Software Requirements Specification

for

Movie Streaming Service

Version 0.3 approved

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Revision History

Name	**Date**	**Reason For Changes**	**Version**
First Build	07-01-19	First Build	0.1
Revised payment process	15-01-19	Frequently crashing payment page, need to remove some bugs in the process.	0.2
With recommendation system	26-01-19	Addition of recommendation system.	0.3

1. Introduction

1.1 Purpose

The purpose of this document is to present a detailed description of the Movie Streaming Service that will be available in both as a website as well as in the form of an App. It will explain the purpose and features of the software, the interfaces of the software, what the software will do and the constraints under which it must operate. This document is intended for users of the software and also potential developers.
Websites and applications that offer their users or customers an item or a social element, have been trying to recommend them relevant content in order to their items/elements which they are interested in. Increasing the time that user spends on the website and increasing the interest of the user to the items in the website are the main reasons why the recommender systems are being used. Accuracy and time-efficiency are the most common problems of recommender systems. We will be trying to design an accurate and fast algorithm which will solve these problems.

1.2 Document Conventions

This Document was created based on the IEEE template for System Requirement Specification Documents.

1.3 Intended Audience and Reading Suggestions

- Typical Users, such as students, who want to use MVA for viewing movies
- Advanced/Professional Users, such as movie raters, who want to use MVA for giving rating in news-papers, magazines.
- Programmers who are interested in working on the project by further developing it or fix existing bugs.
- Programmers are suggested to read this document in the sequence in which it is written.

1.4 Product Scope

This Service can be used for viewing movies, TV serials, etc. online. It has 2 classes: gold and silver. Gold class can also download the content. Adult filters are made to separate adult content for people below 18 years of age. Movies are recommended based on user interaction, age, gender, history of movies rated and watched. The system goes through detail of user's previous interaction history and provides recommended content based on that.

1.5 References

MVA website: https://www.moviestreamingservice.com

MVA Github page:
https://github.com/piyushmoolchandani/Udacity-Mini-Projects/tree/master/Movie%20recommendation%20system

GNU General Public License version 3:
http://gnu.org/licenses/moviestreamingservice.html

2. Overall Description

2.1 Product Perspective

This product is movie streaming service that is available as a website as well as an application, there is no major change in any of these two forms, as application will be providing no extra service, but will be a dedicated application made only for this purpose.

Main focus of this product is on a recommendation system, that can suggest users of this service movies of their liking.

Websites and applications that offer their users or customers an item or a social element, have been trying to recommend them relevant content in order to their items/elements which they are interested in. Increasing the time that user spends on the website and increasing the interest of the user to the items in the website are the main reasons why the recommender systems are being used. Accuracy and time-efficiency are the most common problems of recommender systems. We will be trying to design an accurate and fast algorithm which will solve these problems.

This service can be availed in two different classes that are Gold and Silver classes and two different content access level in below 18 and above 18 groups.

2.2 Product Functions

- Register
- Login
- Stream media content
- Download media content
- Get recommendations based on streaming history.
- Provide separate level of access to different classes: Gold and Silver.
- Provide complete content access to above 18 Category.
- Provide restricted access to below 18 Category.

2.3 User Classes and Characteristics

1. Gold Class: above 18
   1.1. Access to all of the content
   1.2. Can download content
2. Gold Class: below 18
   2.1. Restricted access to content
   2.2. Can download content
3. Silver Class: above 18
   3.1. Access to all of the content
4. Silver Class: below 18
   4.1. Restricted access to content

2.4 Operating Environment

- ❖ Operating system in which it can operate:
  - ➢ Windows and
  - ➢ Linux
  - ➢ macOS
  - ➢ Android
- ❖ Devices across which it can operate:
  - ➢ Desktop
  - ➢ Laptop
  - ➢ Tablets and
  - ➢ Mobile Phones.
- ❖ Should be able to operate on all the browser following modern standards.

2.5 Design and Implementation Constraints

- ➢ Service may not be able to handle more than 10000 customers simultaneously.
- ➢ Service may misbehave on other operating system than specified early.
- ➢ Service may misbehave when tried to use on browsers that do not follow modern standards.

