

G. King, N. Murray, D. Logan, C. Gale

Video Streaming Website

Requirements Report

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Introduction to the Problem Domain

Video streaming services are among the most widely used online services. As of July 2018, YouTube had 197.5 million monthly average users in the US [1]. Additionally, as of 2017, 90% of Canadians between the ages of 18 and 24 had a YouTube account [2]. Our task is to develop a well-designed and competitive video streaming platform. The problem domain for this application includes: video and audio streaming, video and audio uploading, user interaction, video suggestion, and content management.

Project Goals

- Create a platform where users can upload, watch, comment on, and share videos.
- Create an efficient, consistent, pleasing user experience.
- Create a video streaming site with minimal buffering and connection issues.
- Provide informative feedback to users for errors and system status.
- Provide accurate video suggestions that are uniquely tailored to each user.
- Create a platform with un-intrusive advertisements that are more accurate for the individual users and their viewing interests.
- Create an always evolving platform, driven by user feedback and criticisms.

System Requirements

Functional Requirements

The User must be able to;

- create a personalized account and channel
- upload and stream video of various formats and resolutions
- feedback when upload is successful
- manage, organize and edit uploaded content on their channel
- showcase content for other users in a video player and content page
- engage with other users by posting and receiving comments on content and messages
- search for and find suggested videos from the community to view

The video player and content page should provide the user with;

- a place for a title and description of the video
- play/pause controls
- video scrolling control
- audio and subtitle controls
- resolution settings
- full screen, 360-degree video, and VR support
- buttons for liking, social sharing, and adding to user collections
- input for leaving a comment on the video
- feedback when posting a comment

- a view of other user's comments and their usernames
- suggested videos
- menu with dropdowns to access the user channel, other site content

Non-functional Requirements

- account creation should be quick and simple
- the user should be able to use their own email and password or log in with a Facebook or google account
- controls for basic functionality; uploading, managing, and viewing content should be easy to find and in common areas like sidebars and menus
- videos should upload quickly, and multiple video file formats should be supported
- videos should stream at a high bitrate
- videos should pre-load to avoid buffering interruptions
- pages and video content should load quickly
- on content pages, the video should be the focus
- the basic functions should be intuitive and obvious to the user

Heuristic Analysis of Vimeo.com

The Vimeo system always lets the user know of the current system status. There is an personal icon in the top right of the screen when a user is logged in. While a video is uploading or awaiting conversion, a visual is presented to the user. The visuals contain animations to signify progress. When an upload is complete, the user is made aware with a message. When videos buffer, a circle animation appears to say so. Pop-ups occur for things like invalid logins and missing fields.

The system presents the user with controls synonymous with video viewing. Standard play and pause controls are familiar to anyone who has operated a VHS, DVD, or online media player. Anyone who has used a video camera can use Vimeo. Vimeo is essentially a digital movie theater. Like posters, video thumbnails draw the user's eye. Comments and ratings mirror the critiques and reviews of the movie industry.

Vimeo's users are in total control of the system. They can upload videos and quickly delete them, place comments and remove them, like and unlike videos. Users can go back and adjust the name or description of a video after it has been posted. Anything the user does can be undone.

Vimeo has a consistent layout among all pages with a navigation bar at the top containing user account access, a search bar, and an upload button. Icons represent the same function on all pages and videos. Video pages are identical and differ only in the video content, suggestions, and posted comments. It is impossible to get lost on the site.

The only opportunities for user error are personal mistakes while filling out input fields for things like video titles and descriptions. Any inputs that are necessary for displaying video content (e.g. title, description) are required and the user is alerted when fields are left blank. Users cannot accidentally delete videos as the system asks for the account password before deletion is completed. The system does not allow the user to select unsupported file formats for upload. Error messages will appear if the user tries to view a dead URL or enter the wrong password. Errors are few, but the system provides several ways for the user to recognize when they are occurring.

Vimeo's page layout and controls are very recognizable to the user. The navigation/user account bar exists on most major social websites. Video controls follow the same standard as all online video players, play pause controls on the bottom left, progress bar along the bottom, social sharing icons in the top right. All pages are labeled so that the user recognizes where they are, the video manager and video viewing pages have very different main content to set them apart.

