100.00)	$(24,866.071)	$(23,977.997)	$(23,121.640)	$(22,295.868)	$(21,499.587)	$(20,731.744)
Total Present Value of Lifetime Costs							**$(217,592.91)**
Benefits Derived from Operation of System	$-	$50,000.00	$70,000.00	$90,000.00	$110,000.00	$130,000.00	$150,000.00
Discount Rate 12%	1	0.893	0.797	0.712	0.636	0.567	0.507
Present Value of Annual Costs	$-	$44,642.86	$55,803.57	$64,060.22	$69,906.99	$73,765.49	$75,994.67
Total Present Value of Lifetime Costs							**$384,173.80**
NET PRESENT VALUE							**$166,580.89**

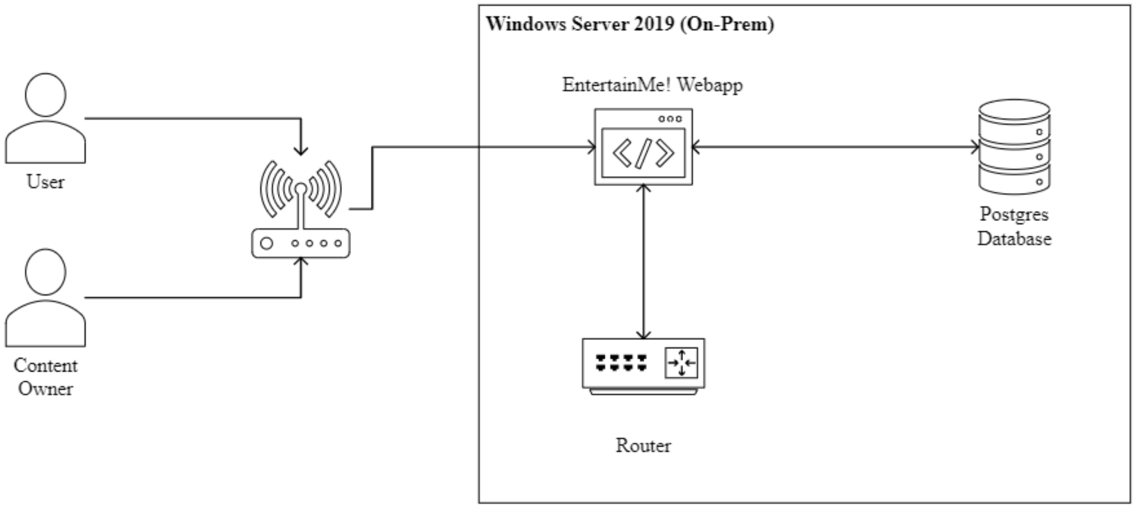
5.3. Recommend a final "best" solution

The recommended solution is a traditional web application that can be hosted on an On-Prem backend server. The decision was made using several factors such as schedule, operational costs, available budget, staff experience and product requirements.

6.0 Design Phase

6.1. Design the application architecture

The application architecture is hosted on an On-Prem Windows Server and will not interface with any external APIs. The database type is Postgres and will be initially provisioned using open-source datasets and will be managed by the system administrator. Content owners will have limited access to the database, to allow them to add or remove titles. For security reasons, payment information will not be stored on the database.



6.1.1. Networks - intranet and/or internet

- The user and content owner will use a PC or Laptop to access the application via a web browser that is connected to a network.
- The EntertainMe! Webapp and Postgres database will be hosted on a Windows Server 2019 (On-Prem).
- The server will be connected to the Network using a hardwired Ethernet connection.

6.1.2. Database distribution - client/server or network

- A Windows server will be used to for hosting the database locally.
- The Windows server will be hosted On-Prem.
- The Windows server will be accessible only by the system administrators using Remote Desktop Connection (RDP).

6.1.3. Customization and integration of "off the shelf" software

Postgres SQL will be used for the application and will be managed by the system administrators.

6.1.4. User interface technology – with other users

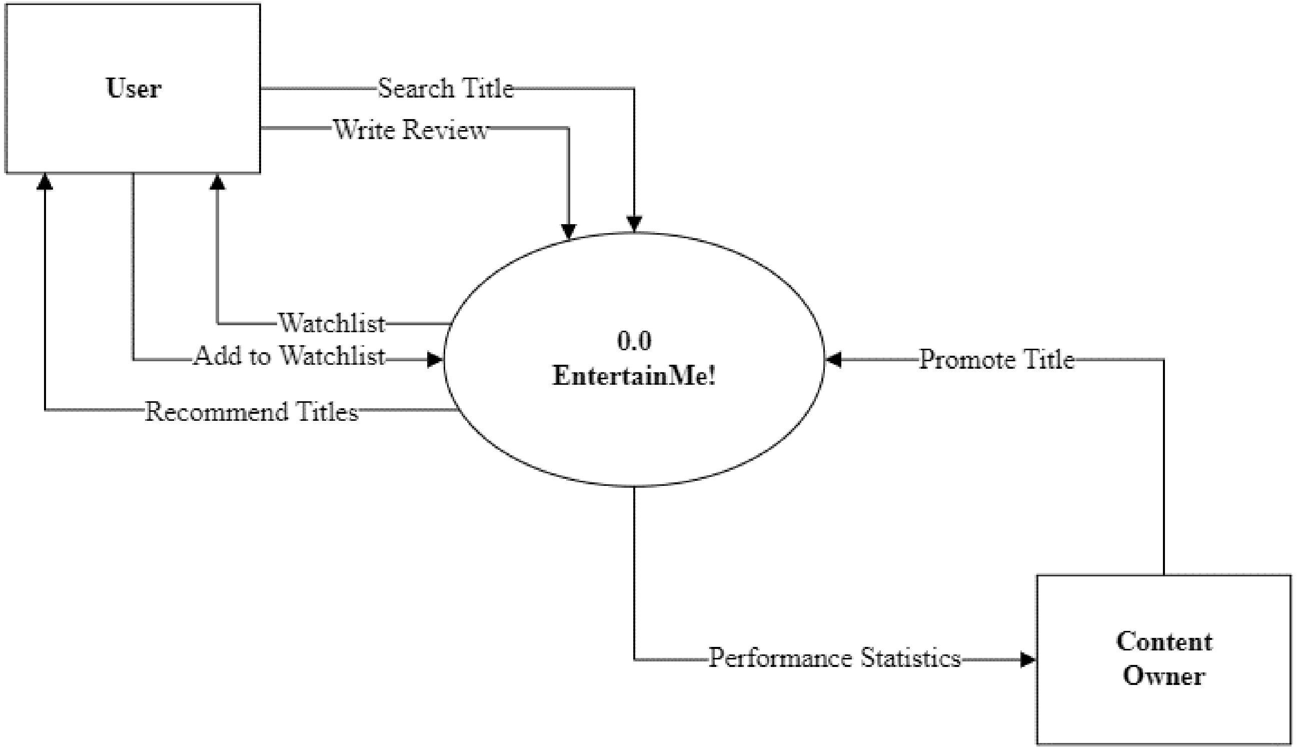
The interface technology will be a web browser available on PCs and Laptops. The system users will get regular access to the application. The content owner will have additional access to allow for content management. The system admins will have admin access which will provide full capabilities of the webapp as well as additional administrator access.

6.1.5. System interface technology – with other systems

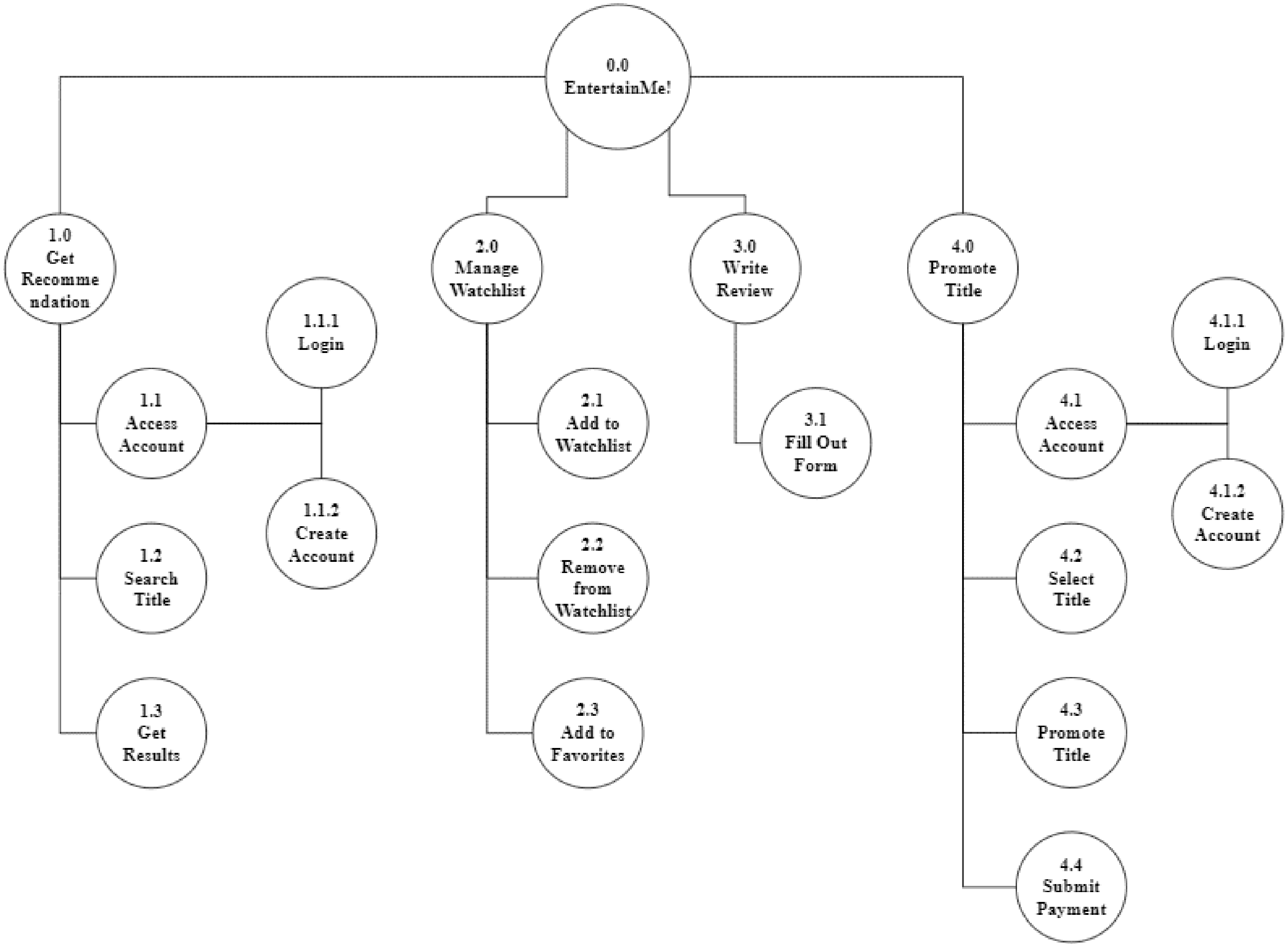
The system will not interface with any other system.