2.6 User Documentation

- A small tutorial will be given to every user when he/she logs in for the first time after registration.

2.7 Assumptions and Dependencies

- Availability of content depends on the content providers also, such as the production houses of the Movies and TV Series.
- It is being assumed while designing the product that there is or will not be any such problem.

3. External Interface Requirements

3.1 User Interfaces

- Movie Streaming Service welcome page.
    - Welcomes users.
    - Give option to login to existing users.
    - Gives option of register to new users.
    - Shows new content that are available in software.

- Home page:
    - Shows previously watched movies.
    - Shows list of movies or content left in the middle with option of continuing watching those.
    - Shows recommended content based on user habits.
    - Shows option to log-out or to go to settings page.

- Settings page:
    - Let's user control account setting.
    - Let's user change password.

3.2 Hardware Interfaces

- Minimum 500 Megahertz CPU
- 256 MB of RAM.
- Graphic card: any one of dedicated or integrated will do.
- Minimum resolution: 720 * 480
- To view high resolution content, higher resolution display may be required.

3.3 Software Interfaces

- Adobe flash player is a prerequisite to use this service.
- Python 3.0 need to be preinstalled if using application version.
- Other requirements are:
  - ♦ SKLearn
  - ♦ Pandas
  - ♦ Numpy
  - ♦ OpenCV
  - ♦ Tensorflow

3.4 Communications Interfaces

Movie Streaming Service requires an internet connection to stream videos online and to install new plugins, update already installed ones and update some of its contents(API, modules etc.).

4. System Features

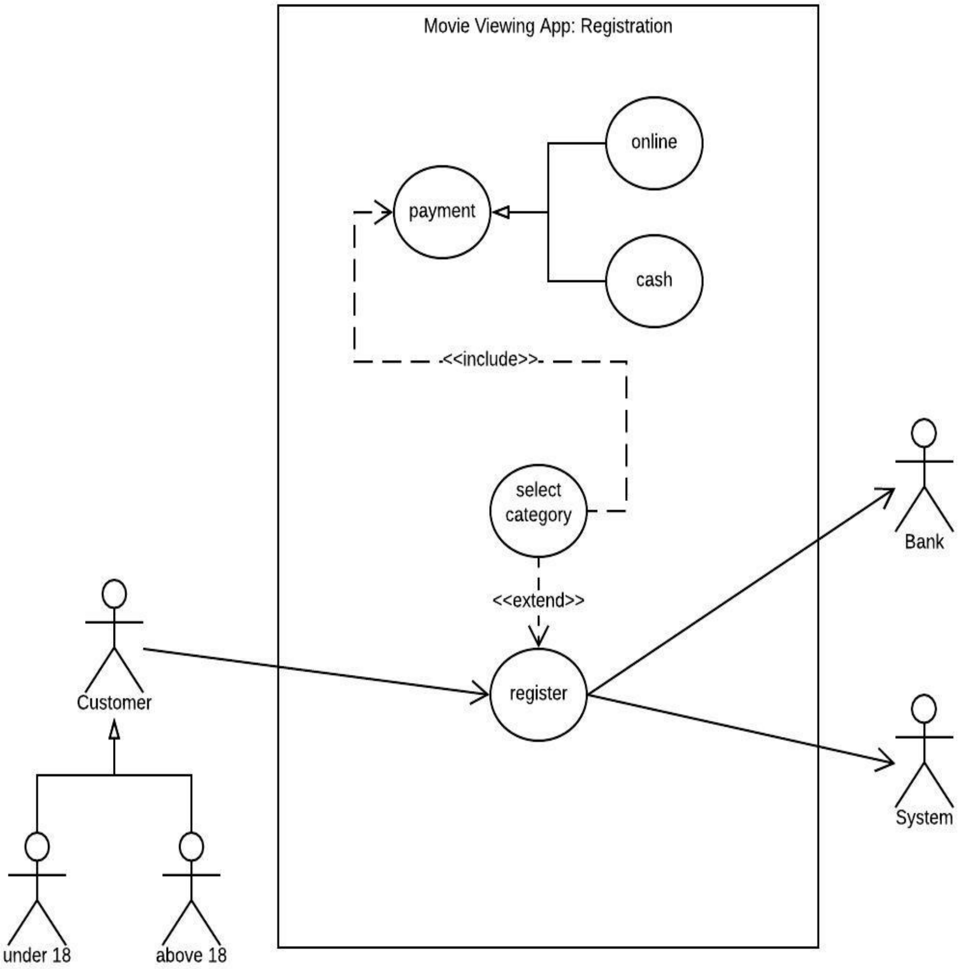
This section illustrates organizing the functional requirements for the product by system features, the major services provided by the product. Use case diagrams are used to present and describe every service or operation.