Vimeo is an exceptionally flexible and efficient system for uploading, managing, and sharing video content. The upload button is always on the page, no matter where you are on the site. This means its main function is always a click away. Quick access controls exist overlaid on both video thumbnails and the video player. These controls are the most often used. One task always leads to a subsequent one either explicitly by the system or as a suggestion.

Vimeo is an established service with 14 years behind the current design. Vimeo very minimalist, especially when the user first visits the page and is asked to create an account. The consistent navigation bar keeps all necessary controls in one place. The video player is designed to not distract from the content itself. There is little clutter around the video as black bars take up the extra screen space on either side. Sites like YouTube focus on getting the user to watch more content, Vimeo seems to focus on providing a pleasing experience for viewing the current content. Aesthetically, Vimeo is an industry leader. The minimalist design allows creators to focus more on their content and provides a perfect theatre for viewing.

Vimeo.com contains extensive documentation to help the user perform tasks. The 'Help' button is in its standard location at the bottom of every page. The 'Help' button leads to an extremely well-organized page containing a search bar and a set of topics that the most users deal with. The search bar allows the user to quickly find a relevant topic.

User Research

Guerilla Tests

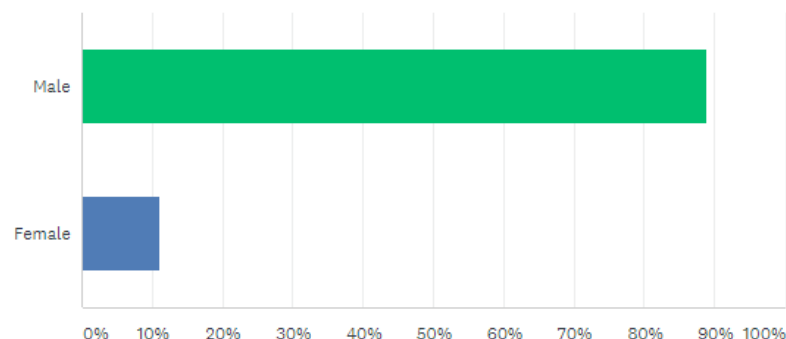
Test 1, Logging into Vimeo and uploading a video: <https://youtu.be/6hrdzCPD048>

Test 2, Logging into YouTube, viewing a video, and leaving a comment: <https://youtu.be/gHdAA53mYKc>

Survey Statistics

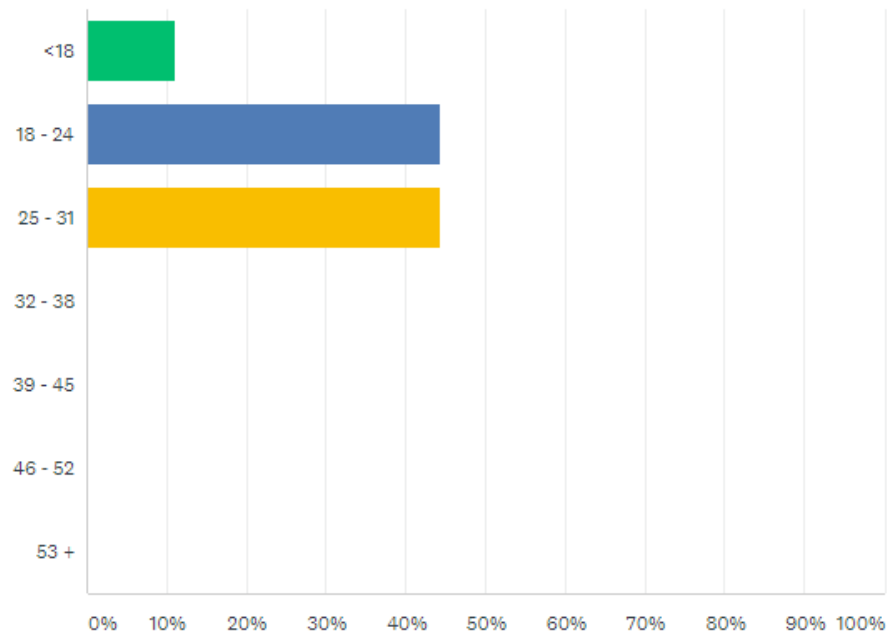
What is your gender?

