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Software Requirements Specification

for

Home Entertainment Network

Version 2.0 approved

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Revision History

Name	Date	Reason For Changes	Version
Anas	23/1/2018		2.0

1. Introduction

1.1 Purpose

Purpose of the project is to create a video streaming website with robust recommendation system. We will provide a platform for users to view movies and television source acquired from licensing partners. It will also explain system constraints, interface and interactions with other external applications. This document is primarily intended to be proposed to the customer company for their approval and a reference for development of the system.

1.2 Document Conventions

This System Requirements Specification document follows the standard IEEE SRS format.

1.3 Intended Audience and Reading Suggestions

This document is intended for the developers of X Entertainment Ltd, testers, the project manager for this project, financing, marketing and Legal team, and the executives and the board of directors of Home streaming network.

1.4 Product Scope

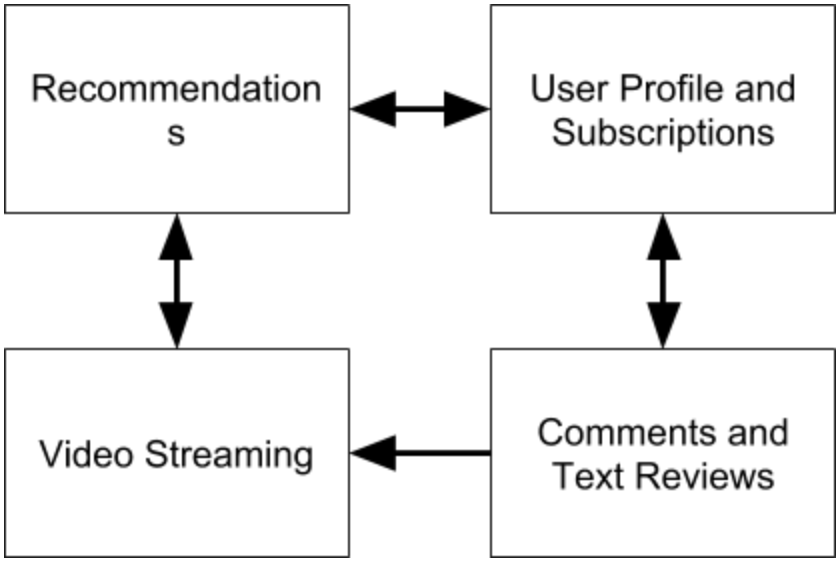
Home streaming network is a video streaming system, which provides users movies and television shows which they may like, based on their viewing habits. The system will use recommendation from other users and past usage in order to make recommendations and provide the relevant media. The system will offer a high speed video streaming in several video resolutions including Virtual reality and 4K formats. The platform will greatly benefit the users and well as the company. The users will be provided with an intelligent video streaming entertainment system with state of the art recommendations. Since the website will be providing accurate recommendations as well a wide range of entertainment options at the earliest times, the company will benefit from having one of the most competitive video streaming products.

1.5 References

2. Overall Description

2.1 Product Perspective

Home streaming network is a self-contained product, which offers a wide variety of video entertainment to user looking for a smart and modern entertainment system.



2.2 Product Functions

Home streaming network offers the following features:

- Streaming videos with playback control
- Robust and intelligent recommendation system
- Comments system
- Subscription system with a payment gateway for e-wallet and debit and credit cards.
- Genre based classification of movies and television series
- Quick and accurate search results
- Multi-device support
- Providing subtitles in several languages with automated translation

2.3 User Classes and Characteristics

User Classes that are identified for Home streaming network are:

- Subscribers – The primary objective of the system is to provide good quality entertainment at affordable prices.

- Licensing partners - Participating partners will provide paid and exclusive contents as well as any offers applicable to the subscribers
- Banking and Payment partners - A high priority user class to provide hassle free and error free transactions for users
- Database and backup Administrators
- Network Administrators

2.4 Operating Environment

- The Platform will operate on a linux based server with the backend coded in the Django framework. The entertainment media will be stored on a sql database along with the user subscription data.

2.5 Design and Implementation Constraints

- The major bottleneck for the system was data storage as the media to be stored is in various formats and is quite large.
- Another constraint was the licensing policies directed by various production companies.

