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Project

Youtube-Like Application System

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1. Feasibility Study &Project Proposal

Introduction:

video has vastly become the primary way the world consumes content. With its increased popularity, digital video can be used to connect with and captivate an audience, develop user trust and engage people. So, video has been the breakout trend in digital marketing and e-learning ..etc.

Problem Statement:

Despite the presence of the Internet and various sites, sharing video, uploading it electronically, and interacting with it, face a lot of challenges in browsing and obtain them, especially after the wide popular of using smartphones and tablets. that causes a needing to a special platform that provides these services easily.

Background:

YouTube is a video sharing and social media platform launched in 2005 and headquartered in California, United State. Now, YouTube is owned by Google. It has 2.5 billion monthly users and is the second most visited website in the world.

Proposed Solution:

In order to be able to deal with the video, the YouTube application has been proposed to work on various mobile devices, eliminating the need for a video playback program or application in addition to allowing you to upload, download, watch and share the video, interact with it, and subscribe to specific channels through it.

Work Plan:

In the process of planning for developing the YouTube system as a mobile application, the incremental development model was relied upon as a basic model for completing the system according to the following stages**(increments):**

increment1: (*Determine the main requirements that the system must initially meet*)

1. Analysis and specification of requirements
2. Preliminary design and implementation of the system and achieving the requirements approved at this stage.
3. Testing the system and determine future changes

4. Publishing the first release for a limited audience. Collect feedback from users in order to use it to make improvements to the app.

Increment2:

1. After testing and getting feedback in the previous stage, the new requirements and changes that we plan to accomplish at this stage are determined.
2. Repeat the steps (1,2,3) in increment1 for system implementation with the new requirements
3. Publishing the new release for a wider audience than targeted audience in the previous increment.

Increment3:

- Repeat increment2 steps

(*and later required increments even getting a professional application*)

2. Project requirements:

- ## Functional Requirements (FR):

  1. create account:

  The system shall allow users to create an account and log in to access their personalized content and features

  1.1. User can request create account
  1.2. System shall view the required information (name, google account, birthday, gender, password)
  1.3. If the user don't have a google account he should create a new one to be able to create an account in this application
  1.4. System shall add the new account to the database and allocate updatable personalization content to him.

2. Search and browsing:

User shall be able to search for specific videos or channels, and the system shall provide recommendations based on user preferences and his action history.

2.1. System shall provide a search text search
2.2. User can input a link or title or any subject to search for specific videos or channels
2.3. System shall provide recommendations based on user preferences and his action history including his search operations

3. Video playback:

The system shall be able to play videos in various formats and resolutions, with options for quality settings and full-screen mode.

3.1. User can use the search bar to find the video or browse through the recommended videos on the home page.
3.2. User can tap the video thumbnail to open the video player.
3.3. User can select his preferred setting (full screen, quality, volume control)
3.4. System shall be able to play the video with user settings

4. Commenting and interaction:

The system shall allow users to leave comments on videos, like/dislike videos, and interact with other users through messaging and community features

4.1. System shall provide a place and interact elements to allow adding comments and interacting with video and other users comments.
4.2. User can leave comments on video and interact with it
4.3. User can interact with other users comments.
4.4. System update the data about users interactions with the video(no. of like and dislike)

5. Sharing a video:

User shall be able to upload their own videos to the platform and share them with others through social media or messaging apps.

5.1. User shall be able to upload video from his gallery or upload from camera recording directly for live appearing.

5.2. User shall add a title and description for the video.
5.3. User can select a thumbnail for video or select suggested options by the system
5.4. User shall choose the privacy setting for the video (public, unlisted, private, downloadable or not)
5.5. User can add relevant tags or keywords to help viewers find the video.
5.6. User can then tap publish
5.7. System shall add the uploaded video (with selected settings) to the platform in the user channel section
5.8. System shall initiate video data(like,dislike, no. viewers).

6. delete shared video:

User shall be able to delete a video he uploaded, and system shall ensure that other users are unable to see it in the channel.

6.1. User shall be able to tap a delete video option
6.2. System shall view an alert message to user about delete operation
6.3. User can ensure deleting operation or cancel it
6.4. If the user ensure deleting, system shall drop the video and all its data from the platform

7. subscribing:

user should be able to subscribe to channels and receive notifications for new uploads and live streams.