Answered: 9 Skipped: 0



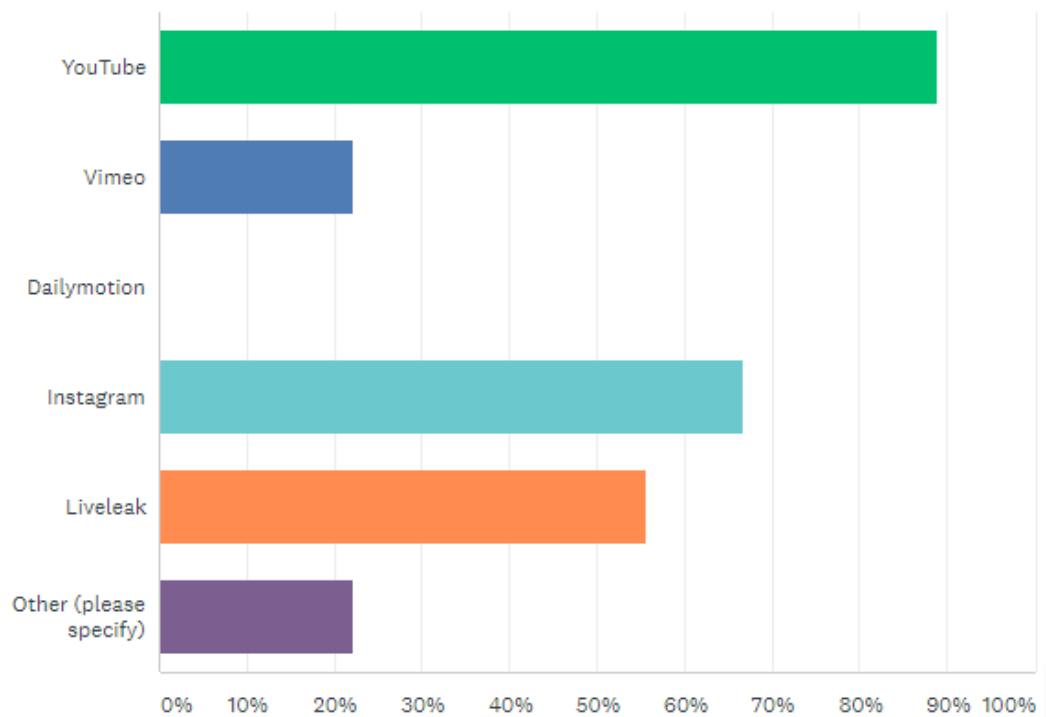
What is your age?

Answered: 9 Skipped: 0



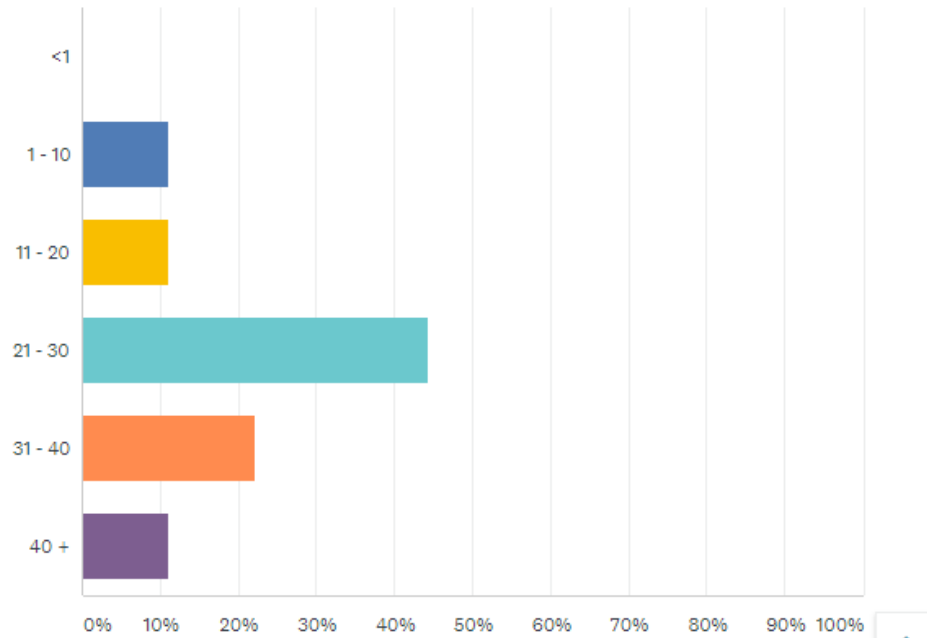
What video streaming sites do you use?