4.1 Registration

4.1.1 Description and Priority

Registration is required if you want to avail any of facilities provided by Movie Streaming Service. This is highest priority operation.

4.1.2 Use case diagram:

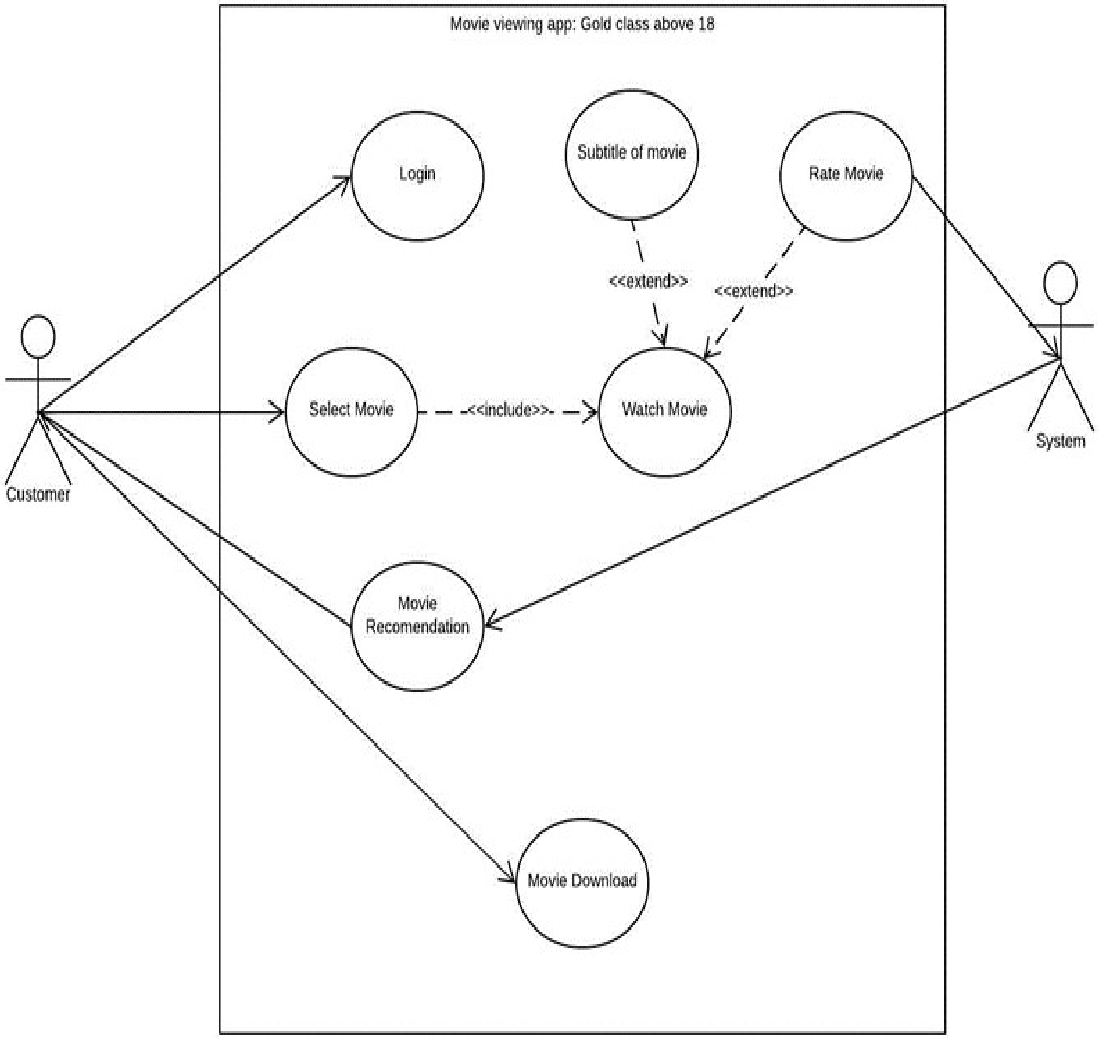


4.2 Gold Class above 18

4.2.1 Description and Priority

User will be able to watch movies of his will, will get recommendation based on his streaming history. He can also download the content.

