

TikTok Infringes US Patent No. 8,886,753

NTECH Properties, Inc. (“NTECH”) provides the following chart pursuant to Patent Local Rule 3-1 regarding ByteDance Ltd., ByteDance Pte. Ltd., and TikTok Pte Ltd. (collectively “Defendants” or “TikTok”) infringement of U.S. Patent No. 8,886,753 (the “’753 Patent”).

As identified and described element-by-element below, TikTok infringes claims 1-10 of the ’753 Patent (the “Asserted Claims”). Elements in these claims can be met with source code and/or combinations of source code and hardware.

None of the elements of the Asserted Claims of the ’753 Patent are governed by 35 U.S.C. §112(6).

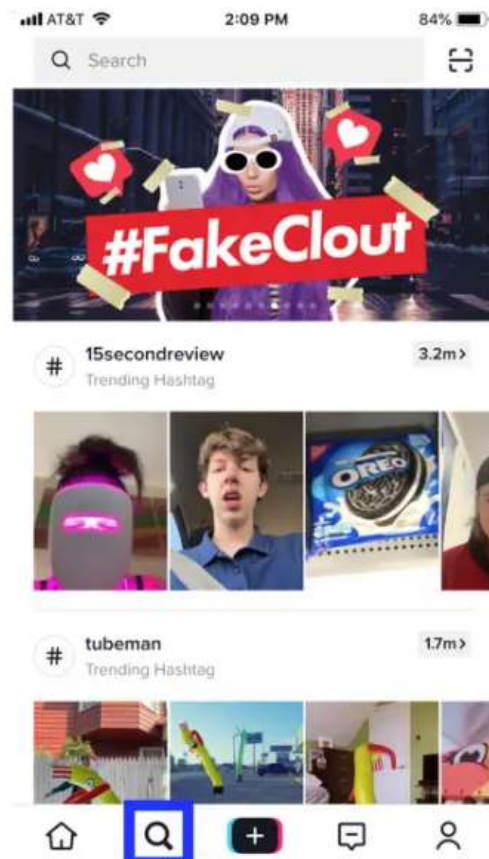
Claim 1

1a. A method of generating media programming, comprising:

The Accused Instrumentalities perform a method of generating media programming including video, audio, music, images and advertisement. This media programming can be generated on TikTok Servers, including software supporting the TikTok App and Website. The media programming is provided to a user through the TikTok App or through the TikTok Website.

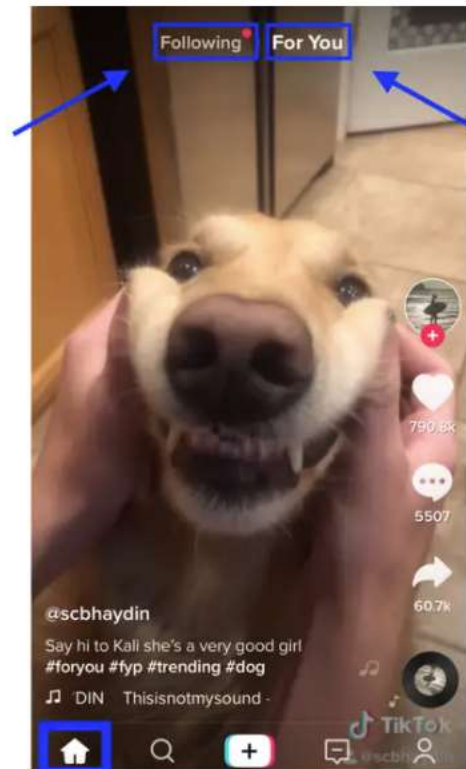
The excerpts below depict different examples of how the Accused Instrumentalities provide video programming to a user.

The second tab in the menu running across the bottom of TikTok, represented by a magnifying glass, is where you'll find what's trending on the app. This is TikTok's bread and butter: it's where the latest viral trends are found, and associated hashtags are tracked.