7.1. User shall find the channel he wants subscribing using search or going to the link directly
7.2. User shall be able to tap on a subscribe button
7.3. System shall add the channel information to user subscriptions and store user account number as a receiver of notifications when the channel uploads new videos or goes live.
7.4. User shall be able to manage all his subscribed channels

8. downloading:

The system allow users to download videos for offline viewing, especially in areas with limited internet connectivity.

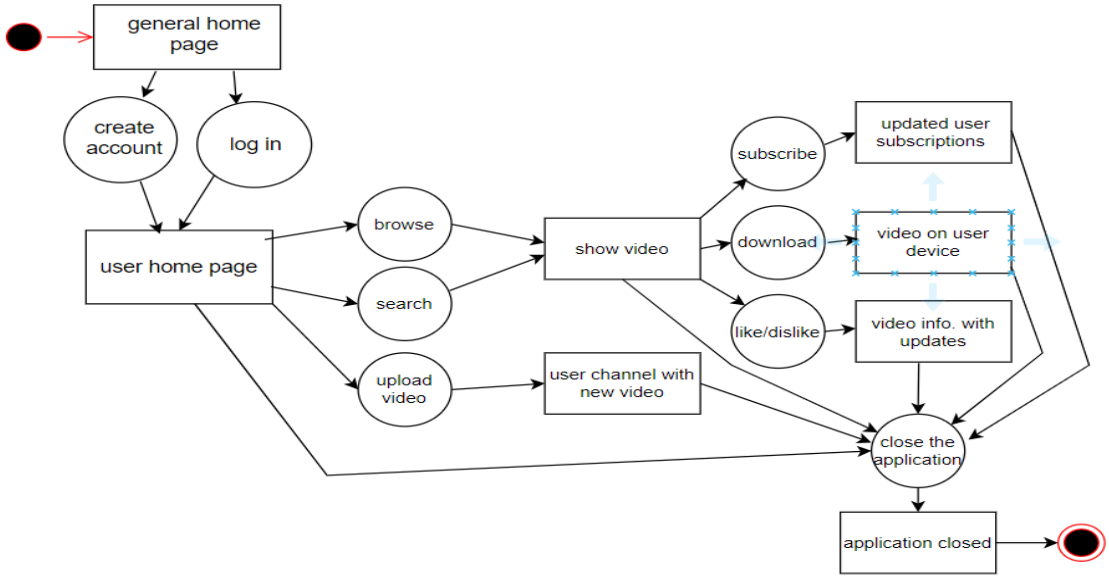
8.1. User can find or select a video he wants to download
8.2. User shall be enable to tap on download option if owner of the channel allows.
8.3. User shall choose his preferred quality and format and click the download button
8.4. System shall upload the video to user device from database.
8.5. User should wait until downloading finishes.

Non-functional Requirements (NFR):

1- **OS requirement**: The application must be compatible with different operating systems, including iOS and Android
2- **Security:** The application should provide strong security features for user data to prevent unauthorized access to his /her data.
3- **Scalability:** The application should be scalable to handle a large number of users and videos.
4- **Bandwidth:** The application should have sufficient bandwidth to support streaming videos without buffering or delays.

3. Activity diagram:

(The circular shape was used to represent the activity directory provided on the website: draw.io (diagrams.net) *)*