6.2. Construct detailed models

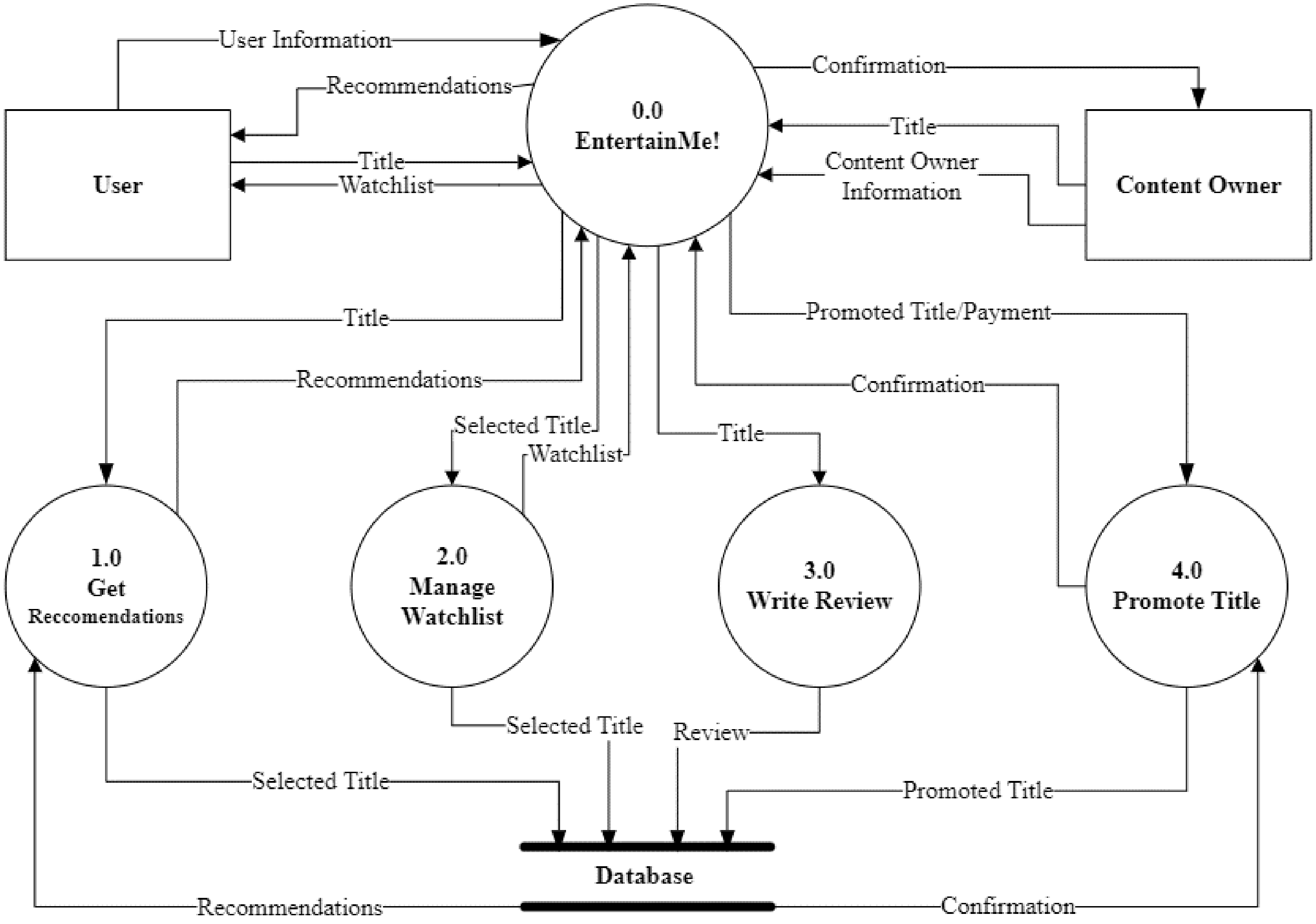
6.2.1. Context model

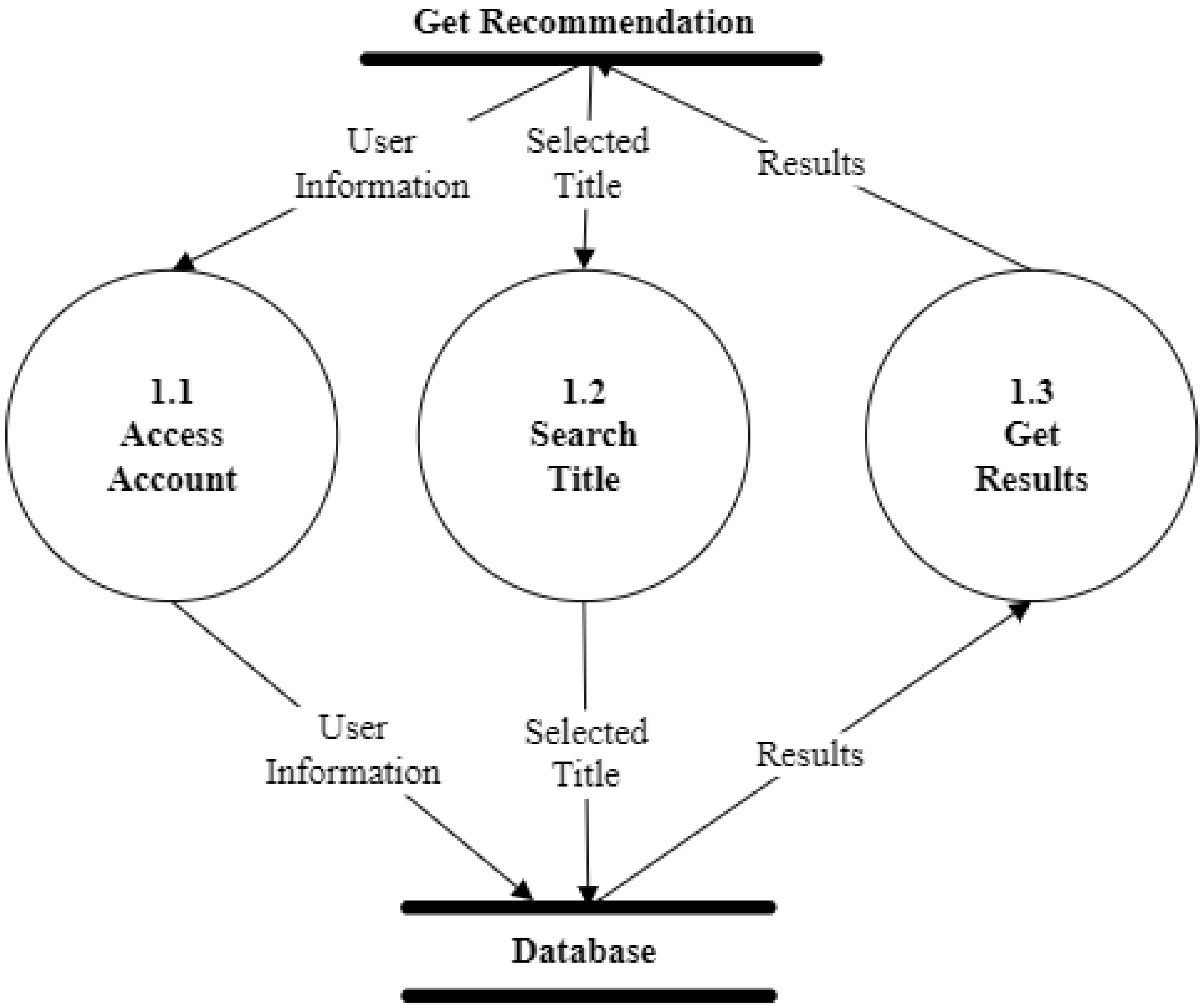


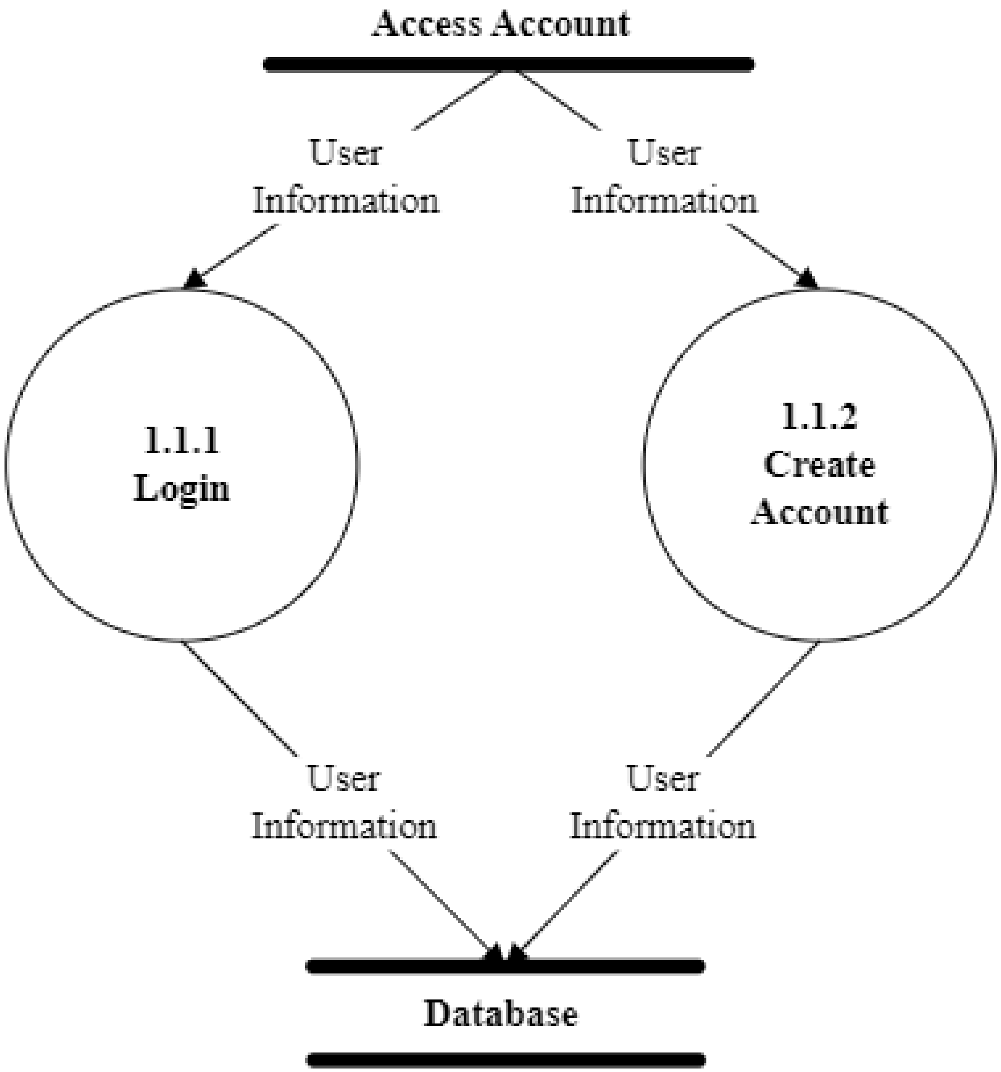
6.2.2. Data flow diagram (DFD)