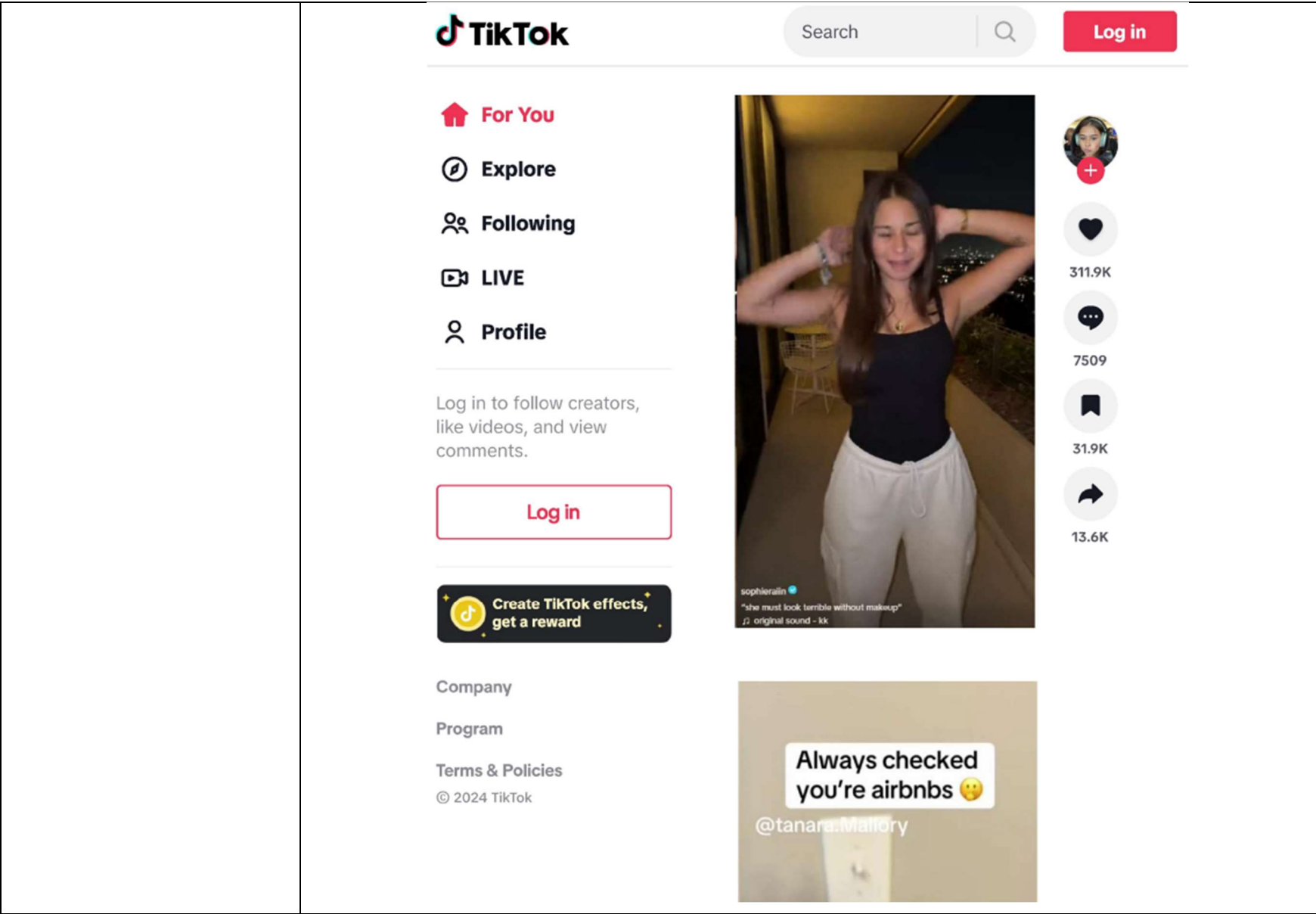
TikTok/Business Insider

The TikTok home page, where your feed lives, is split up into two sections: "following," to only see content from users you follow, and "for you," which amasses popular content from across TikTok, similar to Instagram's Explore page.