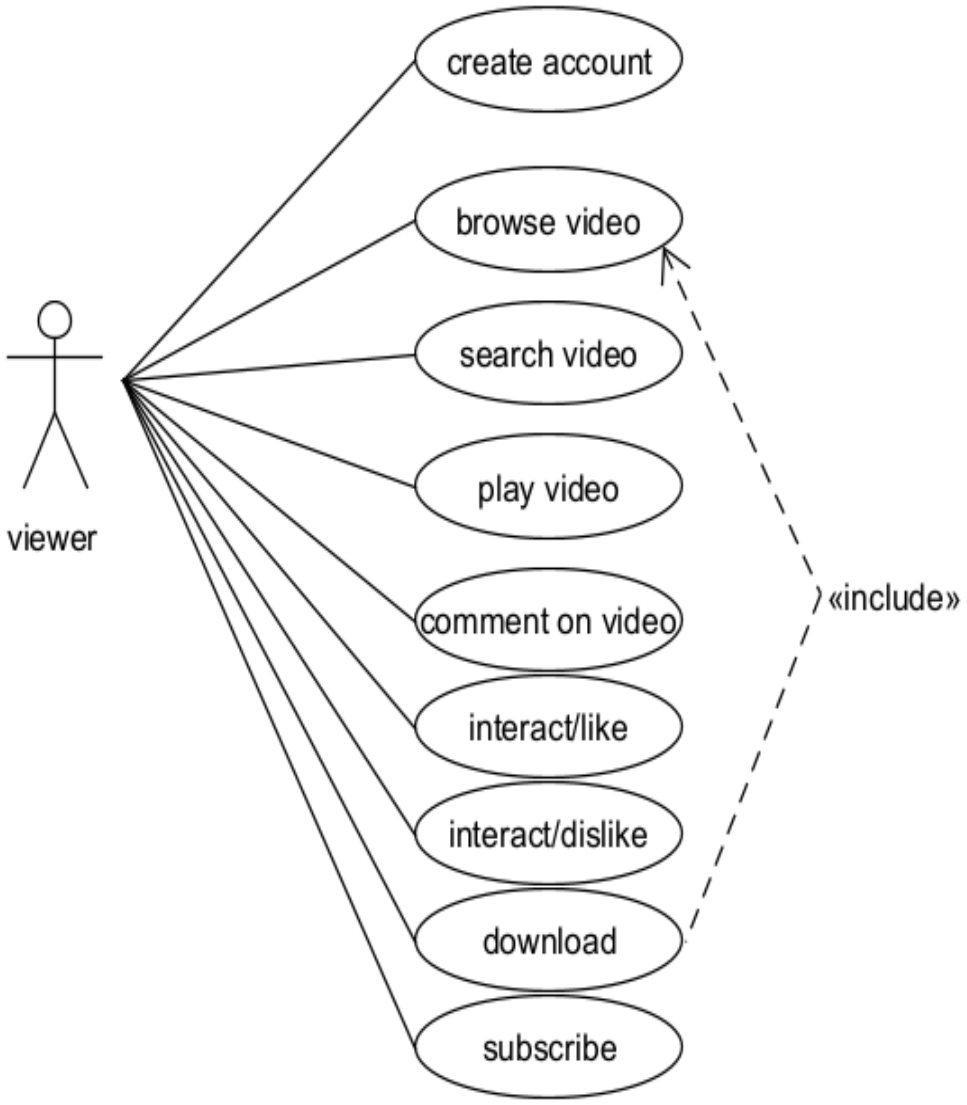
4. Project Use Case Modelling

✓ Actors:

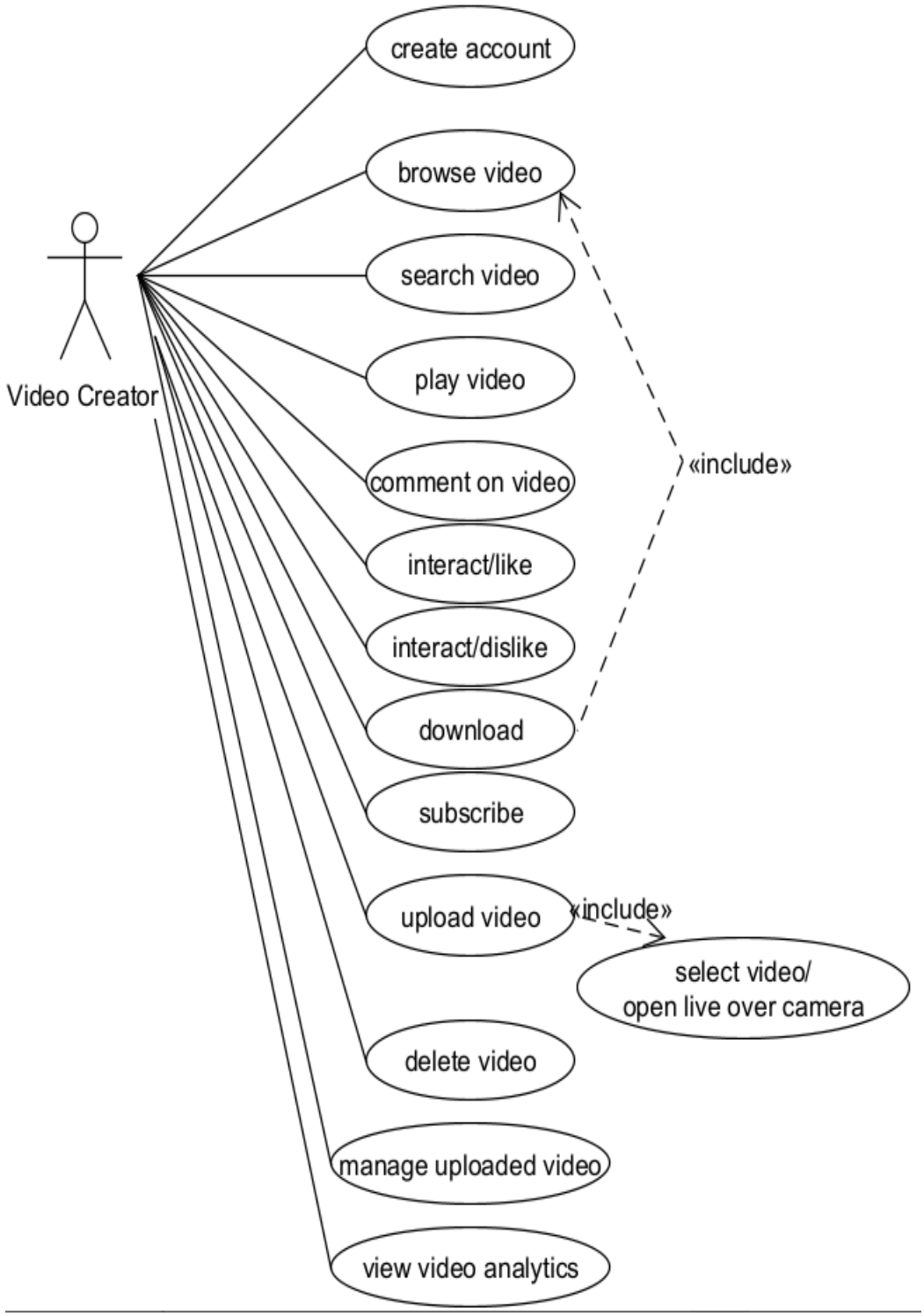
Actor	role
Viewer	- Browse videos - Search for videos - Watch videos - Like/dislike video - Comment on video - Subscribe to channel
Video creator	- (all previous roles of viewer) - Upload videos - view video analytics (e.g., views, likes - manage uploaded videos