4.2.2 Use case diagram:

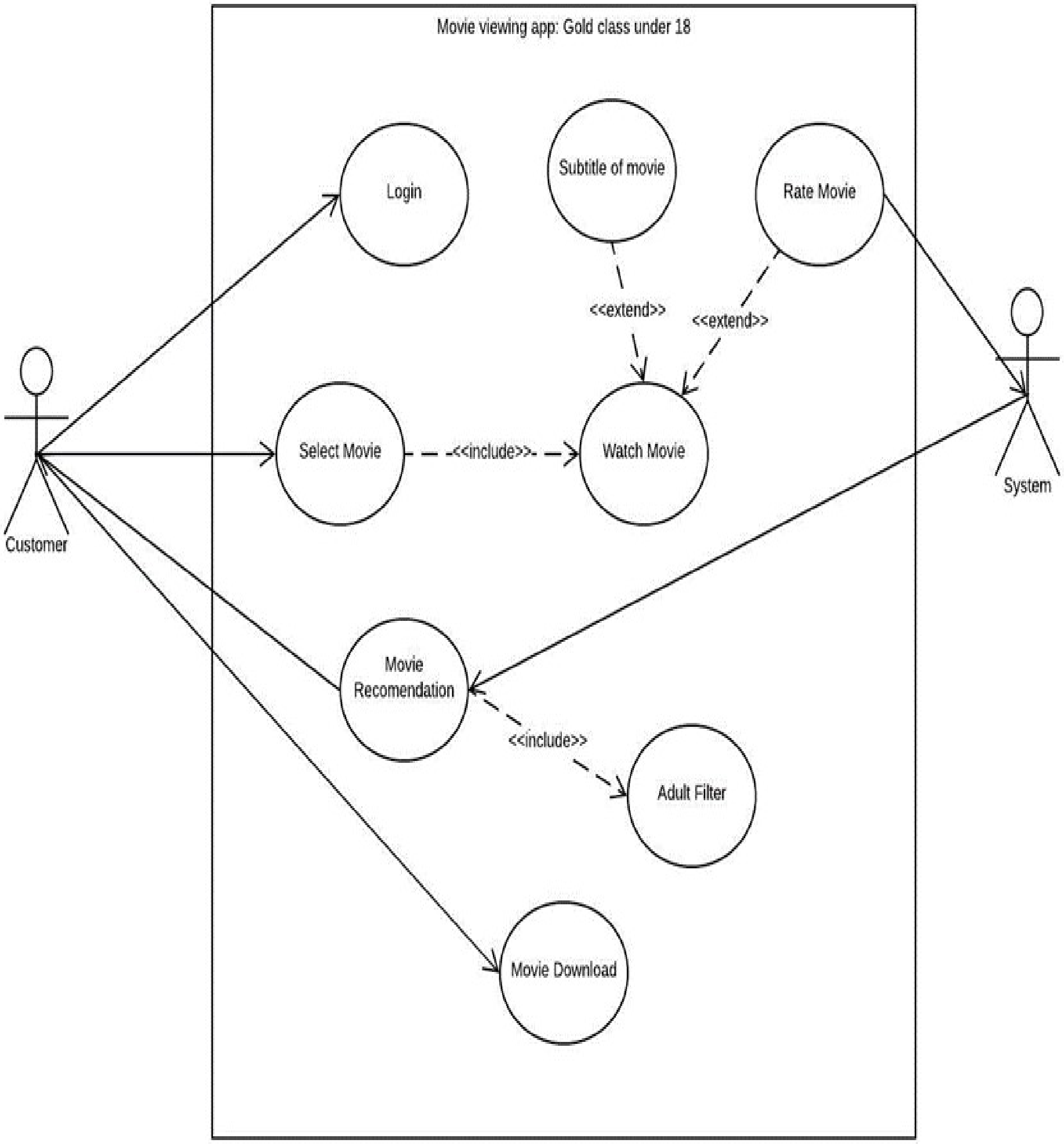


4.3 Gold Class under 18

4.2.1 Description and Priority

User will be able to watch movies of his will out of the content available after the adult filter has been applied and will get recommendation based on his