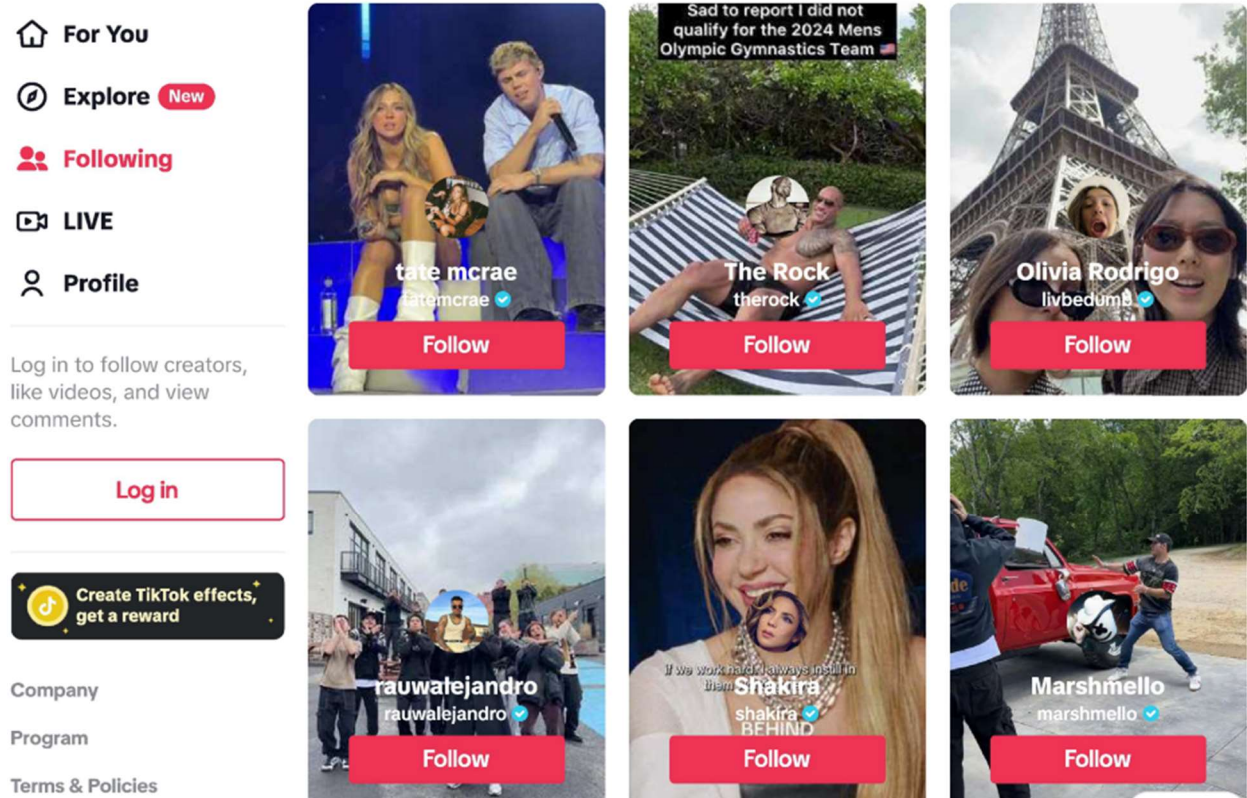


TikTok/Business Insider

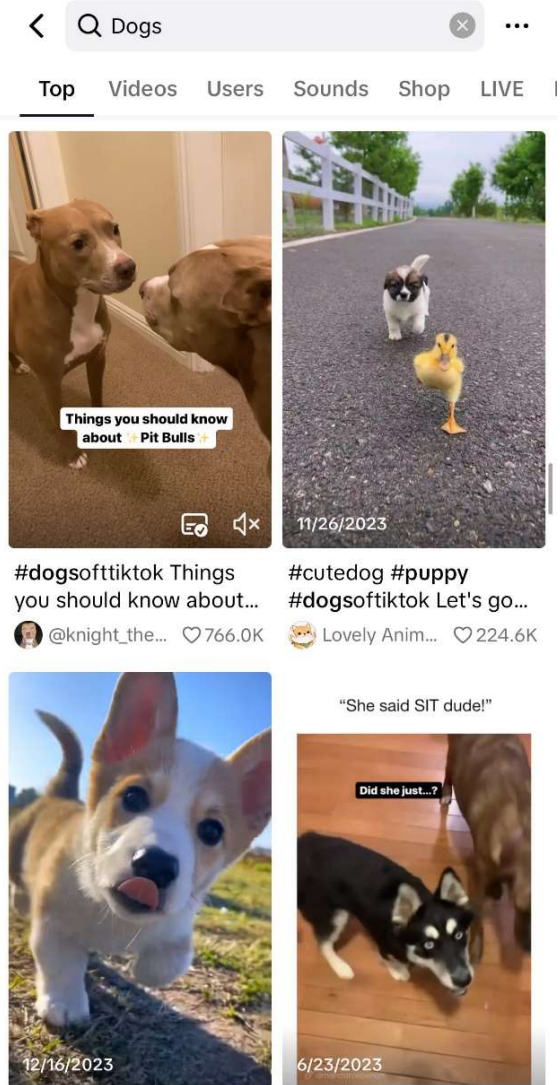
NTECH 002202 - NTECH 002225 at NTECH 002205, 2207 (showing media programming generated within