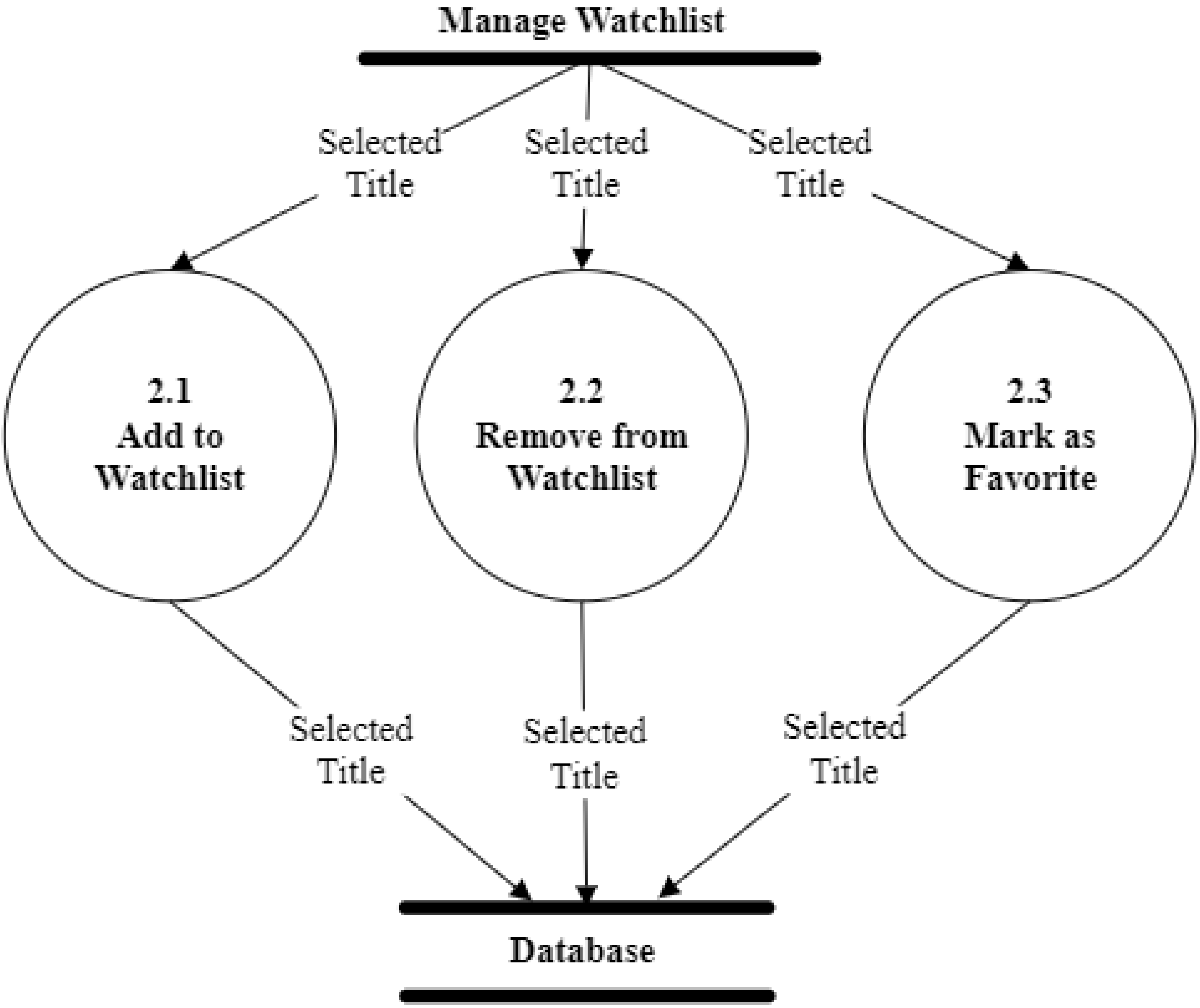


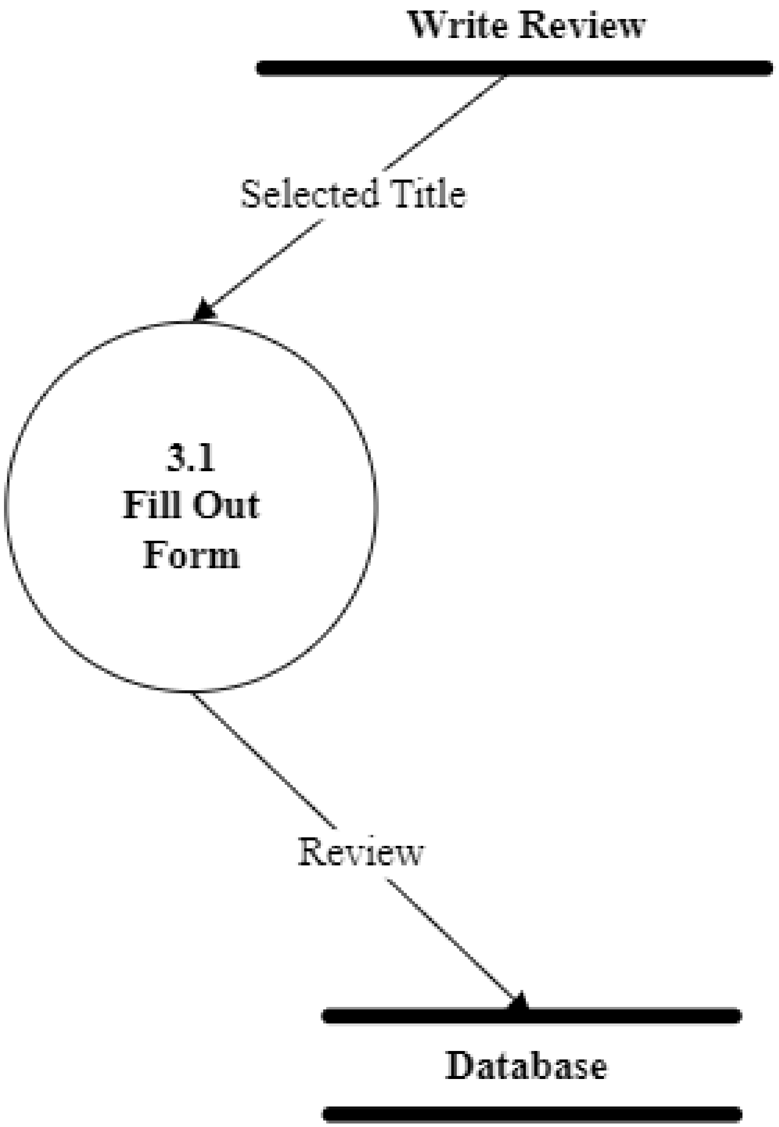
DFD - Level 0

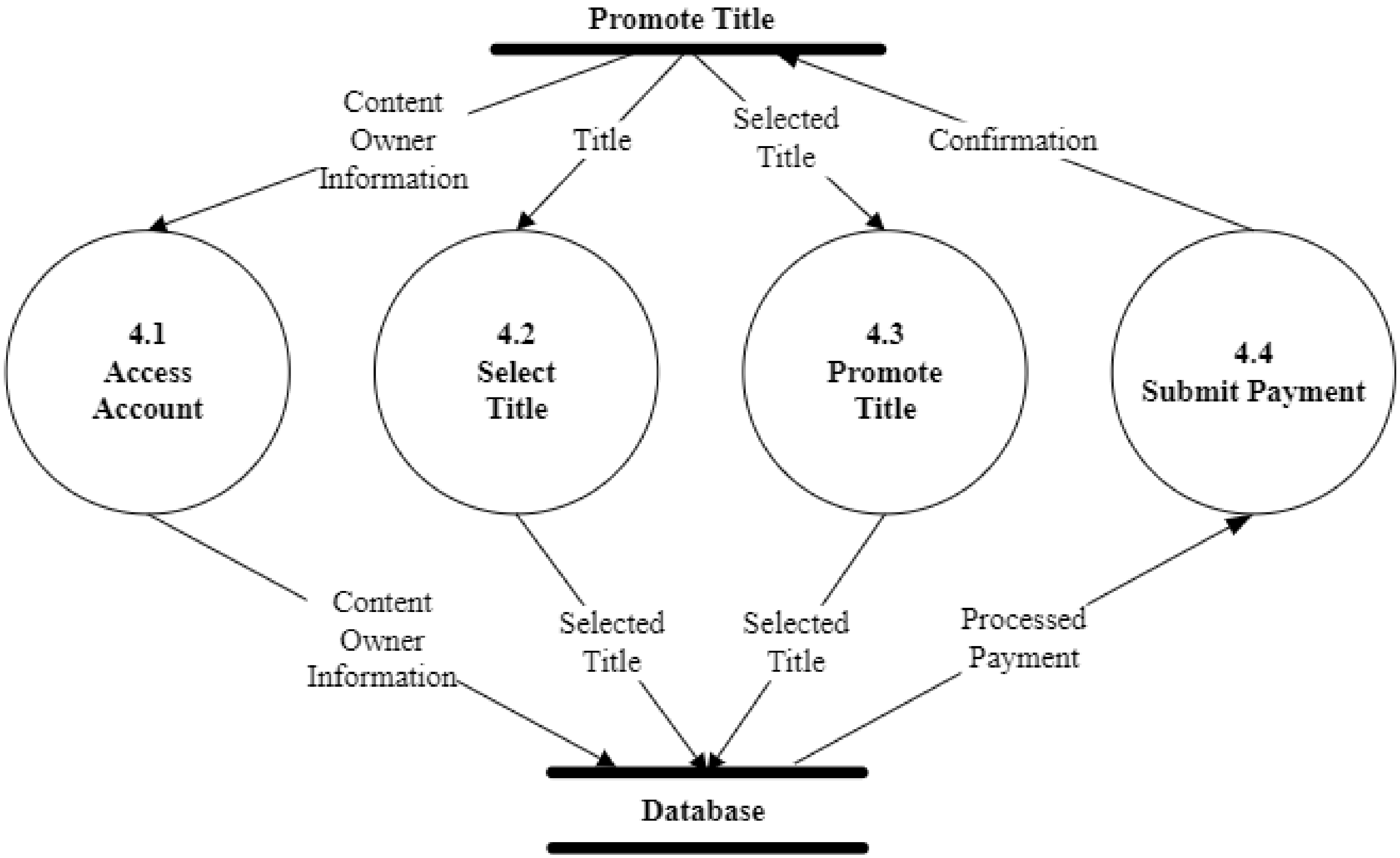

User Information
Recommendations
User
Title
Watchlist
0.0
EntertainMe!
Confirmation
Title
Content Owner
Information
Content Owner
Title
Recommendations
Selected Title
Watchlist
Title
Promoted Title/Payment
Confirmation
1.0
Get
Reccomendations
2.0
Manage
Watchlist
3.0
Write Review
4.0
Promote Title
Selected Title
Review
Selected Title
Promoted Title
Database
Recommendations
Confirmation


Get Recommendation
User Information
Selected Title
Results
1.1 Access Account
1.2 Search Title
1.3 Get Results
User Information
Selected Title
Results
Database

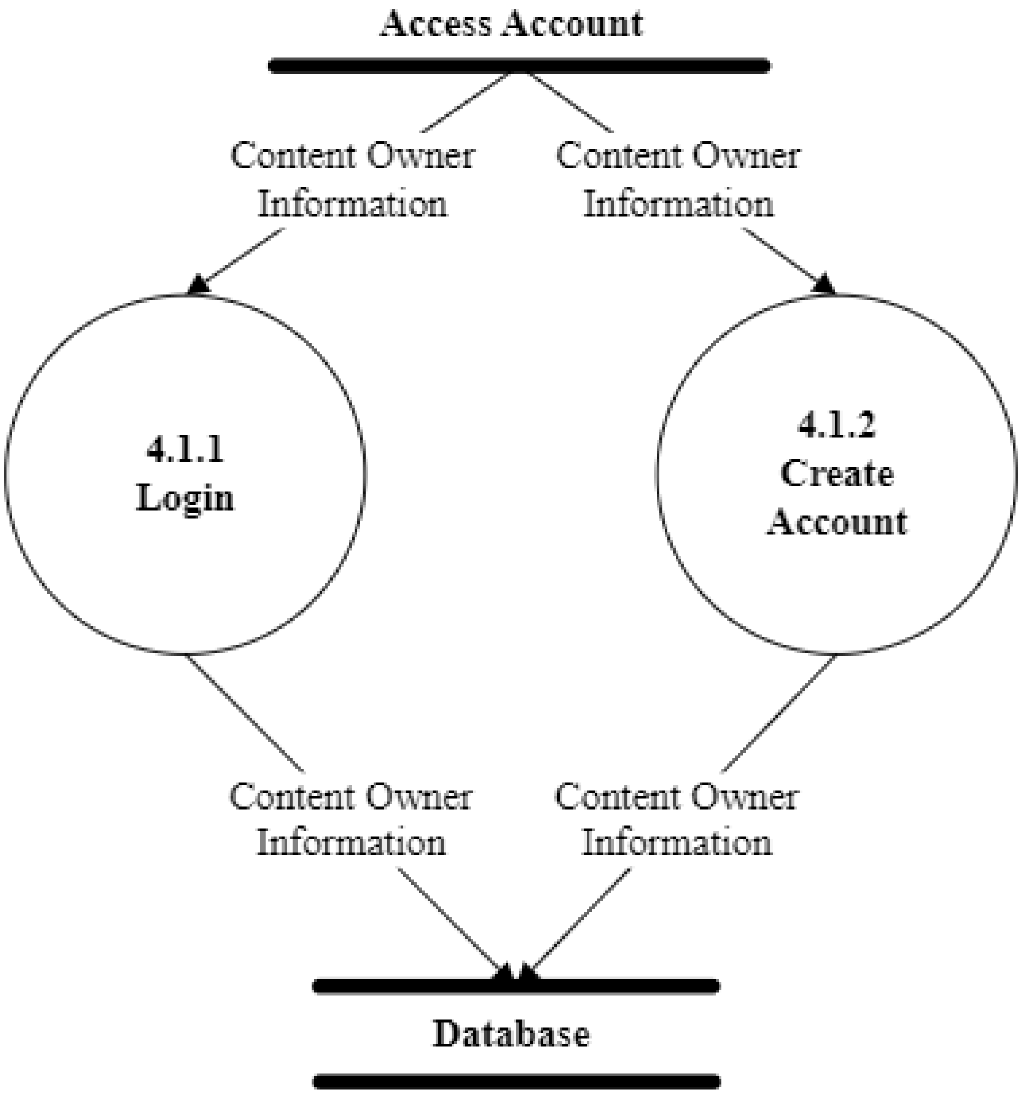

Access Account
User Information
User Information
1.1.1 Login
1.1.2 Create Account
User Information
User Information
Database


Manage Watchlist
Selected Title
Selected Title
Selected Title
2.1 Add to Watchlist
2.2 Remove from Watchlist
2.3 Mark as Favorite
Selected Title
Selected Title
Selected Title
Database