2.6 User Documentation

- Home streaming network will include detailed help section as well as FAQ section which will be clearly marked on the main home page. Tutorials will also be provided to users who intend to go through it. A more comprehensive help section will be provided to registered users.

2.7 Assumptions and Dependencies

- The major assumption done by the development team is that the production companies are willing to licence their content to us for the entertainment system
- Another assumption is that there is a data storage company available and willing to cooperate with the storage requirements of our system . As the media to be stored is quite large.

3. External Interface Requirements

3.1 User Interfaces

3.2 Hardware Interfaces

- The hardware interfaces required is a linux server for running the backend of the website along with a data storage for the media to be store and the user information. As the media to be stored is quite large the data will be stored with a external data storage company which will provide backup facility as well as high end security.
- The Website will be operatiable through a web browser, the device can be a mobile device or a desktop/laptop .
- The user device will communicate with the linux server using http request/response along with websockets for streaming.

3.3 Software Interfaces

- The linux server will contain an Django backend for communication with User devices.
- A MySQL database will be used to store data.
- User devices will communicate with the server for subscription and login via the http request/response mechanism.
- The streaming will be conducted through a realtime websocket created between the server and user browser.
- The streaming data will be brought into the regis cache for faster retrieval.

3.4 Communications Interfaces

- The Entertainment System can be used on any be browser with Flash and HTML5 support.
- The Website will use HTTP request and response for basic subscription and login along with other post forms.
- Most of the data will be sent through a POST request for security purpose .

- The streaming data will be transferred via a websocket , as http cannot handle real time traffic.

4. System Features

4.1 Video Streaming System

4.1.1 Description and Priority

High priority system that is essentially the core of our platform. It will consist of, in decreasing order of priority, dedicated server system for streams, a responsive video player for all supported devices, playback options, and a captioning system.

4.1.2 Stimulus/Response Sequences

Videos will be streamed from servers dedicated for it to the user's devices. This will ensure smooth and fast playback as soon as the customer navigates to a specific video stream. The customer can pause, resume, fast forward or rewind the videos provided to them using the video player. They can also enable subtitles (captions) in supported languages for the video, using a button on the video player interface.

4.1.3 Functional Requirements

REQ-1: Video Streaming
Users can view our catalog of videos using a video player. The player starts streaming the video from the dedicated servers as soon as the user clicks on the play button.
REQ-2: Playback Control
Users can control the playback of the video stream once it starts playing. They can pause, resume, fast forward or rewind a video at any point after the video starts playing.
REQ-3: Captioning
Users can enable captions for the current video in the video player at any time in their preferred language. They can choose their language as well as turn the caption system on or off at any time.

4.2 Recommendation System

4.2.1 Description and Priority

The recommendation system consists of the following modules in decreasing order of priority, a rating system over five stars, a recommendation system based on these ratings of each user and the ability to sort videos by ratings.

4.2.2 Stimulus/Response Sequences

Users will be provided with a visual of five grayed out stars that they can hover and click, under each video. This will allow to them to rate each videos on a scale of one to five. These ratings will be used to match users with similar users and hence display recommendations on their “home page” with links to recommended videos. Users can click these links in order to view videos and then use the video streaming system. Further they can use the sorting and searching system in conjunction with recommended stars.

4.2.3 Functional Requirements

REQ-1: Rating System

Users can rate any video they have watched for more than half its length on a scale of 1 to 5, expressing their opinion.

REQ-2: Intelligent Recommendations

Users will be provided with lists of video stream links based on their previous ratings, as well as ratings provided by similar users. They will be given an estimated rating, which attempts to predict how many stars they would award a video. Videos with the highest estimated ratings will be displayed on the user’s “home page”.

REQ-3: Rating based sorting

Users can sort all available videos based on estimated ratings in different genres, actors present, and primary language of video.

4.3 User Profile And Subscription

4.3.1 Description and Priority

The user profile system is available to all subscribers of the service. It consists of, in decreasing priority, a subscription renewal screen, user login, user profile and settings screen.