the TikTok App and displayed on a mobile phone)



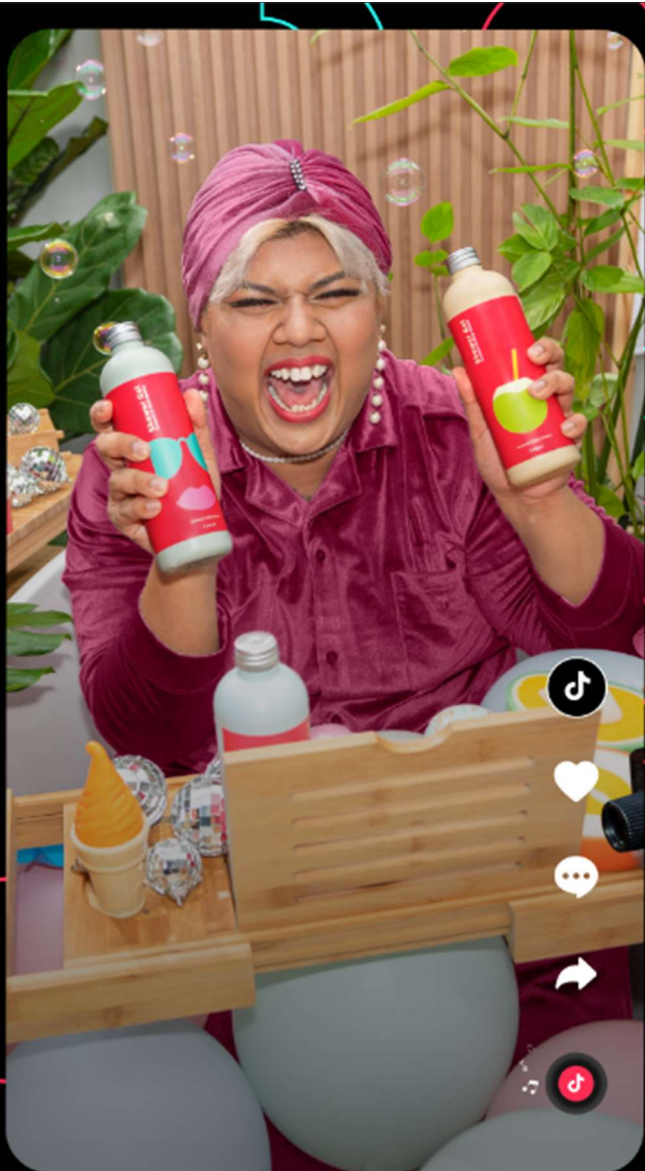
NTECH 002631-NTECH 002632 (media programming generated within the TikTok Website and displayed on a computer)