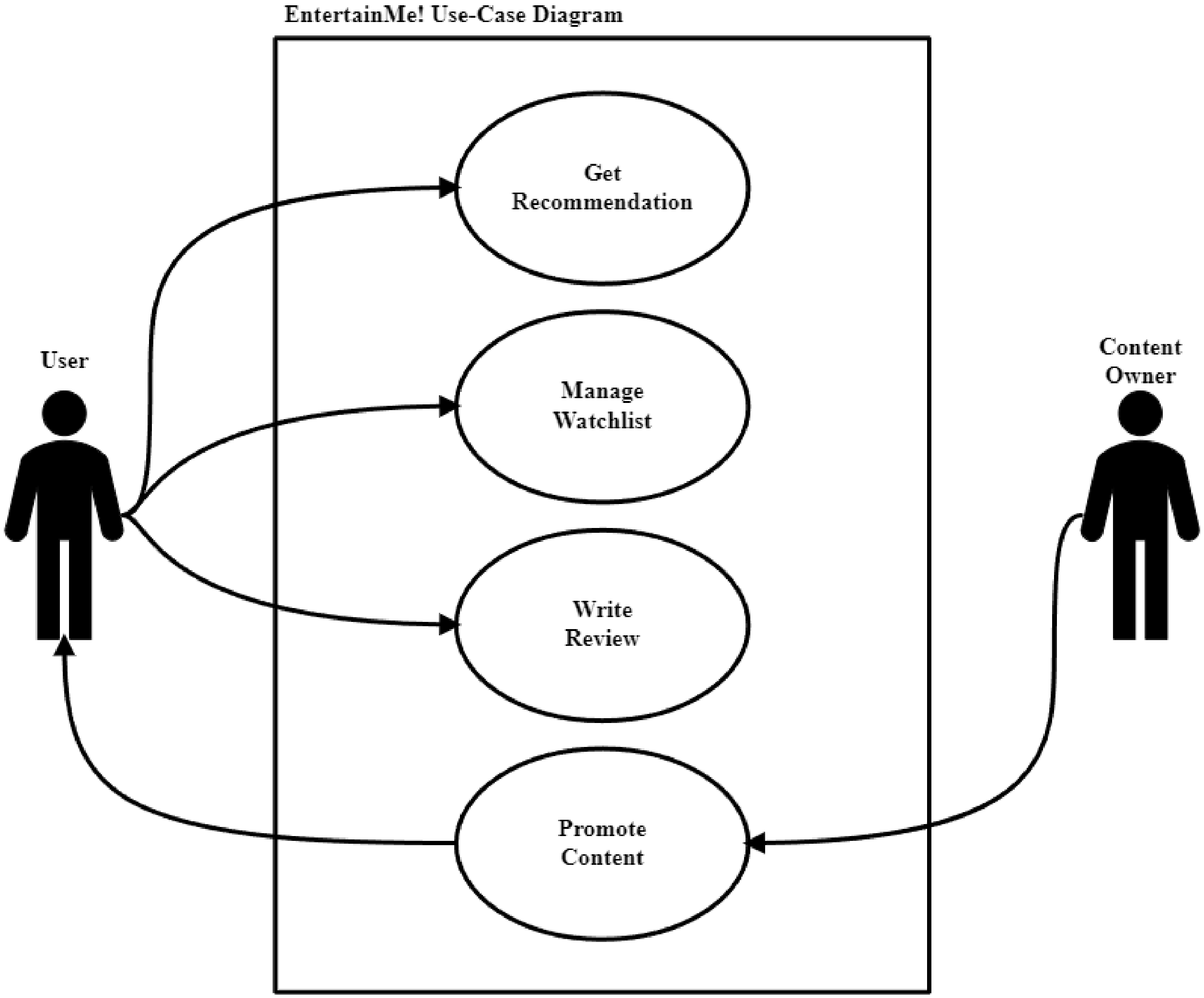

Write Review
Selected Title
3.1
Fill Out
Form
Review
Database



Promote Title
Content Owner Information
Title
Selected Title
Confirmation
4.1 Access Account
4.2 Select Title
4.3 Promote Title
4.4 Submit Payment
Content Owner Information
Selected Title
Selected Title
Processed Payment
Database


Access Account
Content Owner Information
Content Owner Information
4.1.1 Login
4.1.2 Create Account
Content Owner Information
Content Owner Information
Database

6.2.3. Use-Case model diagram with Use-Case narratives



Author(s): Brandon Cassidy	**Date: 03/04/2023**	**Version: 1.0**
Use-Case Name:	Get Recommendations	**Use - Case Type Business Requirements**
Use-Case ID:	EntertainMe01	
Priority:	High	
Source:	User	
Primary Business Actor:	User	
Other Participating Actors:	System	
Other Interested Stakeholders:	N/A	
Description:	This use case describes the process that the user goes through to get recommended content. The user must be logged in to use the system and perform a search. Then they provide a title that they have watched, and our machine learning model will pass back a list of related titles across streaming platforms.	
Precondition:	The user must access the website and login to their account	
Trigger:	This use case is triggered when the use clicks on the page to search for recommendations	
Typical Course of Events:	**Actor Action**	**System Response**
	Step 1: The user must login to the system **Step 3:** The user clicks on the page to perform a search **Step 4:** The user enters a title that they would like to search **Step 6:** The user receives the list of recommended titles	**Step 2:** The system confirms login details and serves the user the home page **Step 5:** The system runs the search title through the machine learning model and serves the results back to the user
Alternate Courses:	**Alt-Step 1:** if authentication fails, user will be redirected to the login page to try again or reset their credentials.	
Conclusion:	This case concludes once the user has received a list of results based on their search	
Postcondition:	results are store in the database for future use.	
Business Rules:	The user must be logged in to use the system.	

Implementation Constraints and Specifications:	GUI for the user, machine learning model that calculates results, database to store search and result data.
Assumptions:	The user will search and select from a list to ensure title exists in our system
Open issues:	N/A

Author(s): Trevor Neal	**Date: 3/3/2023**	**Version: 1.0**
Use-Case Name:	Manage Watchlist	**Use-Case Type Business Requirements**
Use-Case ID:	EntertainMe02	
Priority:	High	
Source:	User	
Primary Business Actor:	User	
Other Participating Actors:	N/A	
Other Interested Stakeholders:	Content Owner	
Description:	This Use-Case describes the steps to manage the watchlist system in EntertainMe!. This system is able to allow the user to add to watchlist, remove from watchlist, and add an item to favorites. When a user clicks on their watchlist, they will see a screen with all the movies/TV shows they have marked as ‘watched’ with the favorites sorted at the top of the list. When a user clicks on any movie on any part of EntertainMe!, they will see an option to add to watchlist along with the item description, reviews and recommendations. If an item is already marked as ‘watched’, there will instead be the option to remove from watchlist.	
Precondition:	The user must have created an account and be logged into EntertainMe!	
Trigger:	This Use-Case is triggered when a user clicks to add, remove, or favorites an item from their watchlist.	
Typical Course of Events:	**Actor Action**	**System Response**
	Step 1: The user selects a title. **Step 3:** The user can select to add to watchlist. **Step 5:** The user can view the items in their watchlist.	**Step 2:** The system checks if the item in in the watchlist and displays information. **Step 4:** When added, the system appends the title to the user’s watchlist in the database. **Step 6:** The database pulls the user’s watchlist and displays content.
Alternate Courses:	**Alt-Step 3:** The user can remove the title from their watchlist. **Alt-Step 4:** When removed, the system removes the title from the user’s watchlist in the database. **Alt-Step 3:** The user can favorite the selected title which moves the title to the front of the watchlist. **Alt-Step 4:** When favorited, the system adds a favorite tag to the item in the user’s watchlist.	
Conclusion:	The Use-Case concludes when the user successfully adds/removes/favorites a selected title.	

Postcondition:	The updated watchlist is tied to the user’s ID in the database.
Business Rules:	The user must be logged in with an account to create a watchlist.
Implementation Constraints and Specifications:	An easy-to-understand GUI for a user to add to watchlist. Encrypted information that allows content to be secure.
Assumptions:	The user will not be able to favorite a show that is not on their watchlist.
Open Issues:	N/A

Author(s): Trevor Neal	**Date: 3/3/2023**	**Version: 1.0**
Use-Case Name:	Write Review	**Use-Case Type Business Requirements**
Use-Case ID:	EntertainMe03	
Priority:	High	
Source:	User	
Primary Business Actor:	Content Owner	
Other Participating Actors:	N/A	
Other Interested Stakeholders:	Content Owner	
Description:	This Use-Case describes the steps to create a review for a selected title. When a user opens a selected title, there will be the option to see prior reviews and write their own. When selecting to write their own, they will need to fill out a quick form. This includes a 5-star system and a comment about the title. When submitted, their review will be considered when recommending content to users.	
Precondition:	The user must have created an account and be logged into EntertainMe!	
Trigger:	This Use-Case is triggered when a user selects a title and presses the 'review' button.	
Typical Course of Events:	**Actor Action**	**System Response**
	Step 1: The user selects a title. **Step 4:** The user can select the write review button. **Step 5:** The user can fill out the review form and submit.	**Step 2:** The system shows reviews by other users. **Step 3:** Option displayed to the user to write their own review. **Step 6:** Review is sent to the system database. **Step 7:** The review is further calculated into the overall rating of that title.
Alternate Courses:	**Alt-Step 3-4:** If the user already has written a review, they can update their review. **Alt-Step 5:** If the user had not added the title to their watchlist, then they cannot submit a review.	
Conclusion:	The Use-Case concludes when the user successfully writes a review and submits to the system.	
Postcondition:	The review is tied to the title and user ID in the database.	
Business Rules:	The user must be registered with an account to write a review.	

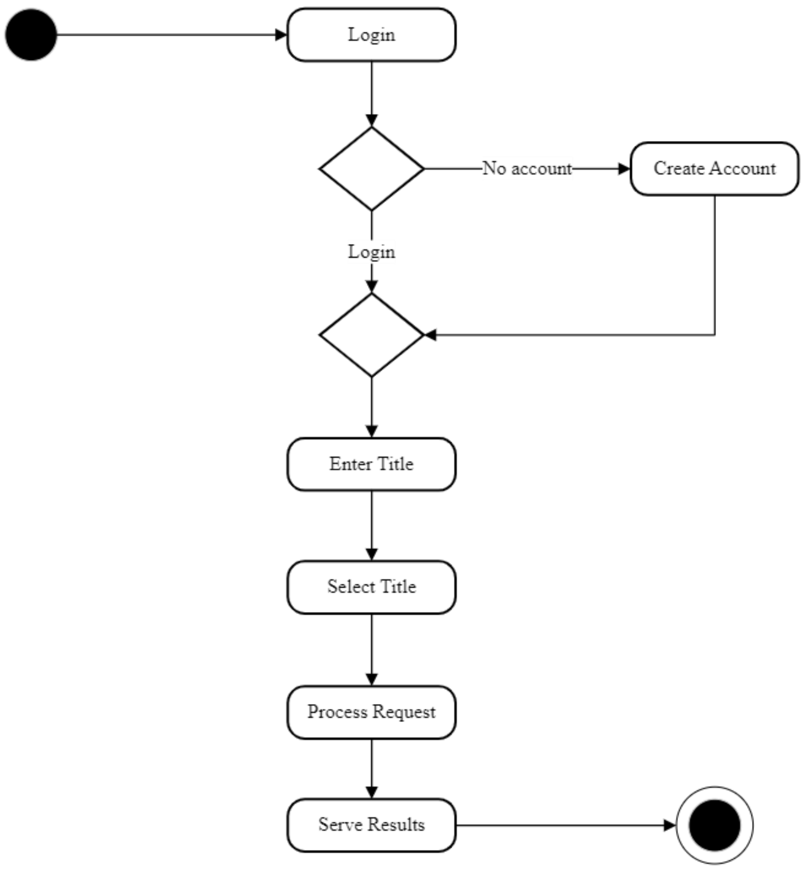
Implementation Constraints and Specifications:	An easy-to-understand GUI for a user to write a review. Encrypted information that allows reviews to be secure.
Assumptions:	The title is already marked as ‘watched’ in the watchlist.
Open Issues:	N/A