streaming history. He can also download the content.

4.2.2 Use case diagram:

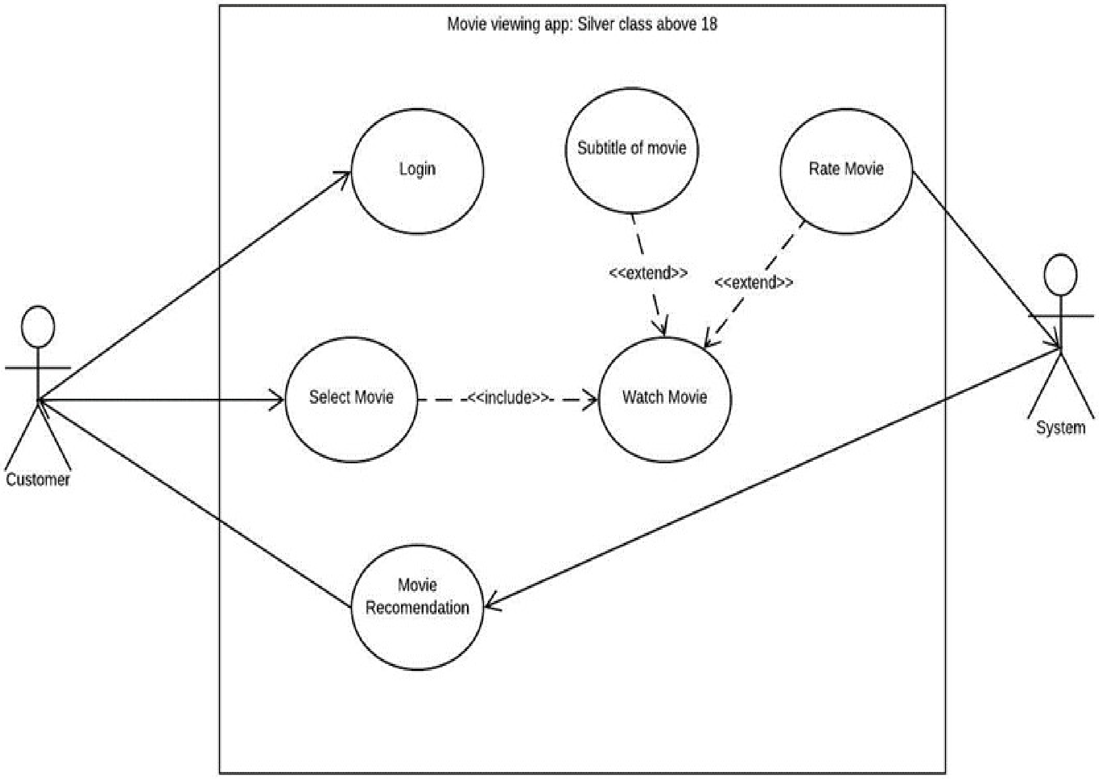


4.4 Silver class above 18

4.2.1 Description and Priority

User will be able to watch movies of his will, will get recommendation based on his streaming history.