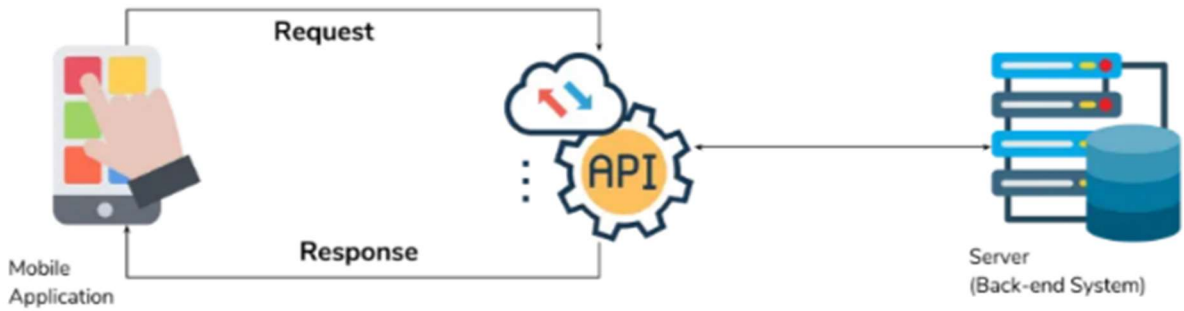
NTECH 002301-NTECH 002306 (showing media programming generated within the TikTok Website and displayed on a computer)



NTECH 002274 (Media programming generated within the TikTok App and displayed on a mobile phone)

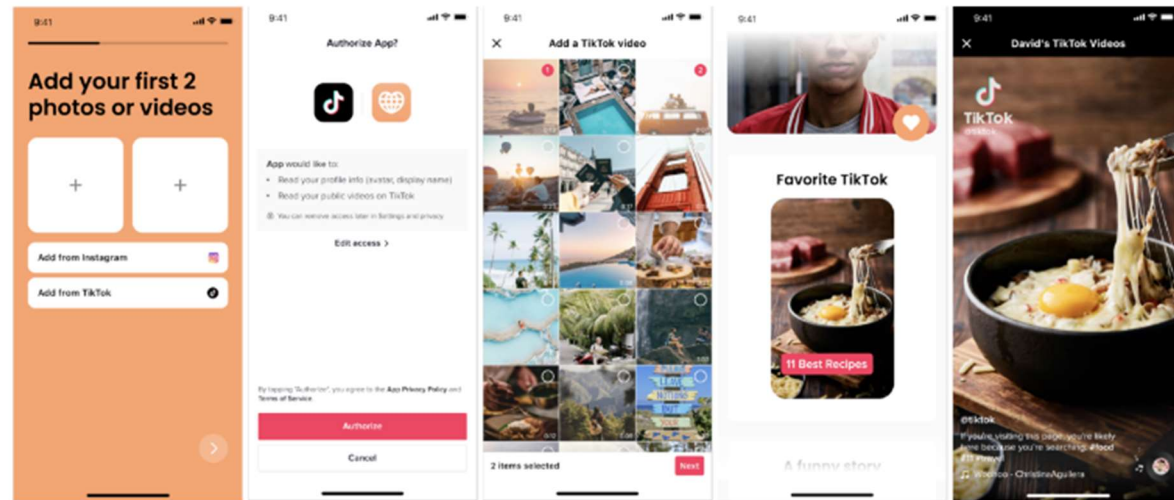


	 TikTok for Business Grow your Business with TikTok ads TikTok Ads Manager is the one-stop shop for running and managing paid campaigns on TikTok. TikTok Ads Manager gives you all the features you need to launch effective ads, drive sales and measure performance. Best of all, it's affordable and easy to use. NTECH 002564-2567 (TikTok for Business webpage, providing directions on how to post and pay for advertisement on The Accused Technologies)
--	--

