Software Requirements Specification

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Modular Multimedia Streaming Platform

Infinity Bits LLC

Owen Dugmore

Alessandro Cois

Sydney Ho

Steve Oseguera

Jorge Avalos

Project Overview

The site will be hosted on a remote server that can be accessed through a web browser by the user. The website will provide various functionality to the user, as described in the functionality section. Most functionality requires that the user creates an account. There is no immediate charge for creating an account. The account allows the user to watch media of their choosing and interact with other users of the site.

User Hardware Specifications

To access the site a user must have a device that can run the most recent version of Google Chrome, Firefox, MS Edge, Safari, or Opera. Other browsers not listed may work however are not guaranteed to. For access to the website an internet connection of at least 500 kilobits per second is required. To run and access the website as intended a user will need a suggested 1.5 megabits per second internet connection.

Server Specifications

At least one server will need to be purchased or rented for web hosting. More servers will need to be purchased or rented depending on two things. The first being how much video footage will be available on the website. The second is users accessing the website at one time.

Project Timeline

The final product must be delivered to the client by May 11th 2019. Below is a rough estimate of when services will be available. Infinity Bits is not obligated to keep to this schedule as long as the final product is delivered on time. Services are described in greater detail in the "Functionality" section of this document.

Scope of Project

The scope of this project is to create an infrastructure with a modular design that will allow a user to select a desired media from a selected list of producers such as Amazon Prime Video, Netflix, Hulu, ect. The website will be subscription based with a monthly fee that is dependant on the amount as well as type of media that is selected for viewing by the user. The videos will be represented on the users main page for easy access, but the user will also be shown previews of other

selected media that is based upon the user's history of viewed videos, popular shows or movies that is based on the amount of total views that the video has, and a favorite genre that is selected by the user. This feature is what will set this streaming service apart from our competitors. However, this is not the only redeeming feature of this service. There will also be a social aspect.

The social aspect will include, but is not currently limited to, a feature that will allow users to communicate with each other through the use of a chat or video box, as well as the users specific tastes for films and T.V. to his or her profile that they can either make public or private. We believe that this will allow people to broaden tastes of genre and establish new relationships with other users based on their similar interests.

Lastly, the entire aesthetic design of the streaming service will be minimalistic and modern, which will provide the users with a streamline experience which will be both pleasing to the eye and simple to use.

Timeline

Feb. 23rd - The website will be accessible via internet.

Mar. 9th - Streaming videos will be available in a very basic form.

Mar. 16th - A user will be able to create an account and log in.

Mar. 23rd - Payment will be able to be accepted and sent to the client.

Mar. 30th - Subscribing to shows/movies will be implemented.

Apr. 6th - The site looks professional.

Apr. 13th - A user will be able to search for shows.

Apr. 20th - Extra user functionality will be implemented. This includes rating movies, messaging another user and editing their profile page.

Apr. 27th - Security and logging will be fully implemented.

May 4th - Prototype website finished with minor issues being fixed.

May 11th- Website is finished and ready to be delivered to client.

Use Cases

Logging in

The user can log in using their username and password

Scenario	User wants to change from not logged in to logged in state
Triggering event	Click login button
Actors	The user
Related use cases	Logging out
Pre-condition	User is logged out

Post-condition	User is logged in
Flow of events Actor: 1. Click login button 2. Fill in username and password 3. Click submit	 System: 1. Load login page 3. Check credentials. If valid, change the user's state to logged in and load the main page. If invalid, display message.

Logging out

The user can log out

Scenario	User wants to change from logged in to not logged in state
Triggering event	Click logout button
Actors	The user
Related use cases	Logging in
Pre-condition	User is logged in
Post-condition	User is logged out
Flow of events Actor: 1. Click logout button	 System: 1. Change user's state to logged out and refresh the page

Subscribing

The user can subscribe to a movie or show

Scenario	User wants to subscribe to an item
Triggering event	Click subscribe button
Actors	The user
Related use cases	
Pre-condition	User is logged in
Post-condition	User is subscribed to this item
Flow of events Actor: 1. Click subscribe button	 System: 1. Add this item to the user's library, and add the price to the user's billing plan

Watching a media item

The user can watch a movie or show

Scenario	User wants to watch a movie or show
Triggering event	Click on a movie or show in the user's library
Actors	The user
Related use cases	Pausing a media item
Pre-condition	User is logged in
Post-condition	Media item is being played