Author(s): Remi Rosa	**Date: 3/3/2023**	**Version: 1.0**
Use-Case Name:	Promote Title	**Use-Case Type Business Requirements**
Use-Case ID:	EntertainMe04	
Priority:	Medium	
Source:	Content Owner	
Primary Business Actor:	Content Owner	
Other Participating Actors:	System	
Other Interested Stakeholders:	N/A	
Description:	This use case describes the process that the content owner goes through to promote a title. The content owner must be logged in to use the system and promote a title. To promote a title, they can add a new entry to the system or search from the existing database. The last step would be to submit a payment in order to get the selected title promoted.	
Precondition:	The content owner must access the website and login to their account.	
Trigger:	This use case is triggered when the content owner clicks on the Promote Title page of the webapp	
Typical Course of Events:	**Actor Action**	**System Response**
	Step 1: The content owner must login to the system **Step 3:** The content owner clicks on the page to promote title **Step 4:** The content owner searches for a title that they would like to promote **Step 6:** The content owner selects a title and enters payment information **Step 7:** The content owner submits the payment	**Step 2:** The system confirms login details and serves the content owner the home page **Step 5:** The system serves the results back to the user **Step 8:** The system provides a payment confirmation
Alternate Courses:	**Alt-Step 1:** if authentication fails, content owner will be redirected to the login page to try again or reset their credentials	
Conclusion:	This case concludes once the content owner has received a payment confirmation from the system	
Postcondition:	The system runs an algorithm to promote title on the webapp	

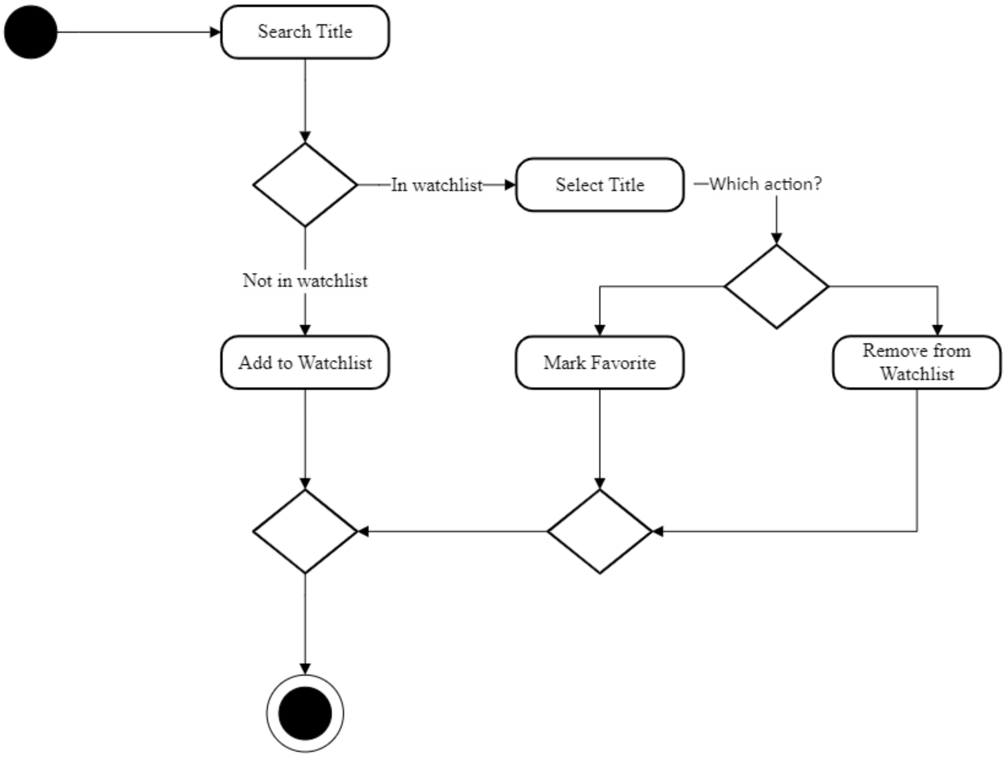
Business Rules:	The content owner must be logged in to use the system
Implementation Constraints and Specifications:	GUI for the content owner view, database to store and search data, payment submission form, backend algorithm to promote title on webapp
Assumptions:	The content owner has agreed to become business partner of EntertainMe!
Open Issues:	N/A

6.2.4. Activity diagrams

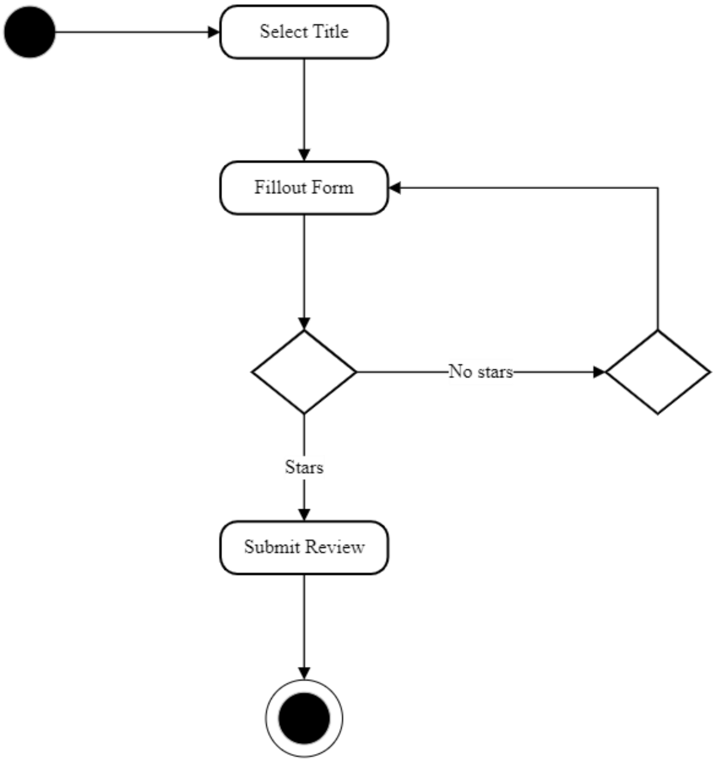
Activity Diagram: 1.0 - Get Recommendations



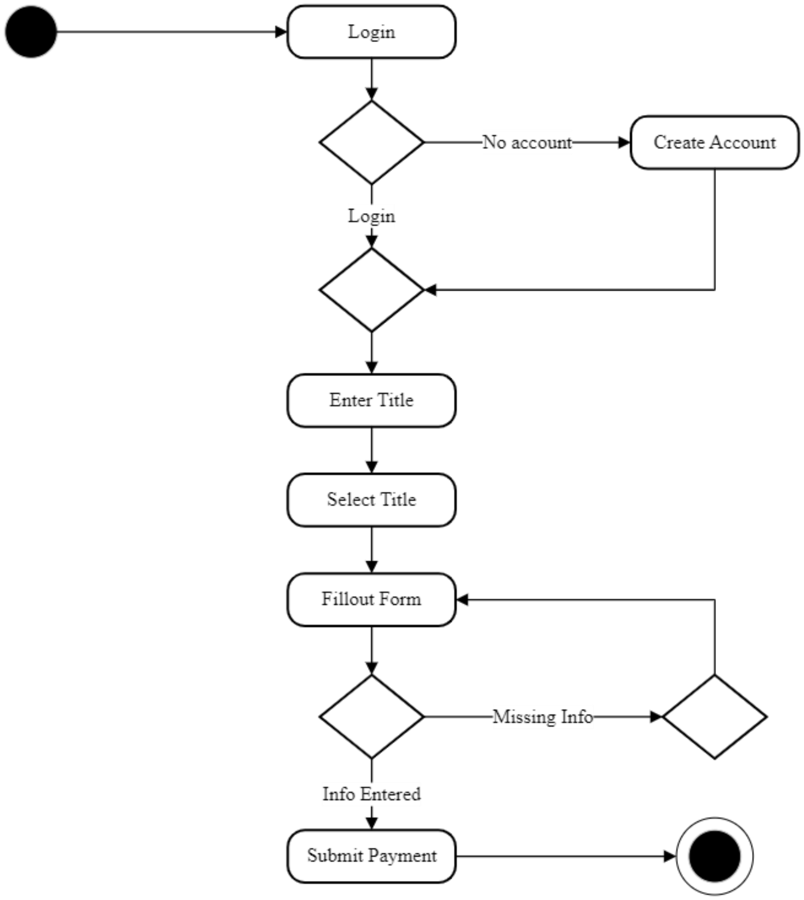
Activity Diagram: 2.0 - Manage Watchlist