✓ Usecase diagrams:

The following diagram represents the usecase diagram of the system in Viewer space:



- The following diagram represents the usecase diagram of the system in video creator space:



- **Table1(Create Account)**

Actors	Viewer, video creator
Description	When the user requests creating account: • System view the required information (name, google account, birthday, gender, password) • If the user need a google account to create an account • System adds the new account to the database and allocate updatable personalization content to him.
Data	Name, email, password, gender, birthday, profile picture
Stimulus	Viewer wants to create an account to login to the application
Response	Create viewer account with information(Name, email, password, gender, birthday, profile picture)
Comment	

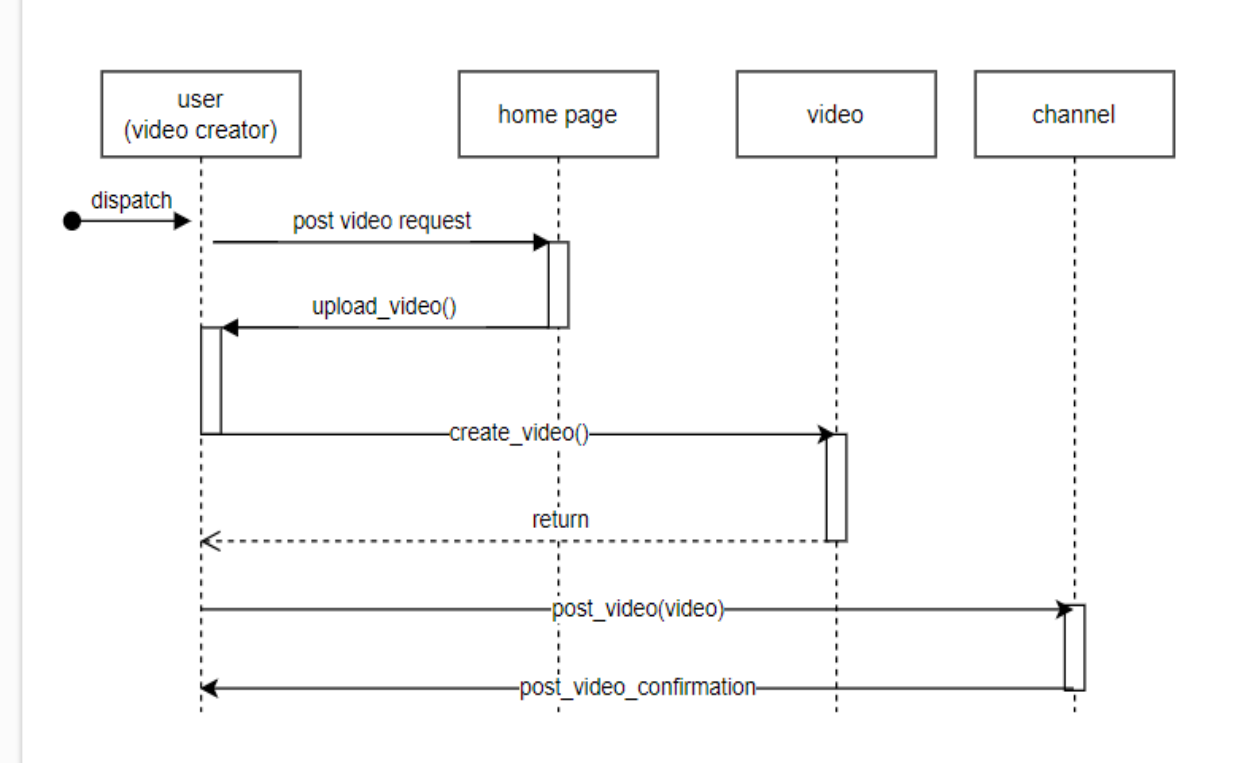
- **Table2(Sharing a video)**

Actors	Video creator
Description	User can share a video to his channel through the following steps: • User uploads video from his gallery or camera recording directly for live appearing. • Then he adds a title and description for the video. • User selects a thumbnail for video or suggested options by the system • User chooses the privacy setting for the video (public, unlisted, private, downloadable or not) • User can add relevant tags or keywords to help viewers find the video and insure uploading operation

Data	Video, title, privacy setting(public, unlisted, private, downloadable or not)
Stimulus	Video creator wans to share a video with people through his channel in the application
Response	Sharing the video in video creator's channel
Comment	