	Watching TikTok videos In a nutshell, like videos from Vine or Instagram, TikTok videos appear vertically on your screen. You can engage with them using “hearts”, which are the same as “likes.” After you download the TikTok app and open it, you’ll immediately see curated featured videos on the “for you” page. You can switch to the “following” page to see videos from users you follow - whether friends or popular TikTokers. NTECH 002624- NTECH 002630 (article explaining how TikTok is used)
1b. delivering by an aggregator to a client a list of feeds;	TikTok’s front end website and app servers (acting as aggregators) deliver and display the media elements produced in a selectable menu of media feeds, known as the “For You” feed, the “Following” feed, the TikTok Shop feed, and the results of a search including hashtags. TikTok’s media feeds are delivered to a client device associated with a user, such as a mobile phone or a computer. As depicted below, TikTok’s HTTP-based Display API’s displays the media elements generated by TikTok’s publisher.  <pre> graph LR MA[Mobile Application] -- Request --> API[API] API -- Response --> MA API <--> S[Server Back-end System] </pre> NTECH 002617- NTECH 002623 at NTECH 002619 (depicting the functionality of API’s, such as communicating with backend systems including Servers that support a recommendation engine, to produce a response)

Display User's Self-Selected TikTok Videos

Use the `/v2/video/list/` and `/v2/video/query/` APIs to get the metadata of a TikTok user's videos and integrate an embedded video player into your product. In addition, you can design features to allow users to select their TikTok videos to present on their profile and enable their followers to watch the video in webview.



NTECH 002568 - NTECH 002572 at NTECH 002570 (article depicting the display of media elements following the retrieval of data using API's, such as video programming, by initiating a query)

The media programming retrieved is used to create a stream of media programming known as a feed, which is delivered to a client device. As depicted below, TikTok's "For You" feed, "Following" feed, the TikTok Shop feed, and the results of a search including hashtags are delivered to a client device such as a computer or a mobile phone within the TikTok App and the TikTok Website.



Search



Log in

 **For You**

 **Explore**

 **Following**

 **LIVE**

 **Profile**

Log in to follow creators,
like videos, and view
comments.

Log in

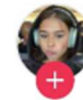
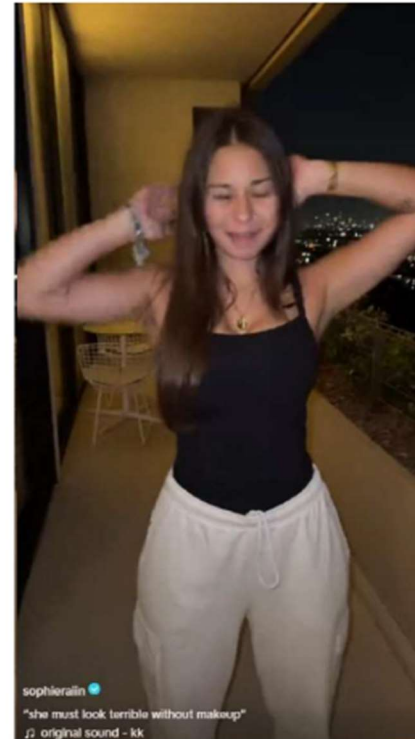
 **Create TikTok effects,
get a reward**