4.2.2 Use case diagram:

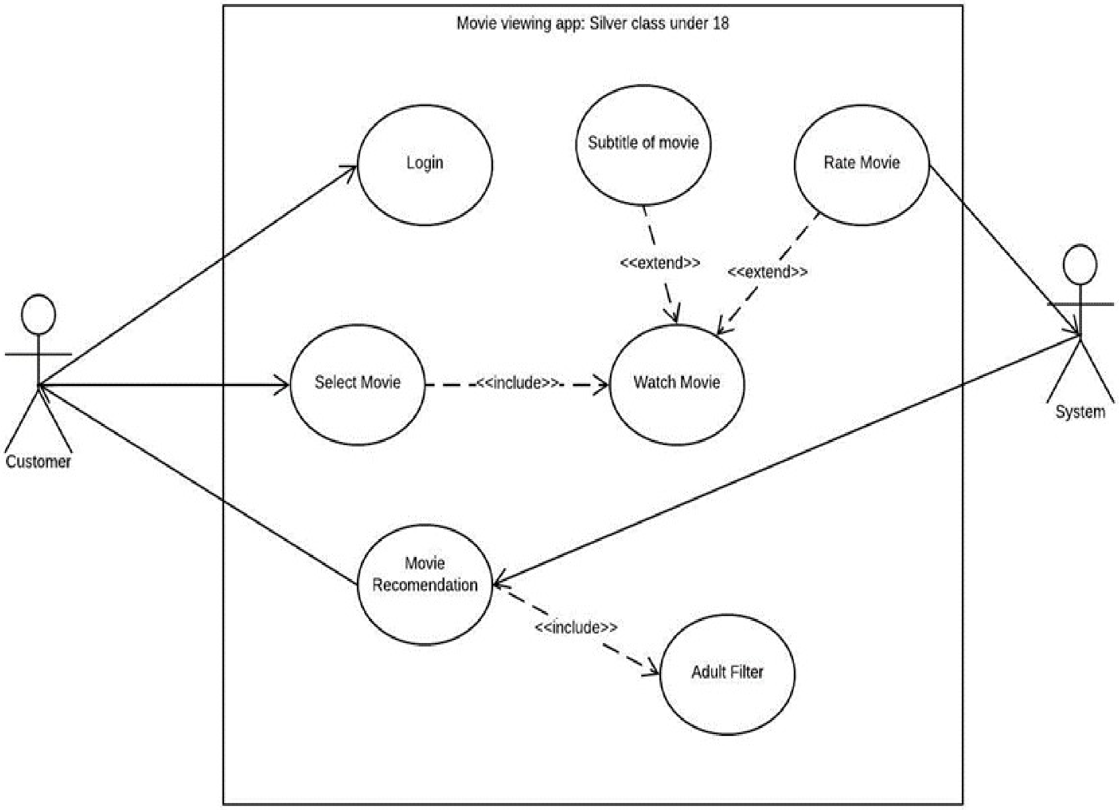


4.5 Silver class under 18

4.2.1 Description and Priority

User will be able to watch movies of his will out of the content available after the adult filter has been applied and will get recommendation based on his streaming history. He can also download the content.