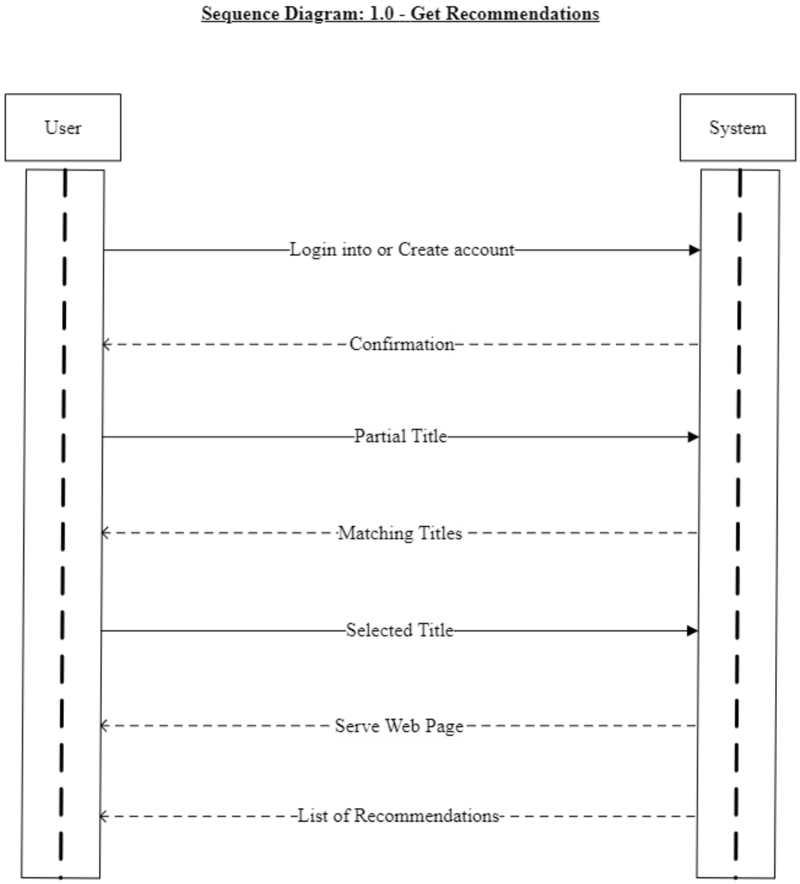
Activity Diagram: 3.0 - Write Review



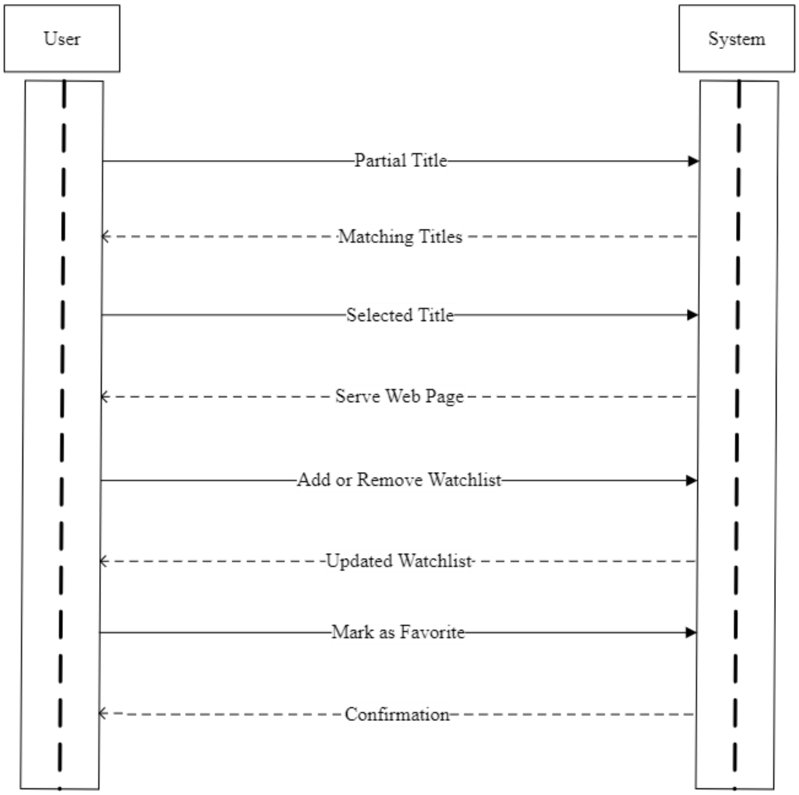
Activity Diagram: 4.0 - Promote Title



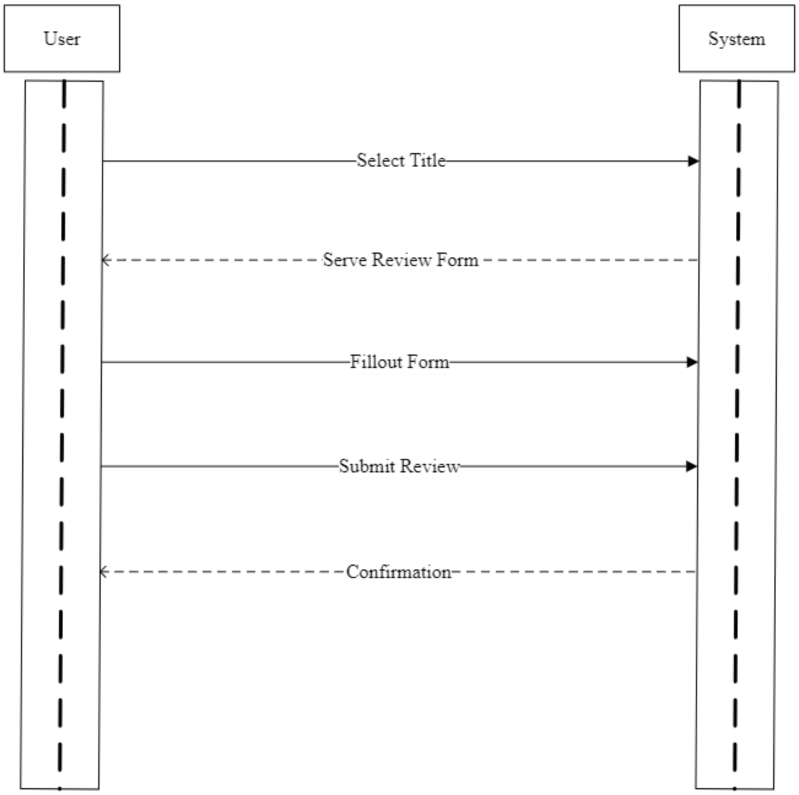
6.2.5. Sequence diagrams



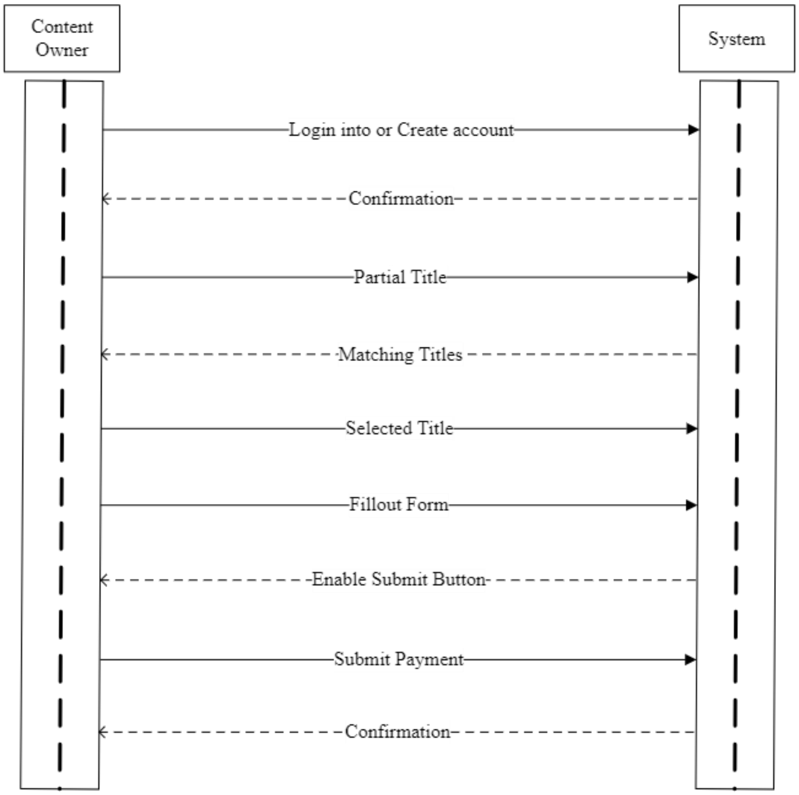
Sequence Diagram: 2.0 - ManageWatchlist



Sequence Diagram: 3.0 - WriteReview

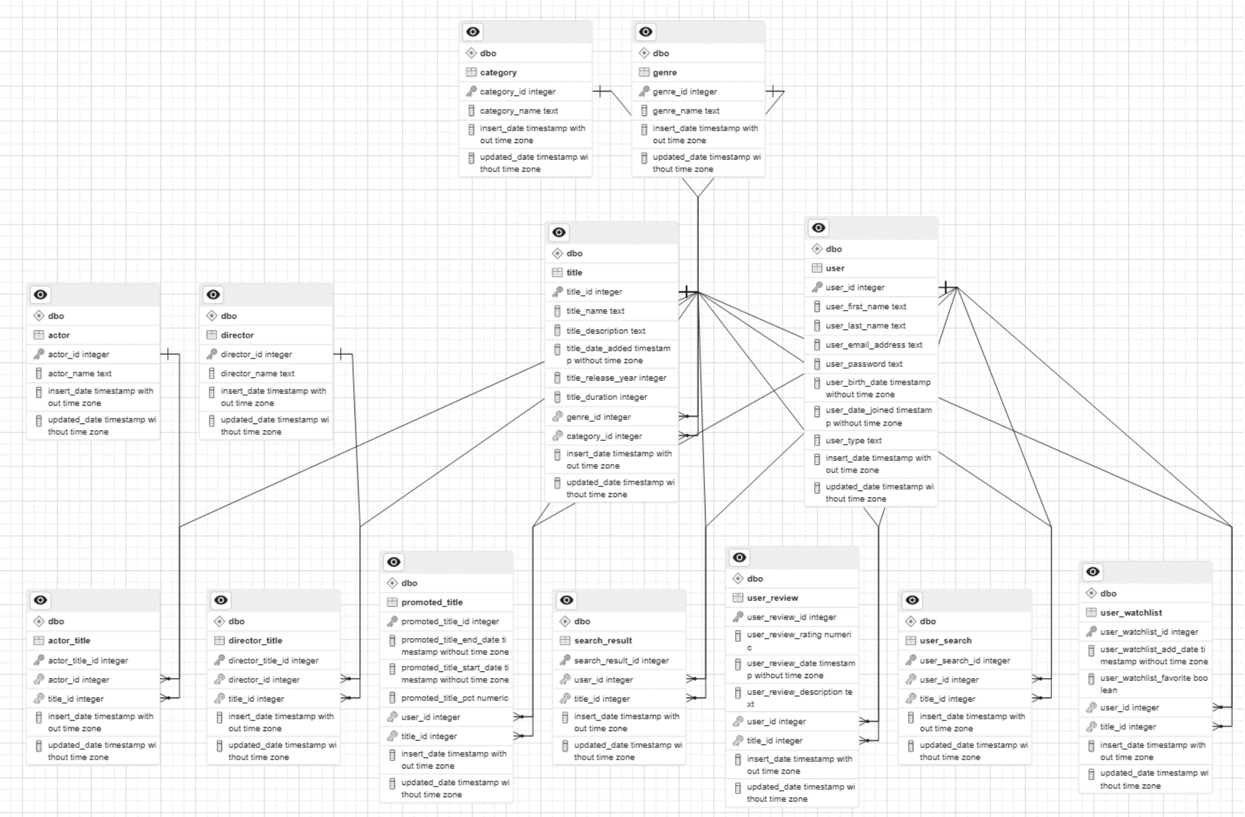


Sequence Diagram: 4.0 - Promote Title



6.3. Design the system database

6.3.1. Construct the detailed entity relationship (ER) diagram


dbo
category
category_id integer
category_name text
insert_date timestamp without time zone
updated_date timestamp without time zone
dbo
genre
genre_id integer
genre_name text
insert_date timestamp without time zone
updated_date timestamp without time zone
dbo
title
title_id integer
title_name text
title_description text
title_date_added timestamp without time zone
title_release_year integer
title_duration integer
genre_id integer
category_id integer
insert_date timestamp without time zone
updated_date timestamp without time zone
dbo
user
user_id integer
user_first_name text
user_last_name text
user_email_address text
user_password text
user_birth_date timestamp without time zone
user_date_joined timestamp without time zone
user_type text
insert_date timestamp without time zone
updated_date timestamp without time zone
dbo
actor
actor_id integer
actor_name text
insert_date timestamp without time zone
updated_date timestamp without time zone
dbo
director
director_id integer
director_name text
insert_date timestamp without time zone
updated_date timestamp without time zone
dbo
actor_title
actor_title_id integer
actor_id integer
title_id integer
insert_date timestamp without time zone
updated_date timestamp without time zone
dbo
director_title
director_title_id integer
director_id integer
title_id integer
insert_date timestamp without time zone
updated_date timestamp without time zone
dbo
promoted_title
promoted_title_id integer
promoted_title_end_date timestamp without time zone
promoted_title_start_date timestamp without time zone
promoted_title_pct numeric
user_id integer
title_id integer
insert_date timestamp without time zone
updated_date timestamp without time zone
dbo
search_result
search_result_id integer
user_id integer
title_id integer
insert_date timestamp without time zone
updated_date timestamp without time zone
dbo
user_review
user_review_id integer
user_review_rating numeric
user_review_date timestamp without time zone
user_review_description text
user_id integer
title_id integer
insert_date timestamp without time zone
updated_date timestamp without time zone
dbo
user_search
user_search_id integer
user_id integer
title_id integer
insert_date timestamp without time zone
updated_date timestamp without time zone
dbo
user_watchlist
user_watchlist_id integer
user_watchlist_add_date timestamp without time zone
user_watchlist_favorite boolean
user_id integer
title_id integer
insert_date timestamp without time zone
updated_date timestamp without time zone

6.3.2. Perform the 3 normalization forms, listing dependencies

See Third Normal Form Diagram.

6.3.3. Chart entities, attributes, domain, primary keys and foreign keys

These items are in the data dictionary.