4.3.2 Stimulus/Response Sequences

Users will login with a registered email in the login page. If they are subscribed to the service, they will proceed to their home page. Otherwise they will be redirected to a subscription renewal page, or a registration page depending on whether their email is registered in the database. Subscribed users can also use the subscription renewal screen to extend their subscriptions. Users can use the settings screen to modify personal settings as interface language, night mode toggle, and privacy settings.

4.3.3 Functional Requirements

REQ-1: User login

Users must be able to use an email address in order to login to the system. Once they enter the correct password, and have an active subscription they can view their homepage.

REQ-2: Subscription renewal

Users must be able to subscribe to the service using a subscription page, and be provided with a variety of renewal plans, which they can pay for using a payment gateway. Unsubscribed and new users can also use this page to subscribe to the system again.

REQ-3: User Registration
Users without a registered email must be redirected to a registration page, where they can provide details.

REQ-4: Settings System
Users can modify settings such as User Interface language, Night Mode toggle, default caption languages, etc.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

- The site must be accessible from any browser from any type of machine.
- The site should be able to stream videos at high resolutions and frame-rates
- All transactions should be processed securely and anonymously
- The recommendations algorithms should be fast enough to provide seamless suggestions.

5.2 Safety Requirements

- Prevention of copyrighted content being uploaded by unauthorized sources
- Possible data loss due to high load streaming which could result in a Database crash.
- Possible Disturbing content depending on the users perspective .
- High frequency videos may cause seizures and brain fatigue to some users.

5.3 Security Requirements

- The system requires a high security payment gateway to keep user data secure along with company bank details.
- The system also requires a DDOS secure linux server for the backend along with a robust firewall to protect hackers from stealing company secret algorithms.
- The database should also be very robust and secure with protection against SQl injection to keep user data intact.
- Passwords must be hashed and non readable to Database Administrators

5.4 Software Quality Attributes

- **AVAILABILITY:** The content a user's promised or as advertised must be available as and when required or stated.
- **CORRECTNESS:** The search engine should respond with accurate results and perform correct streaming of videos,and the recommendation system should also recommend near accurate results .
- **MAINTAINABILITY:** The system should be maintainable to update it to support newer devices.
- **Portibality :** The website should be portable and a user should be able to use it on a mobile device as well as an desktop.

5.5 Business Rules

- Customers must only be able to view their own profile, homepage and settings screen. Only subscribed customers should be able to log in
- Subscriptions can be refunded if acquired for a period greater than one month, only for all fully remaining months
- The content available on the system should be licensed and available with the creters consent .

6. Other Requirements

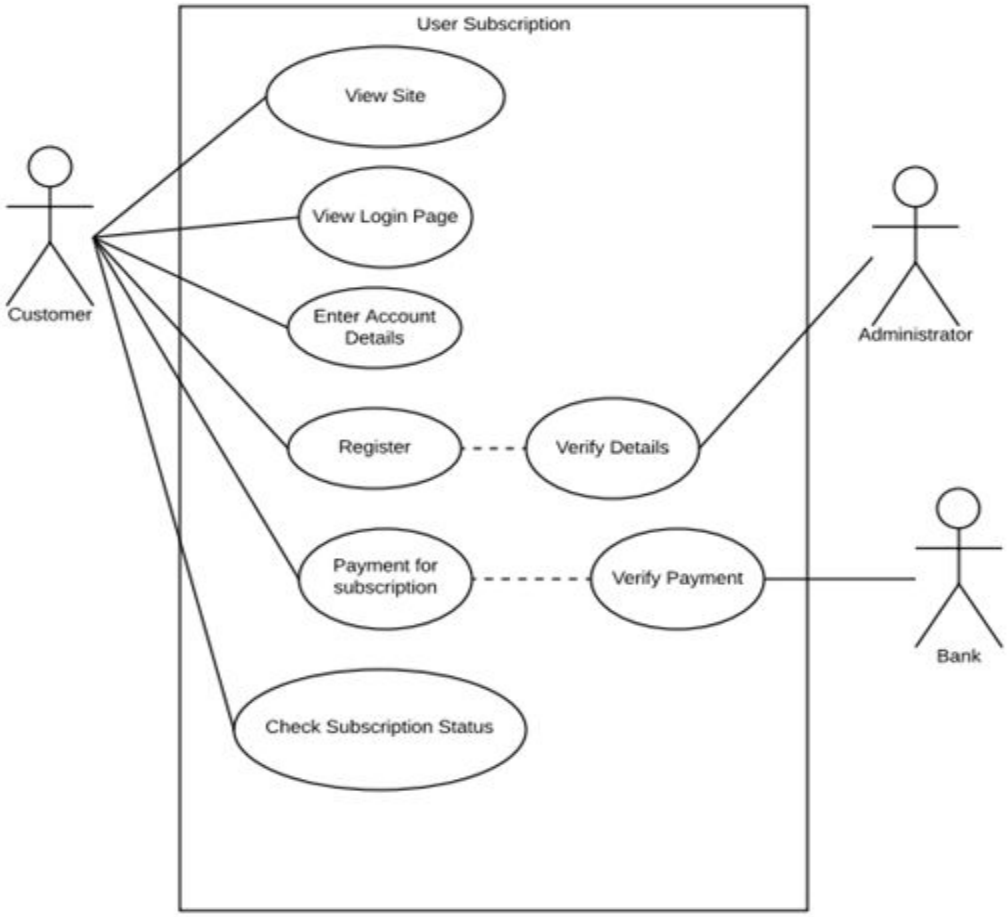
- A Redis database for caching videos will be required
- All videos must be licensed data, and legally acquired
- Interface language must be localized automatically based on user's location