Answered: 9 Skipped: 0



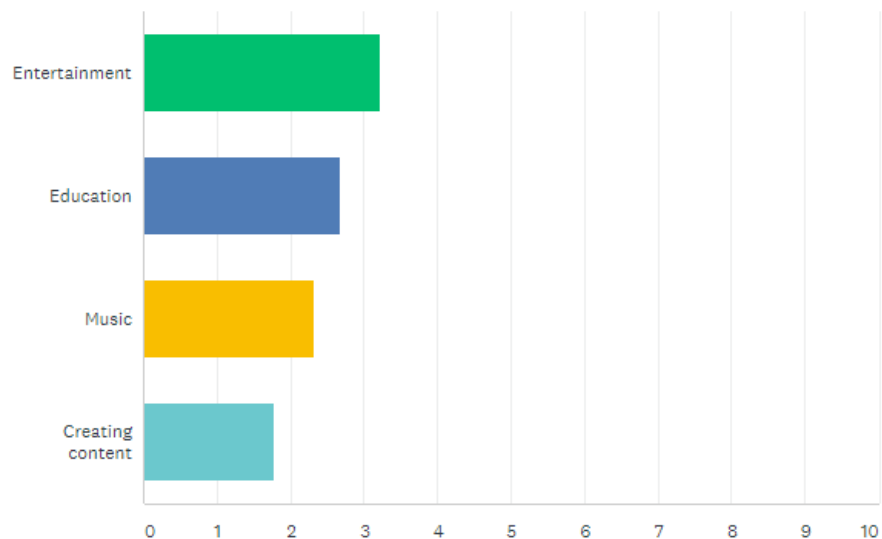
In a typical week, how many hours a week do you spend on video streaming sites?

Answered: 9 Skipped: 0



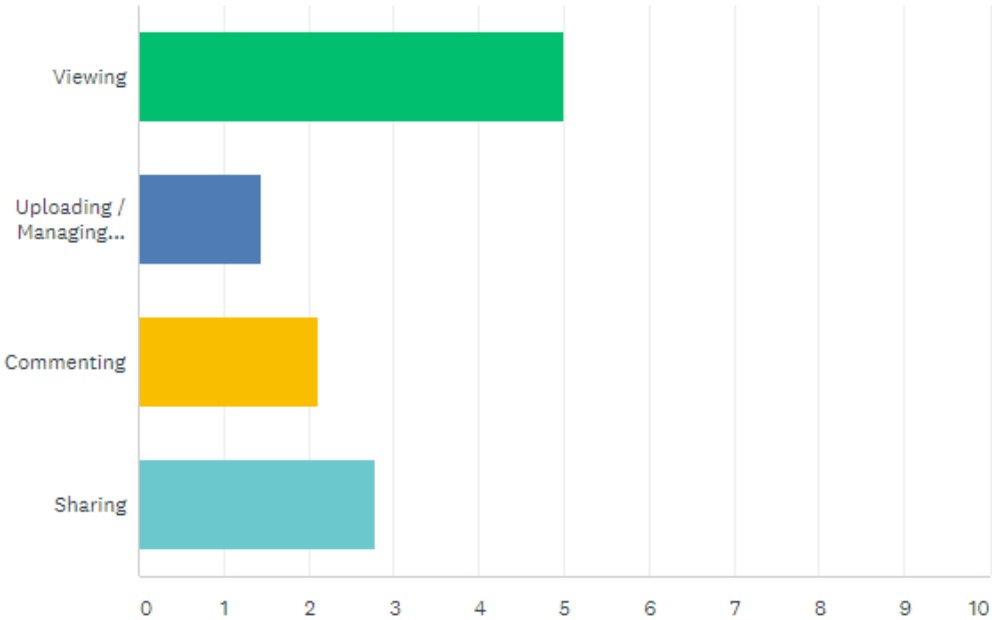
Rank your usage of video streaming websites among these categories