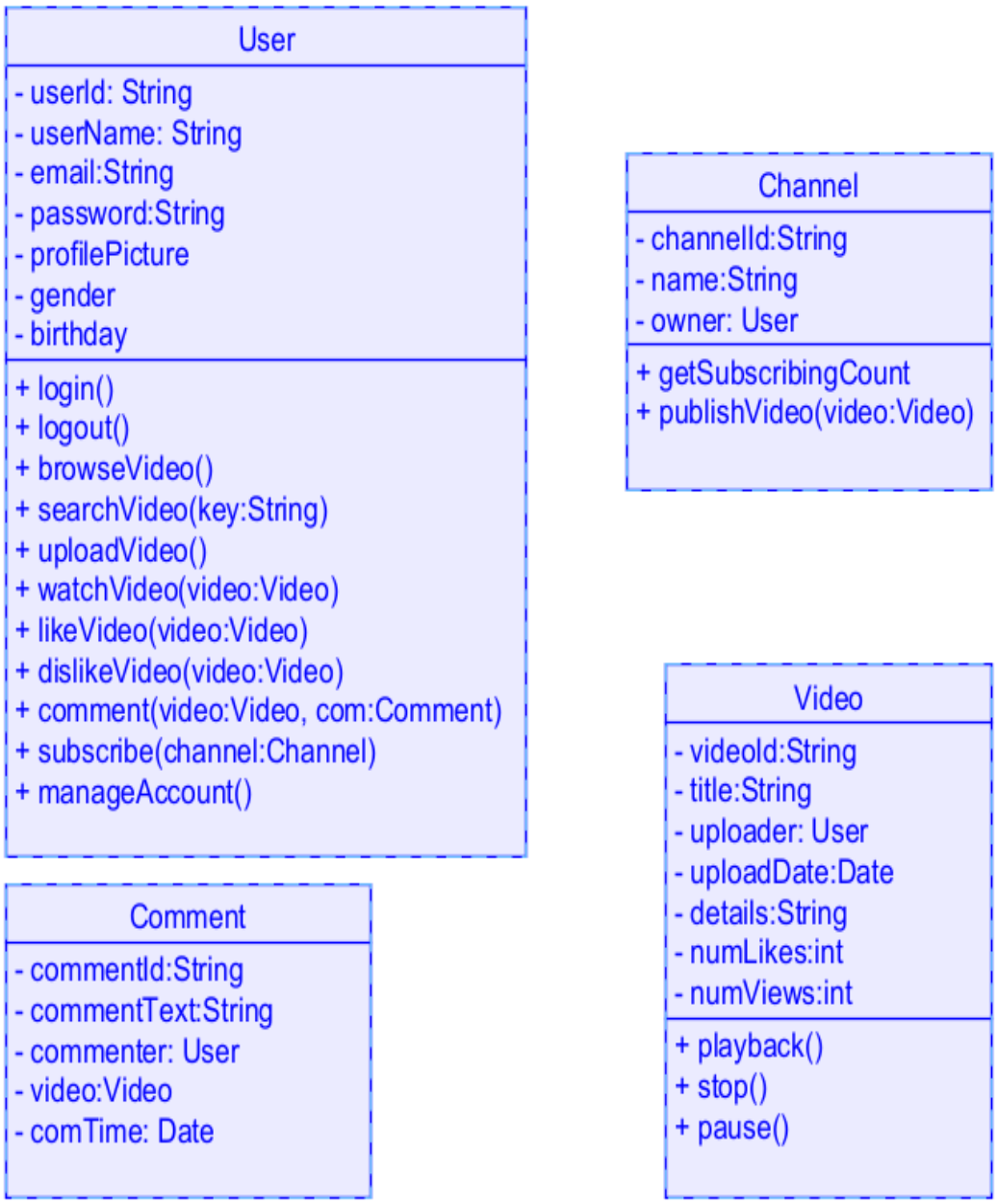
5. Sequence Diagrams

In the following figure a sequence diagram explains uploading and posting a video to video creator channel:

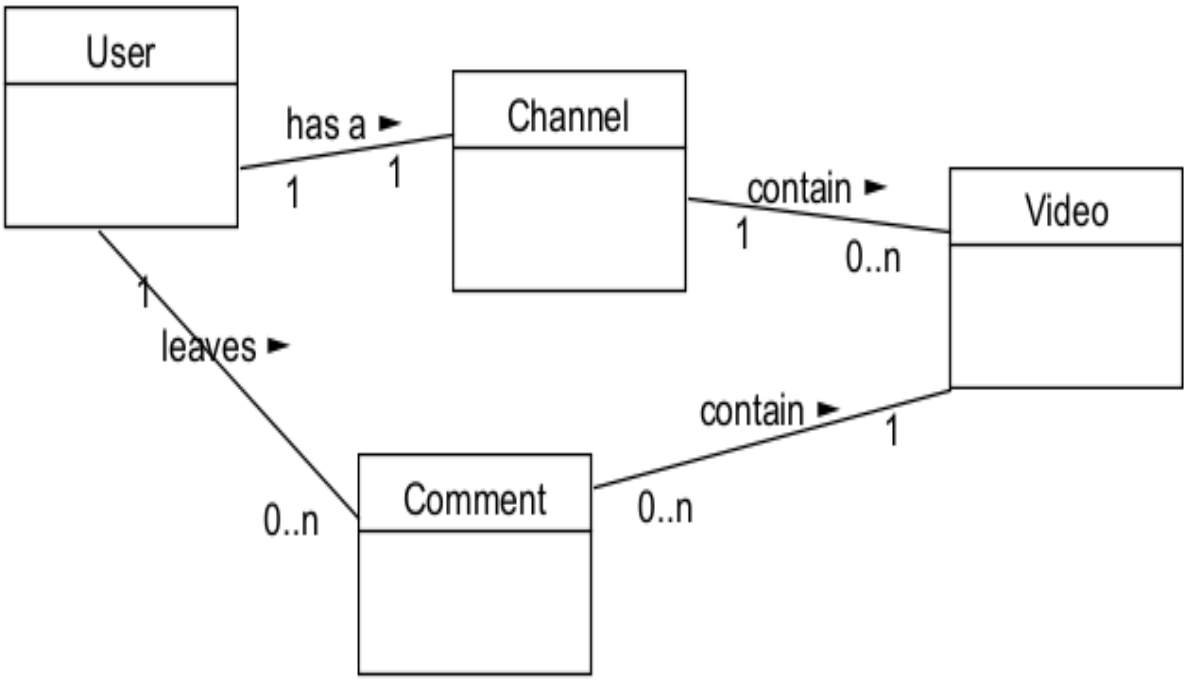


6. Class Diagram

- ✓ Classes structures in the youtube application system are shown in the following:



✓ **Class diagram associations:**



References:

1. *Lectures of the course*
2. draw.io (diagrams.net) *website*