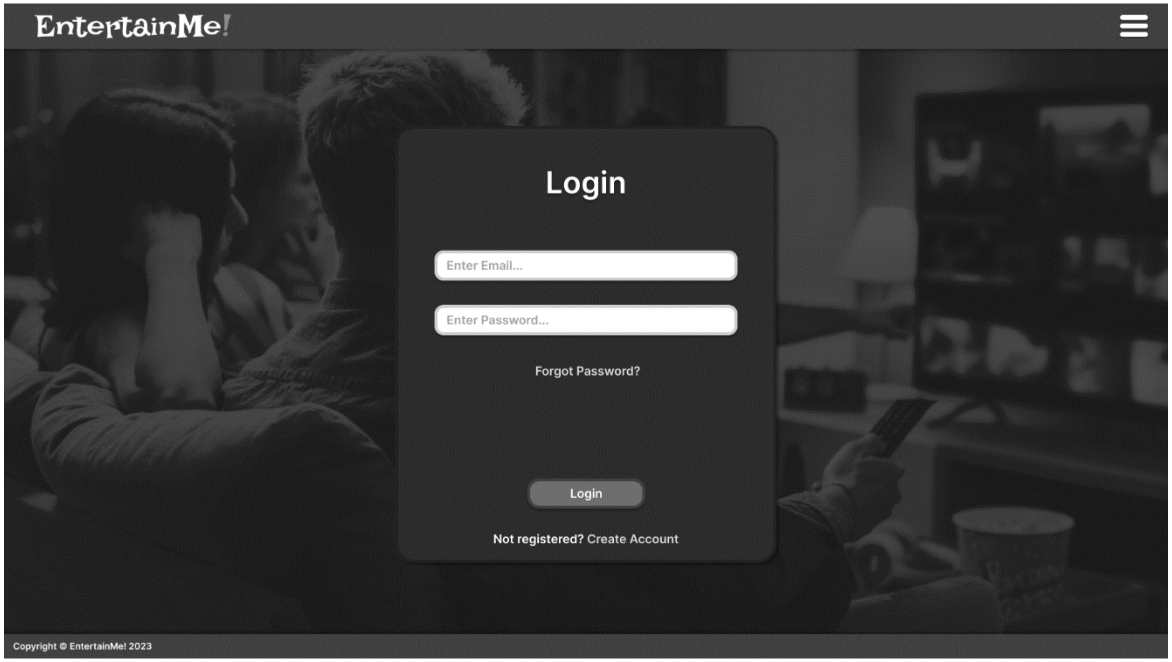
6.3.4. Data dictionary of all the attributes

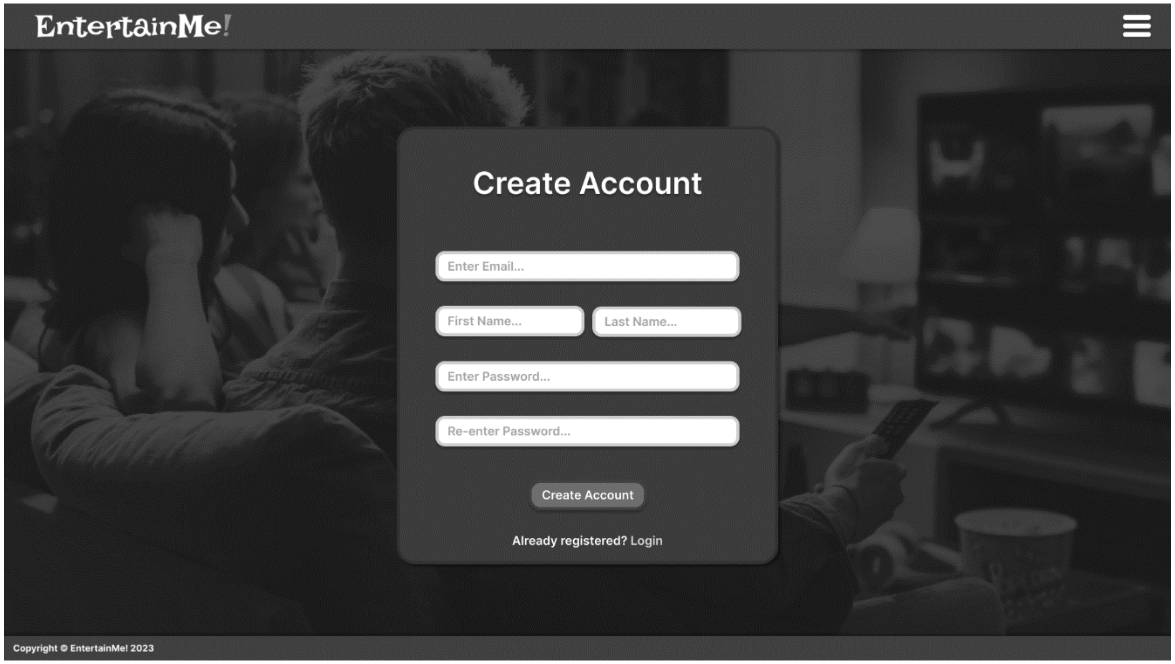
TableName	ColumnName	DataType	PK	FK	Description
dbo.user	user_id	int	Y	N	Primary key of the table
	user_first_name	text	N	N	User's first name
	user_last_name	text	N	N	User's last name
	user_email_address	text	N	N	User's email address and username to the system
	user_password	text	N	N	User's encrypted password
	user_date_joined	timestamp	N	N	Date the user joined EntertainMe
	user_type	text	N	N	Determines if the user is a consumer of the content or a promoter of content
	insert_date	timestamp	N	N	Date record was inserted into the table
	update_date	timestamp	N	N	Date record was updated in the table
dbo.actor	actor_id	int	Y	N	Primary key of the table
	actor_name	text	N	N	Name of the actor
	insert_date	timestamp	N	N	Date record was inserted into the table
	update_date	timestamp	N	N	Date record was updated in the table
dbo.director	director_id	int	Y	N	Primary key of the table
	director_name	text	N	N	Name of the director
	insert_date	timestamp	N	N	Date record was inserted into the table
	update_date	timestamp	N	N	Date record was updated in the table
dbo.genre	genre_id	int	Y	N	Primary key of the table
	genre_name	text	N	N	Name of the genre
	insert_date	timestamp	N	N	Date record was inserted into the table
	update_date	timestamp	N	N	Date record was updated in the table
dbo.category	category_id	int	Y	N	Primary key of the table
	category_name	text	N	N	Name of the category
	insert_date	timestamp	N	N	Date record was inserted into the table
	update_date	timestamp	N	N	Date record was updated in the table
dbo.title	title_id	int	Y	N	Primary key of the table
	title_name	text	N	N	Name of the title

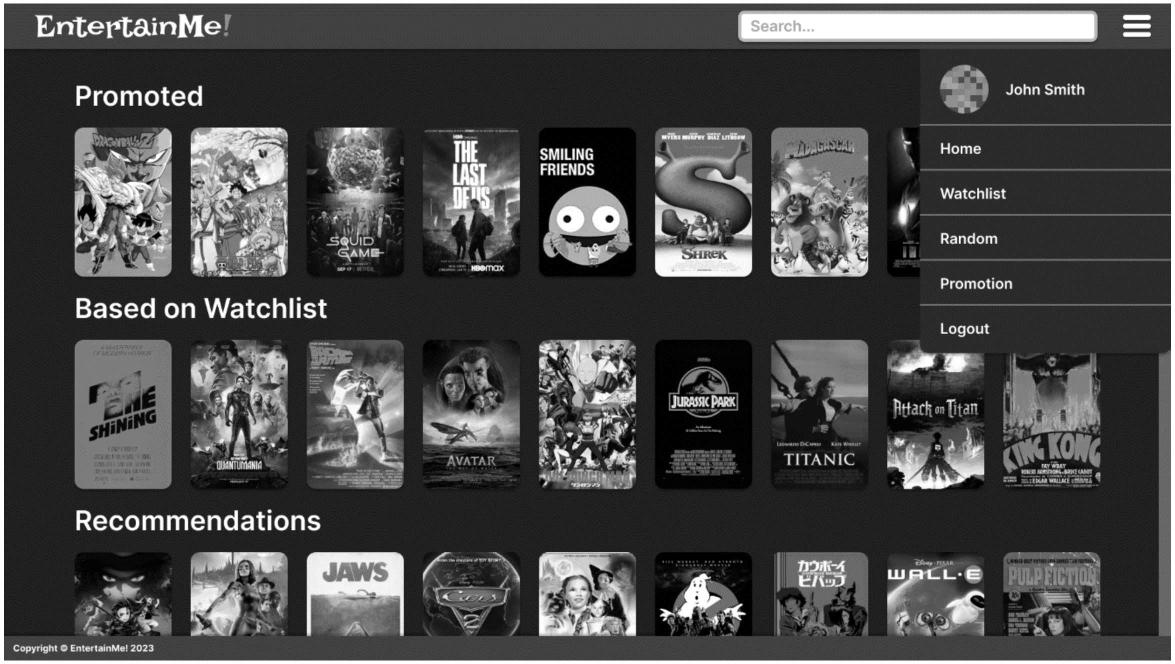
	title_description	text	N	N	Description about the content of the title
	title_date_added	timestamp	N	N	Date the title was added to the streaming service
	title_release_year	int	N	N	The year the title was released
	title_duration	int	N	N	Length of the title. Measured in minutes for movies and seasons for shows.
	title_platform	text	N	N	Which streaming service the title is on
	genre_id	int	N	Y	Foreign key to dbo.genre
	category_id	int	N	Y	Foreign key to dbo.category
	insert_date	timestamp	N	N	Date record was inserted into the table
	update_date	timestamp	N	N	Date record was updated in the table
dbo.user_review	user_review_id	int	Y	N	Primary key of the table
	user_review_rating	decimal	N	N	Number of stars provided by user
	user_review_date	timestamp	N	N	Date the review was submitted
	user_review_description	text	N	N	Text field for user to enter their thoughts and criticisms of the title
	title_id	int	N	Y	Foreign key to dbo.title
	user_id	int	N	Y	Foreign key to dbo.user
	insert_date	timestamp	N	N	Date record was inserted into the table
	update_date	timestamp	N	N	Date record was updated in the table
dbo.user_watchlist	user_watchlist_id	int	Y	N	Primary key of the table
	user_watchlist_add_date	timestamp	N	N	Date user added a title to their watchlist
	user_watchlist_favorite	boolean	N	N	Boolean that user toggles to mark title as one of their favorites
	title_id	int	N	Y	Foreign key to dbo.title
	user_id	int	N	Y	Foreign key to dbo.user
	insert_date	timestamp	N	N	Date record was inserted into the table
	update_date	timestamp	N	N	Date record was updated in the table
dbo.actor_title	actor_title_id	int	Y	N	Primary key of the table
	actor_id	int	N	Y	Foreign key to dbo.actor
	title_id	int	N	Y	Foreign key to dbo.title

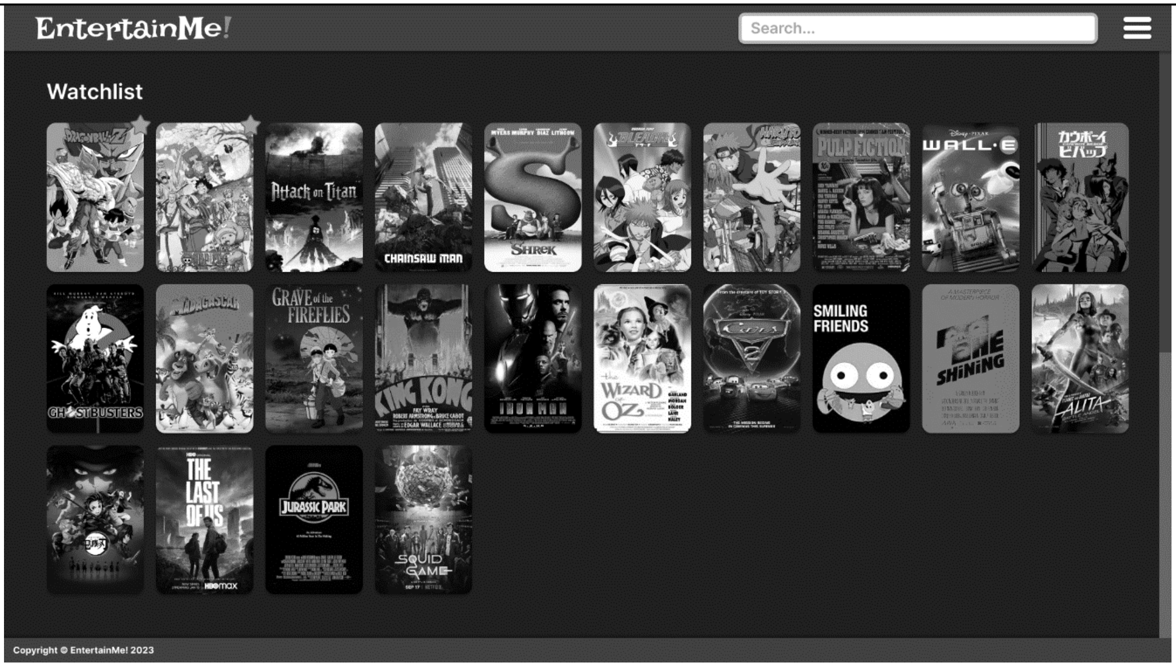
	insert_date	datetime	N	N	Date record was inserted into the table
	update_date	datetime	N	N	Date record was updated in the table
dbo.director_title	director_title_id	int	Y	N	Primary key of the table
	director_id	int	N	Y	Foreign key to dbo.director
	title_id	int	N	Y	Foreign key to dbo.title
	insert_date	datetime	N	N	Date record was inserted into the table
	update_date	datetime	N	N	Date record was updated in the table
dbo.user_search	user_search_id	int	Y	N	Primary key of the table
	user_id	int	N	Y	Foreign key to dbo.user
	title_id	int	N	Y	Foreign key to dbo.title
	insert_date	timestamp	N	N	Date record was inserted into the table
	update_date	timestamp	N	N	Date record was updated in the table
dbo.search_results	search_result_id	int	Y	N	Primary key of the table
	user_id	int	N	Y	Foreign key to dbo.user
	title_id	int	N	Y	Foreign key to dbo.title
	insert_date	timestamp	N	N	Date record was inserted into the table
	update_date	timestamp	N	N	Date record was updated in the table
dbo.promoted_title	promoted_title_id	int	Y	N	Primary key of the table
	promoted_title_end_date	datetime	N	N	The date to end promoting the title
	promoted_title_start_date	datetime	N	N	The date to start promoting the title
	promoted_title_pct	decimal	N	N	Percentage (and cost) that a promoter chooses on how high to consider a title when generating recommendations
	title_id	int	N	Y	Foreign key to dbo.title
	user_id	int	N	Y	Foreign key to dbo.user
	insert_date	datetime	N	N	Date record was inserted into the table
	update_date	datetime	N	N	Date record was updated in the table