4.2.2 Use case diagram:

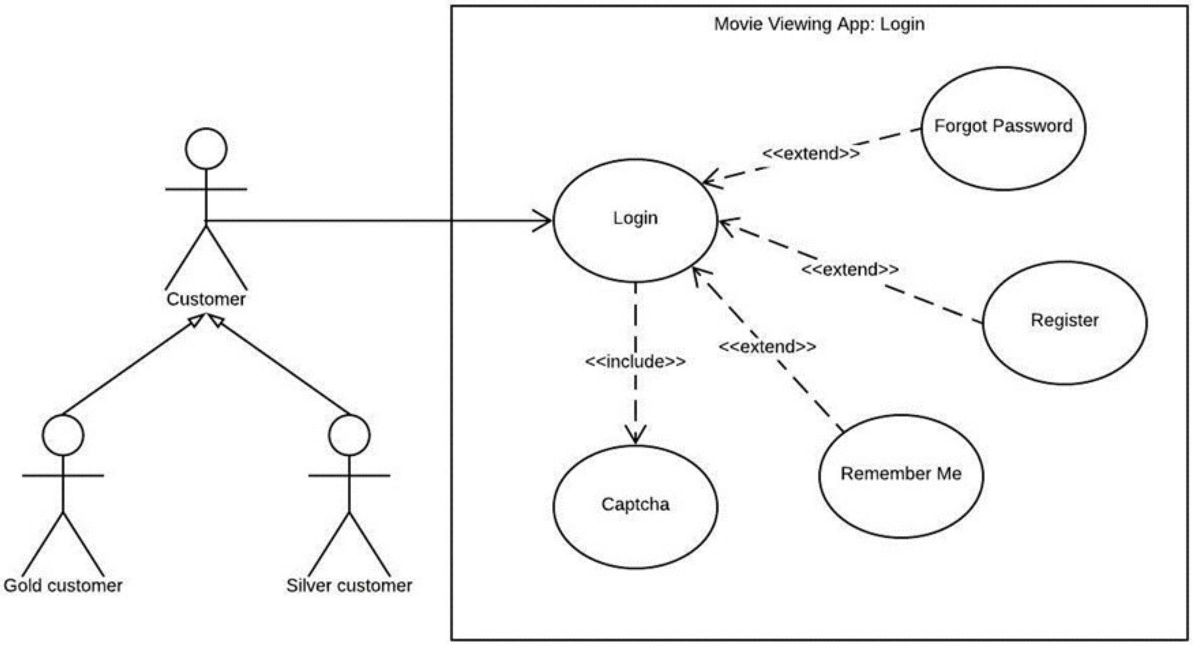


4.6 Login

4.6.1 Description and Priority

User will have to login first any content, options are given to register, for forgot password and remember me during login, user needs to pass a captcha also to login.

4.6.2 Use case diagram:



- To login, user should be already registered. If a user tries to login without registration then he should be redirected to register first.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

- Media streaming should be continuous and maximum effort should be put to make the streaming as smooth as possible.
- Software must be able to handle a crowd of minimum 10000 or more users simultaneously.
- Recommendation of movies should be strictly based on the user's interests and watching history.

5.2 Safety Requirements

- There aren't really any safety requirements but yes continuous streaming of media content (Movies and TV Series) can be harmful for the eyes.
- Some content may not be suitable for all age groups and may be dangerous for people having heart problems.

5.3 Security Requirements

- No one should be able to log in without correct login and password.
- Maximum care is to be taken to keep user database safe and secure.
- Watch history of a user is to be kept private and should not be visible to other users without user's consent.
- A silver user must not be able to download media content.
- User should not be able to misuse the content they download, so downloaded data must be stored in some encrypted form.

5.4 Software Quality Attributes

- Recommendation should be correct and precise.
- Simultaneous user handling capacity should be high.
- Software should be flexible enough to accommodate changes.
- Should be operable at as many platforms as possible.
- Should be maintainable.
- Software should be robust and reusable.
- Should be equally convenient to use at any platform or type of device.

5.5 Business Rules

- Once handed over completely, stakeholders can decide any further business rules, but until that time, only the authorized professional can make any changes to the software process and planning.

6. Other Requirements

- Database of users need to be maintained for which servers are required.
- For real time recommendation using recommendation system, gpu deployment might be required as gpu can serve this purpose in a much less time.
- Legal permissions are supposed to be taken from the government authorities before final launch.
- Some app stores may require software to pass a security test before it's launch on their platform.
- Different countries may require slight tweaks to the software according to their compliance policies.

Appendix A: Glossary

- *Recommendation system:* A recommender system or a recommendation system is a subclass of information filtering system that seeks to predict the "rating" or "preference" a user would give to an item.
- *Captcha:* a computer program or system intended to distinguish human from machine input, typically as a way of thwarting spam and automated extraction of data from websites.
- *UML:* The Unified Modeling Language is a general-purpose, developmental, modeling language in the field of software engineering, that is intended to provide a standard way to visualize the design of a system
- *Streaming:* a method of transmitting or receiving data (especially video and audio material) over a computer network as a steady, continuous flow, allowing playback to start while the rest of the data is still being received.

Appendix C: To Be Determined List

Movie Streaming Service website: https://www.moviestreamingservice.com

Movie Streaming Service Github page:
https://github.com/piyushmoolchandani/Udacity-Mini-Projects/tree/master/Movie%20recommendation%20system

GNU General Public License version 3:
http://gnu.org/licenses/moviestreamingservice.html