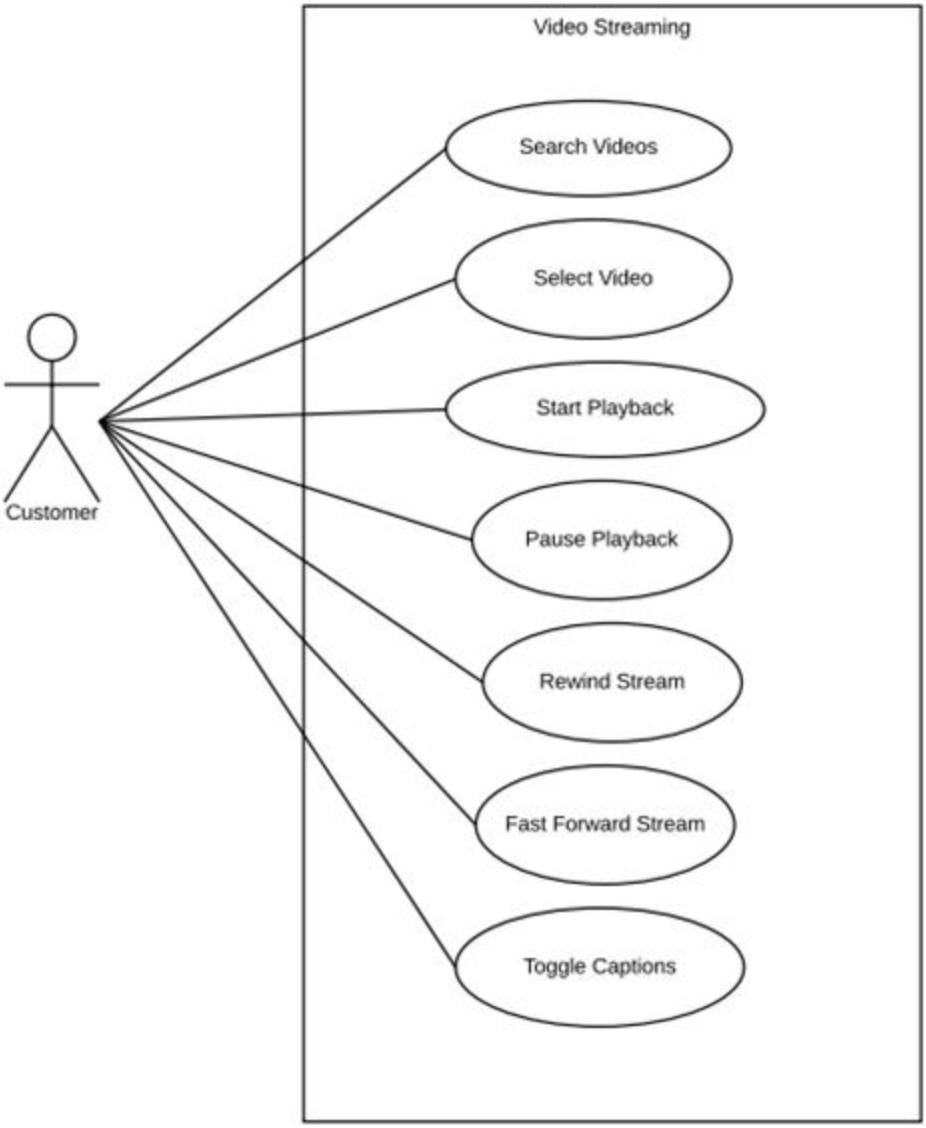
Appendix A: Glossary

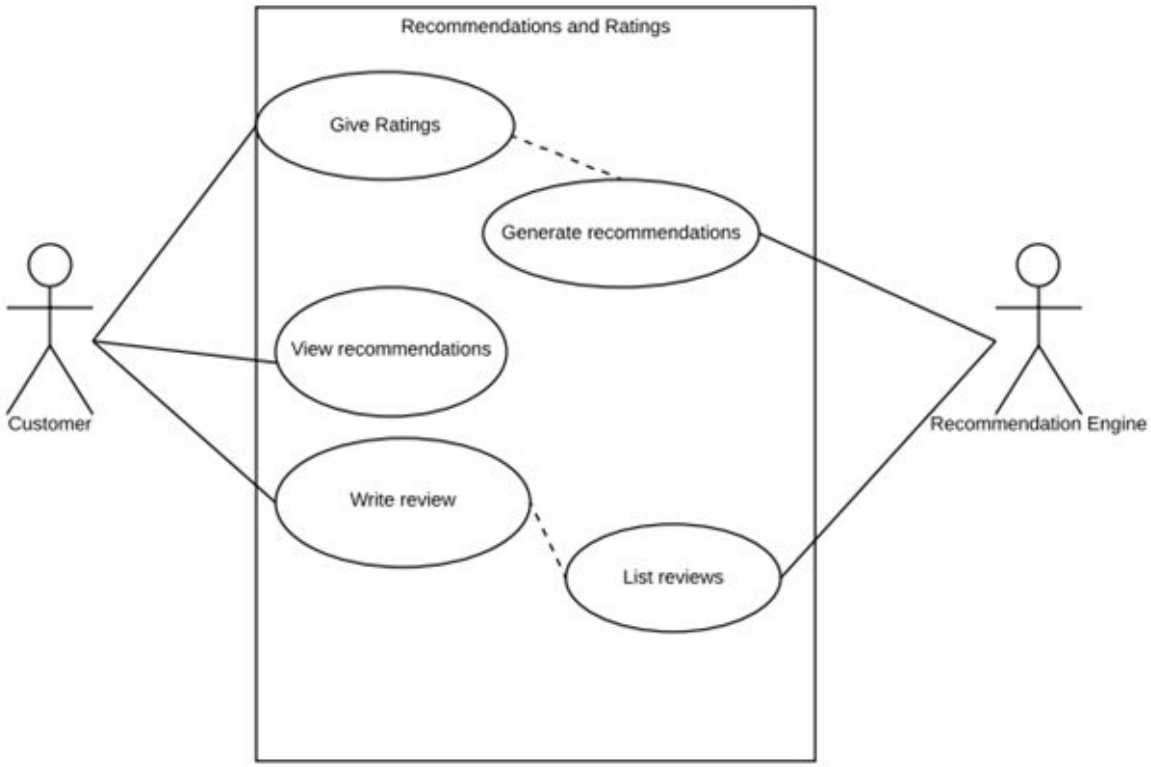
DDOS:A denial of service attack is an effort to make one or more computer systems unavailable. It is typically targeted at web servers, but it can also be used on mail servers, name servers, and any other type of computer system.
Server:A server is a computer that provides data to other computers. It may serve data to systems on a local area network (LAN) or a wide area network (WAN) over the Internet.

Gateway:A gateway is a hardware device that acts as a "gate" between two networks. It may be a router, firewall, server, or other device that enables traffic to flow in and out of the network.

Appendix B: Analysis Models







Appendix C: To Be Determined List