Flow of events Actor: 1. Click on a media item in user's library	 System: 1. Load the media item into the inline media player and play it

Pausing a media item

The user can pause the media being played

Scenario	User wants to pause the currently playing media
Triggering event	Click pause button
Actors	The user
Related use cases	Playing a media item
Pre-condition	User is watching a media item
Post-condition	Media is paused and position is saved
Flow of events Actor: 1. Click pause button	 System: 1. Pause media

Leave site while media is being played

The user may suddenly leave the site while media is being played

Scenario	User leaves the site while media is playing
Triggering event	User leaves site

Actors	The user
Related use cases	Playing a media item, Pausing a media item
Pre-condition	User is watching a media item
Post-condition	Media position is saved
Flow of events Actor: 1. User ends connection to site	 System: 1. Save position of playing media

Maintenance Planning

In order to maintain the program once it is considered to be complete, we will be running automated scripts for various tests. The tests include but are not limited to:

1. Creating new users with randomly generated emails
2. Buying subscriptions, unsubscribing, and adding more than the initial 10 subscriptions
3. Watching multiple movies and shows at different time stamps
4. Testing the subscription renewal function of the website
5. Randomly personalizing the user homepage and using the chat function to interact with other users (not actual consumers)

and will continually check for the correct output of every function of the website.

Functionality

The logistical structure of the data entities to be stored in the online database is as follows:

Movie Data Entity

Data Item	Type	Description	Comments
Name	Text	Name of Movie	
Subscription	Text	Name of Subscription	
Year	Integer	Release Year of the Movie	
Genre	Text	Genre of movie	May be several
Cast	Text	List of full cast	Separates leading supporting actors for search functionality
Director	Text	Name of Director	May be several
Summary	Text	Summary of movie	Includes length of movie
Rating	Double	Average rating of the movie	System of 1-5
Time Stamp	Integer	Time user stopped viewing	Allows user to resume viewing

TV Show Data Entity

Data Item	Type	Description	Comments
Name	Text	Name of Show	
Subscription	Text	Name of Subscription	I.e. Netflix, Hulu, etc.

Year	Integer	Year of show release date	
Genre	Text	Genre of the show	May be several
Cast	Text	List of full cast	Separates leading supporting actors for search functionality
Director	Text	Name of Director	May be several
Summary	Text	Summary of show	
Rating	Double	Average rating of the show	System of 1-5
Time Stamp	Pointer	Episode Entity	May be several

User Data Entity

Data Item	Type	Description	Comments
E-mail	Text	Internet address	
Username	Text	Name used to log in	
Timeline	Text	Movie entity	May be several
Favorites	Pointer	Movie or TV Show entity	Up to 5
Chat	Text	Chat log	May be several

Episode Data Entity

Data Item	Type	Description	Comments
Episode Number	Integer	Season and Episode number	
Time Stamp	Integer	Time user stopped viewing	

The user is the most basic role, who only has access directly to the movies, television shows, and various social features of the website. The list of accessible features is as follows:

1. The ability to access the website
2. The ability to create an account (once) with a valid email
    a. The ability to log in to their account with their unique username and password
    b. The ability to log out of their account
3. The ability subscribe to shows and movies (Subscription lasts for 30 days at which point it will auto-renew, unless the user changes or cancels the subscription before it is renewed)
    a. Movies - the user pays a flat fee of $1 per movie which allows access for 24 hours after time of purchase
    b. Shows - the user pays $10 for a package that allows subscribing to 10 shows
    c. The user can also pay for extra show subscriptions at a rate of $1.50 per show.
4. The ability to use the search function to search by the subscription, cast, actors, genres, year, and director

5. In addition to creating an account, users can access other users' pages, view their timeline and favorite shows, and chat with other users
6. The ability to edit their user page (select favorites, choose a Theme, etc.)
7. The ability to comment and rate movies and television shows

Logging

For scalability and future performance measures, we are to implement several monitoring schemes that involve the following:

a. **User Activity Logging** - At the core of all our features will will take note of the users activities which will involve the following: User's are denoted as a client, not necessarily logged in. Security rules are also assumed for the following :
    i. Number of visits - Website total views of both logged in and non-logged in users.
    ii. Number of Unique visitors - Number of hits per IP address basis.
    iii. Number of page views - Each page view containing content on the service will be logged. We can attempt to find which content is more favorable.