Answered: 9 Skipped: 0



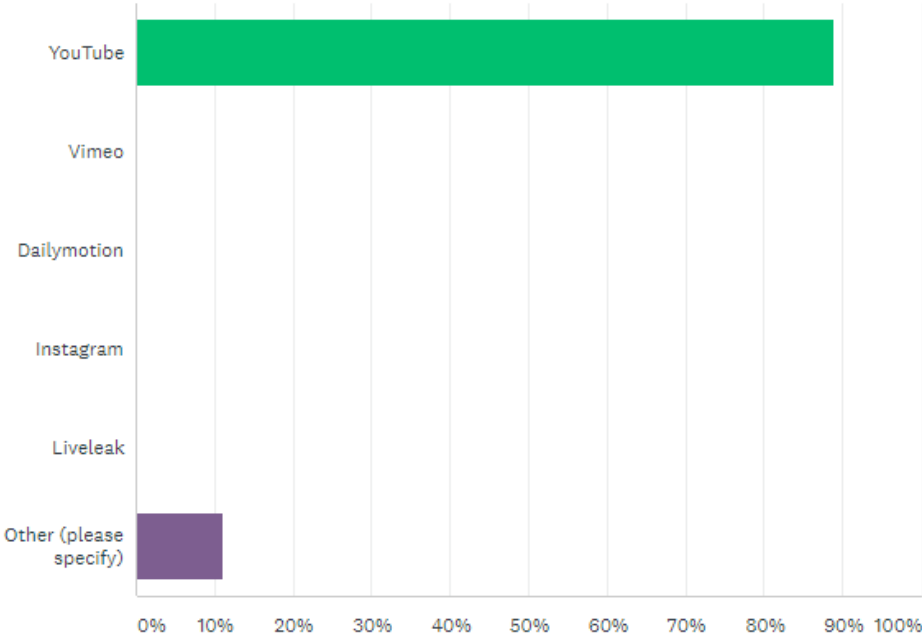
Rate the features you use on video streaming websites

Answered: 9 Skipped: 0



What video streaming site do you use the most?

Answered: 9 Skipped: 0

















User Wishlist from Survey

If you could improve one thing on your selected video streaming website what would it be?

- “No ads”
- “Video recommendation system”
- “The algorithm for suggested videos”
- “Better related content”

User Personas

	Preferred Method of Communication <ul style="list-style-type: none">• Phone• Email• Text Messaging• Face-To-face	Tools They Need to Do Their Job <ul style="list-style-type: none">• Email• Reporting Software• Cloud-Based Storage & File Sharing Applications
Name Liam Kazuto		
Age 25 to 34 years	Job Responsibilities People management	Their Job Is Measured By Customer Satisfaction
Highest Level of Education Bachelor's degree (e.g. BA, B'	Reports to Director	Goals or Objectives Ensure customer satisfaction
Social Networks      	They Gain Information By Enter text here	Biggest Challenges <ul style="list-style-type: none">• Resources• Communication• Problem Solving & Decision Making
Industry Technology		
Organization Size 51-200 employees	Add New Section +	

	Preferred Method of Communication <ul style="list-style-type: none"> • Face-To-face • Phone • Email • Text Messaging 	Tools They Need to Do Their Job <ul style="list-style-type: none"> • Email • Cloud-Based Storage & File Sharing Applications • IDE
Name George C	Job Responsibilities Maintain Code	Their Job Is Measured By Code Produced
Age 18 to 24 years	Reports to Project Manager	Goals or Objectives Quality Code
Highest Level of Education Associate degree (e.g. AA, AS)	They Gain Information By Google	Biggest Challenges <ul style="list-style-type: none"> • Communication • Employee Morale • Collaboration & Creativity
Social Networks <div>    </div> <div>    </div>	<div>Add New Section +</div>	
Industry Technology		
Organization Size 1-10 employees		