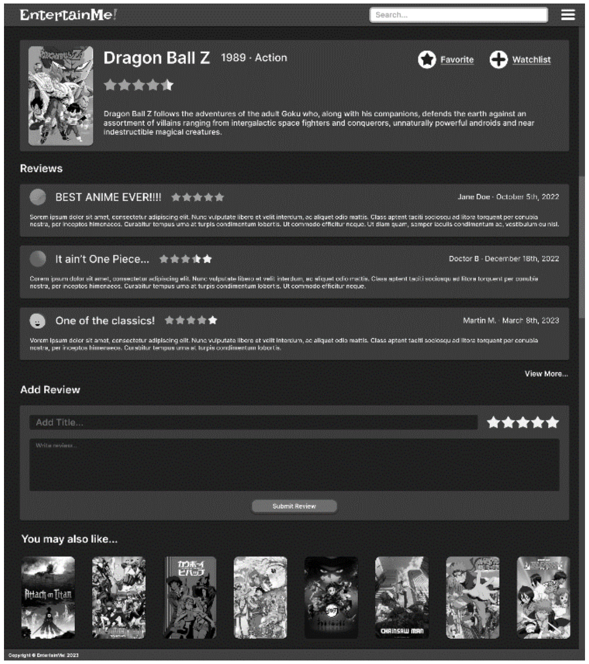
6.4. Design the system interface

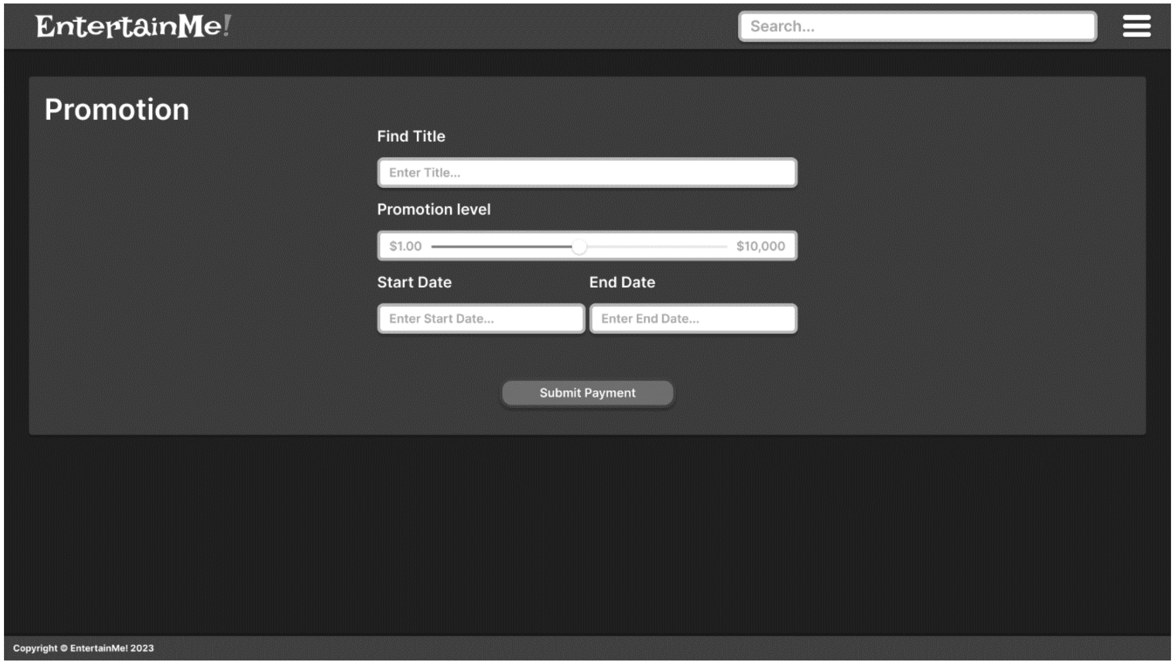
Module Name	**EntertainMe! Login**
Parameters Passed & Meaning	Enter Email: User will enter the email they used when creating their account as a username. Enter Password: User will then enter their created password which will allow them to sign into their account.
Description of Module Function	This module is used to gain access to the EntertainMe! site. The user inputs their email and password to sign into their account.
Input	Click: “Login” to sign in, “Forgot Password?” to regain account access, “Create Account” if the user does not have an account yet.
Output	User gains access to the full EntertainMe! site. Denied access if their email or password is wrong.
Called Modules	“Login”
Report/ Screen Layout	 EntertainMe! Login Enter Email... Enter Password... Forgot Password? Login Not registered? Create Account Copyright © EntertainMe! 2023
Story	When a user enters their email and password, they will either have access or not into EntertainMe!.
Error Message	If the user inputs incorrect credentials, then the site will display that the information is incorrect.

Module Name	**EntertainMe! Create Account**
Parameters Passed & Meaning	Enter Email: User enters the email they wish to create their account with. First/Last Name: used for identifying the user on the site, to feel more personalized. Enter Password/Re-enter Password: is where the user will enter their new password for their account.
Description of Module Function	This module is used to create an account on the EntertainMe! site. Users input their account information to create an account.
Input	Click: “Create Account” to proceed to make the account with the entered credentials. “Login” if the user has already made an account.
Output	User creates an account on EntertainMe! and gains access to the site. Denied access if they entered two different passwords, non-standard email, or left any field blank.
Called Modules	“Create Account”
Report/ Screen Layout	 EntertainMe! Create Account Enter Email... First Name... Last Name... Enter Password... Re-enter Password... Create Account Already registered? Login Copyright © EntertainMe! 2023
Story	Once the user enters their information, they can gain access to the site and start using EntertainMe! to find movie and TV Show recommendations.
Error Message	Denied access if they entered two different passwords, non-standard email, or left any field blank.

Module Name	**EntertainMe! Main**
Parameters Passed & Meaning	Search: user inputs a title that they wish to search for. This allows them to see that title's information, reviews, and add to watchlist.
Description of Module Function	The main page is the landing site of EntertainMe!, where users will see recommendations based on the items in their watchlist as well as reviews. Users will be able to search for specific titles. The hamburger menu allows for access to other features of the site.
Input	Click: "Title" allows user to see information on that title. "Search" to find a specific title. "Menu" to access different areas of the site.
Output	Users can see more information on the content they wish to view.
Called Modules	"Titles, Menu, Recommendations"
Report/ Screen Layout	 EntertainMe! Search... John Smith Home Watchlist Random Promotion Logout Promoted Based on Watchlist Recommendations Copyright © EntertainMe! 2023
Story	After logging in, the user will be recommended content based on reviews and what they have already seen.

Module Name	**EntertainMe! Watchlist**
Parameters Passed & Meaning	Search: user inputs a title that they wish to search for. This allows them to see that title’s information, reviews, and add to watchlist.
Description of Module Function	In this module, users can view the titles they added to their watchlist. Users can modify the list by selecting a title and removing it or adding it to favorites.
Input	Click: “Title” to view the information about a selected title and modify the watchlist.
Output	Updates the watchlist to let the user know what is currently on their list.
Called Modules	“Watchlist, Login”
Report/ Screen Layout	 EntertainMe! Search... Watchlist Copyright © EntertainMe! 2023
Story	A user can see the items they have added to their watchlist and modify that list to best fit their viewing needs.

Module Name	**EntertainMe! Title/Reviews**
Parameters Passed & Meaning	Watchlist: User can add title to their watchlist/favorites. Add Review: allows user to write their own review and give the item a rating.
Description of Module Function	This module is what the user sees when they select a title. They will receive information about the title and can write a review/modify the title in the watchlist.
Input	Click: "Add Title" lets user add a title to their review. "Write Review" lets the user write their review. "Stars" allows the user to give a rating to the title. "Watchlist/Favorite" lets users modify the title on their watchlist.
Output	Review can go through and be used as recommendations for other users.
Called Modules	"Write Review"
Report/ Screen Layout	 Dragon Ball Z 1989 · Action Dragon Ball Z follows the adventures of the adult Goku who, along with his companions, defends the earth against an assortment of villains ranging from intergalactic space fighters and conquerors, unnaturally powerful androids and near indestructible magical creatures. Reviews BEST ANIME EVER!!!! ★★★★★ Jane Doe · October 5th, 2022 Sorem ipsum dolor sit amet, consectetur adipiscing elit. Nunc vulputate libero et velit interdum, ac aliquet odio mattis. Class aptent taciti sociosqu ad litora torquent per conubia nostra, per inceptos himenaeos. Curabitur tempus urna at turpis condimentum lobortis. Ut commodo efficitur neque. Ut diam quam, semper iaculis condimentum ac, vestibulum eu nisl. It ain't One Piece... ★★★★★ Doctor B · December 18th, 2022 Corem ipsum dolor sit amet, consectetur adipiscing elit. Nunc vulputate libero et velit interdum, ac aliquet odio mattis. Class aptent taciti sociosqu ad litora torquent per conubia nostra, per inceptos himenaeos. Curabitur tempus urna at turpis condimentum lobortis. Ut commodo efficitur neque. One of the classics! ★★★★★ Martin M. · March 8th, 2023 Vorem ipsum dolor sit amet, consectetur adipiscing elit. Nunc vulputate libero et velit interdum, ac aliquet odio mattis. Class aptent taciti sociosqu ad litora torquent per conubia nostra, per inceptos himenaeos. Curabitur tempus urna at turpis condimentum lobortis. Add Review Add Title... ★★★★★ Write review... You may also like... Copyright © EntertainMe! 2023 EntertainMe! Search... Favorite Watchlist View More... Submit Review Attack on Titan CHAINSAW MAN
Story	When a user selects a title, they can view the titles information and write a review based on what they thought.

Module Name	**EntertainMe! Promotion**
Parameters Passed & Meaning	Enter Title: user enters the title they wish to promote. Promotion Level: slider to determine how much they want to pay to promote their title. Start/End Date: when the promotion starts and ends.
Description of Module Function	In this module, a content owner will enter their title’s name and fill out the rest of the form to have their title be promoted to users on the main page.
Input	Click: “Enter Title” to find the title. “Start/End Date” to set the starting and end dates. Slide: “Promotion Level” to determine how much the content owner wants to spend on promoting their title.
Output	Confirmation that the transaction went through, and their title is on the promotion tab.
Called Modules	“Promote Title”
Report/ Screen Layout	 EntertainMe! Search... Promotion Find Title Enter Title... Promotion level $1.00 $10,000 Start Date End Date Enter Start Date... Enter End Date... Submit Payment Copyright © EntertainMe! 2023
Story	A content owner can input the information to select a title for promotion on the main page.
Error Message	If the user does not fill out a field, they will not be able to submit their promotion.

7.0 Construction Phase

Not in scope.

8.0 Implementation Phase

Not in scope.

9.0 Alphabetical Glossary & Index

Glossary

AWS: Amazon Web Services is the largest cloud platform offering multiple services such as databases, backend servers, storage, and computing power.

Docker: A platform designated to help developers build, test, and deploy software applications. Docker packages software into standardized units called containers that have everything the software needs to run including libraries, system tools, code, and runtime.

On-Prem: Also known as On-Premises, refers to IT infrastructure hardware and software applications that are hosted on-site.

Reverse Proxy: A reverse proxy is a server that sits in front of web servers and forwards client (e.g., web browser) requests to those web servers.

Single Sign-On: Single sign-on is an authentication scheme that allows a user to log in with a single ID to any of several related, yet independent, software systems.

Docker-Compose: Docker Compose is a tool that was developed to help define and share multi-container applications. With Compose, we can create a YAML file to define the services and with a single command, can spin everything up or tear it all down.

Indexes

10.0 Bibliography, References & Citations

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11.0 Contacts

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