iv. Most viewed pages - In combination of the top, we will be able to organize the pages from most viewed.

v. Authenticated users and last time of authentication - The amount of times our users login from the login page, and when their last login was. This is a security behavioral integer.

vi. Web browser used - Tracking what browsers the user prefers, and organizing our content to verify it's integrity with, at minimum, the most common browsers.

vii. Most viewed content - Organizing the amount of viewed content by the following units of time:

    1. Today
    2. Week
    3. Month
    4. Genre
    5. Title

Error Logging

In combination of logging, we will also aggressively log all errors that our service may encounter with appropriate actions linked. This is so we may automatically and manually deal with errors swiftly. Errors rated on a hazard scale:

ERROR	Description	Action	Hazard Scale 1 - 5
Invalid Credit Card	An entry into the payment system was rejected.	Dependant on the invalid entries, we may block the IP address on numerous invalid entries	1-3
PHP Error	Page faults, or breakage.	Undefined solution.	2-5
HTTP Error	Page faults, or breakage.	Undefined solution.	2
MYSQL Error	An entry to the database was faulty, prompting the SQL engine to show the client an error code.	Email (personal) reporting to service disabling. These errors must be looked at with the most priority.	5
Undefined Errors	An error that fits outside these ratings.	Undefined solution.	3-5
Failed Login	An attempt of incorrect combination of username and password	As with all login systems, we may implement a strike system, with increasingly larger	3

	submitted.	disciplines to the user for increased failures.	
Browser Out Of Date	User is visiting our service with a browser with a version less than our specified minimum.	Alert the user to an out of date browser.	1

Security

These are the most frequently seen attacks on a web service, and therefore, Infinity Bits will assume the maximum competency when developing the web service with provided example situations and solutions as follows:

1. Hacking based - developer fault - must avoid:
    1. SQL Injection
        1. Disallow all POST request with invalid data.
        2. Sanitize SQL entries.
    2. Cross Site Scripting Checks (XSS)
        1. Review code and disallow all points of entry from user executing scripts.
    3. Session Management

    1. TBD – Session ID

4. Cross Site Request Forgery

    1. Ask for re-authentication on every action that has to do with the user's account integrity.

5. Invalid Login Strikes

    1. 3 strikes and we may issue a temporary freeze on the user's account from that particular IP address. This is to mitigate minor brute force attacks.

6. Ip Blocking

    - Strike system based on possible malicious attacks?
    - Temporarily Block IP and report conflict with highest priority to logs

7. Credit processing

    - How many credits does user have to use toward content.
    - Can these be manipulated.
    - Server side checking against customer's request to client.

Performance Measures

1. Traffic Sources - In addition to logging, we will also keep track of all traffic, and their sources. This is speculate where clients are coming from and to measure the time it takes for content to be displayed from various sources.

- **Organic** – Traffic that is generated from keywords that are most relatable to our services.
- **Referrals** – Using links from outside our service that come to our service. These are usually links that will contain some sort of referral code from the website redirecting the user.
- **Direct** – Traffic generated by those who type your exact URL into their browser
- **Email Marketing** – Traffic generated by links in email marketing campaigns

2. KPI - Key Performance Indicators - We will need to keep track of our revenue. A key point here is the subscription rate. How many subscribers are we getting?

- Daily / Weekly / Monthly / Yearly

3. Stress Tests - Performed on specified days, we may have algorithms that will utilize our services to predictably severe conditions. We will then use

those points that created severe conditions in comparison with the current workload. These tests will not only measure our server for competency, but allow use to uncover security issues relatively quickly. The following are all executed in mass batches:

- Create multiple users, simultaneously, singly.
- Execute viewing of the same content to multiple users
- Execute viewing of different content to multiple users.
- Execute false payments of multiple users at the same time.
- Execute unsubscribing and re-subscribing of multiple users.
- Execute sending / deleting of messages of user's inboxes simultaneously.
- Execute subscribing / unsubscribing to video content.
- Execute mass page refreshes (content retrieval) , essentially attempting in-house DDOS.
- Execute mass vulnerability attacks on all pages that accept POST - as listed above in section 2.

The signees listed below agree to all the aforementioned requirements, allowing only the client Edwin Rodriguez, the ability to change/add/remove any given specification within reason.

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Edwin Rodríguez, Client ***Owen Dugmore, CEO of Infinity Bits***