System Users

Primary Users

- Original Content creators: create content unique for the website. Such as animated shorts, talk shows, list videos, let's plays, or reviews.
- Bloggers: upload videos talking about their lives, jobs, travel etc.(blogs)
- Corporations: many companies wish to host videos for their websites and marketing. As well as placing advertisements for their products
- Casual users: upload videos to share with friends, or just view videos
- Subscription users: subscribe to specific content creators or genres of video. These users would receive a personalized feed of videos based on their preferences

Secondary Users

- Embedded video: viewers see a video from the site embedded on another website
- Links: people who receive a link to a video from a friend or external site

Tertiary Users

- Presentations: people may see a video played as part of some sort of seminar or presentation
- Through friends: people who see a video from a friend without any personal input, IE over the shoulder viewing
- Listeners: people who listen to music played through a video by some third party without any personal input

Use Cases

Use Case Name: Uploading A Video to YouTube		ID: 02	Priority: Medium
Description: The use case of a user uploading a video that they made to YouTube.			
Trigger: A user has recorded a video that they want to upload.			
Preconditions: <ul style="list-style-type: none">- The user has access to a video to upload.- The video is in a supported file type.- The user is signed into their account.- The user has a stable internet connection.			
Normal Course: <ol style="list-style-type: none">1. User opens site.2. User clicks the create video or post button.3. User clicks the upload video button.4. User selects their video in the file dialog.5. User inputs information about their video in the available input boxes.6. User sets the privacy setting for their video.7. User adds the video into a playlist.8. User waits for video to finish uploading.			
Alternative Course: N/A			
Post-conditions: <ul style="list-style-type: none">- User’s video is accessible to the intended audience.			
Exceptions: <ul style="list-style-type: none">- Video file is not supported.- Video upload fails.- User cancels upload.			
Summary Inputs	Source	Summary Outputs	Destination
Video created by user	The User	Video uploaded	All available audiences

Use Case Name: Commenting on YouTube		ID: 003	Priority: High
Description: This use case describes the steps for commenting on a YouTube video.			
Trigger: The user clicks the “add public comment” section			
Preconditions: User is Logged in, User wants to make a comment			
Normal Course: 1. Click on video 2. Scroll down to comments 3. Click comment box 4. Type comment 5. Hit submit button			
Alternative Course:			
Post-conditions: Comment appears under video			
Exceptions: 5.b User hits the cancel button. Use case ends.			
Summary Inputs	Source	Summary Outputs	Destination
Press Comment box Type comment text Press Submit button	User User User	Comment text	Server

Use Case Name: Watching a video on YouTube		ID: ww01	Priority: High
Description: The user initiates playback of a video for viewing on the website			
Trigger: User clicks video thumbnail or icon			
Preconditions: <ul style="list-style-type: none">- The user has a means of interacting with the system (mouse/keyboard or touch controls)- The user has an internet connection and web browser- The user is on the homepage or a channel page of a content creator- The user has a video in mind to search			
Normal Course: <ol style="list-style-type: none">1. The homepage presents the user with thumbnails of video suggestions2. User clicks on a video thumbnail3. The system loads video file from server4. Video page loads and playback begins automatically5. The user clicks the play/pause button to stop and start playback6. The user clicks the video timeline to jump ahead			
Alternative Course: <ol style="list-style-type: none">1. User enters a video title into the search bar2. System returns grid of relevant thumbnails3. User clicks on a video thumbnail			
Post-conditions: <ul style="list-style-type: none">- Video playback stops- The system presents the user with suggestions of videos to watch next- The system starts the auto-play timer			
Exceptions: <p>The video will not play if</p> <ul style="list-style-type: none">- the video is private- the video has content locked to a specific region- the video is age restricted- the video itself or uploader account is deleted			
Summary Inputs	Source	Summary Outputs	Destination
Click video thumbnail Click play/pause button	User User	Video starts playing Video suggestions	User User

References

[1] "U.S. leading streaming video platforms by monthly average users 2018 | Statistic," *Statista*. [Online]. Available: <https://www.statista.com/statistics/910875/us-most-popular-video-streaming-services-by-monthly-average-users/>. [Accessed: 10-Oct-2018].

[2] "Canada YouTube reach by age 2017 | Statistic," *Statista*. [Online]. Available: <https://www.statista.com/statistics/484416/canada-youtube-penetration-by-age/>. [Accessed: 10-Oct-2018].