Company

Program

Terms & Policies

© 2024 TikTok



311.9K



7509



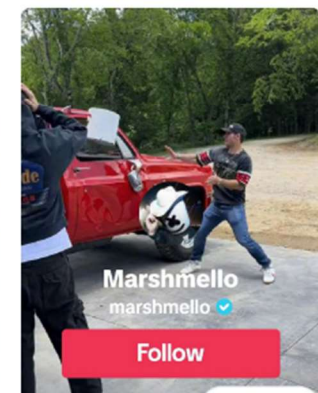
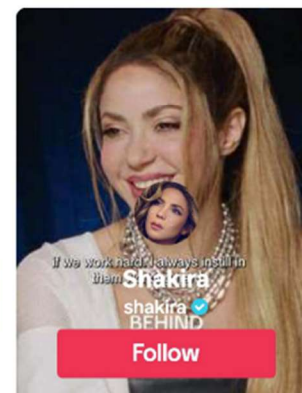
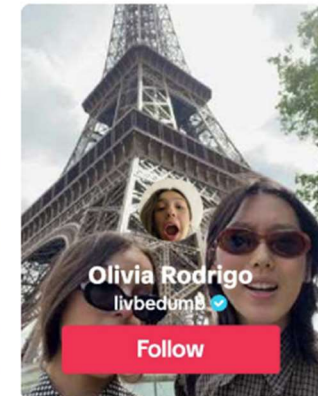
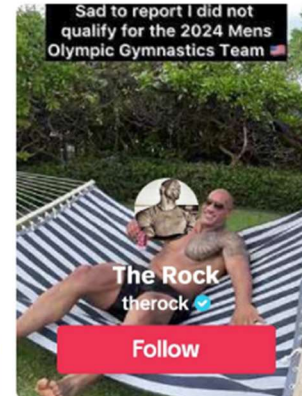
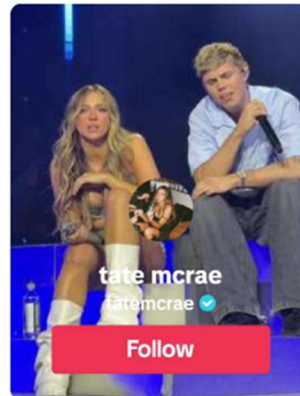
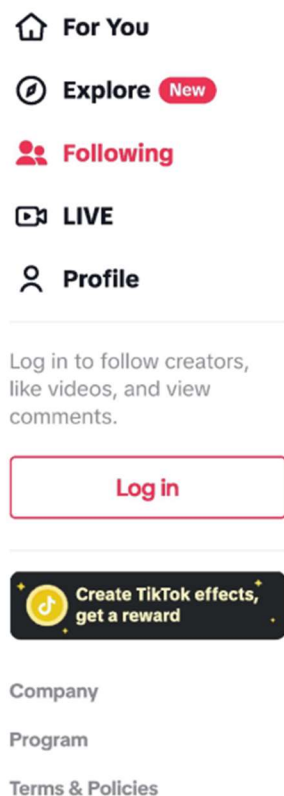
31.9K



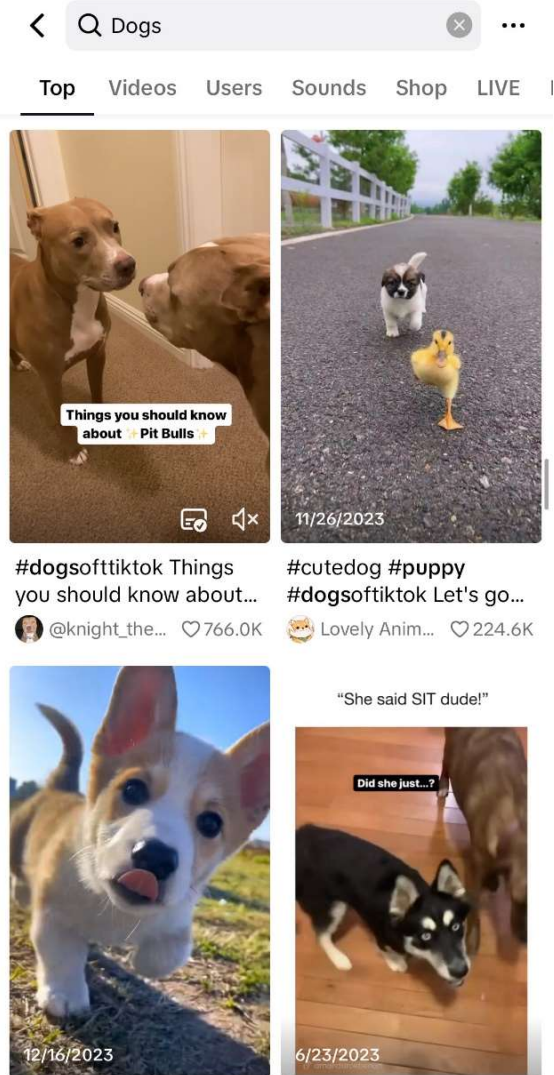
13.6K



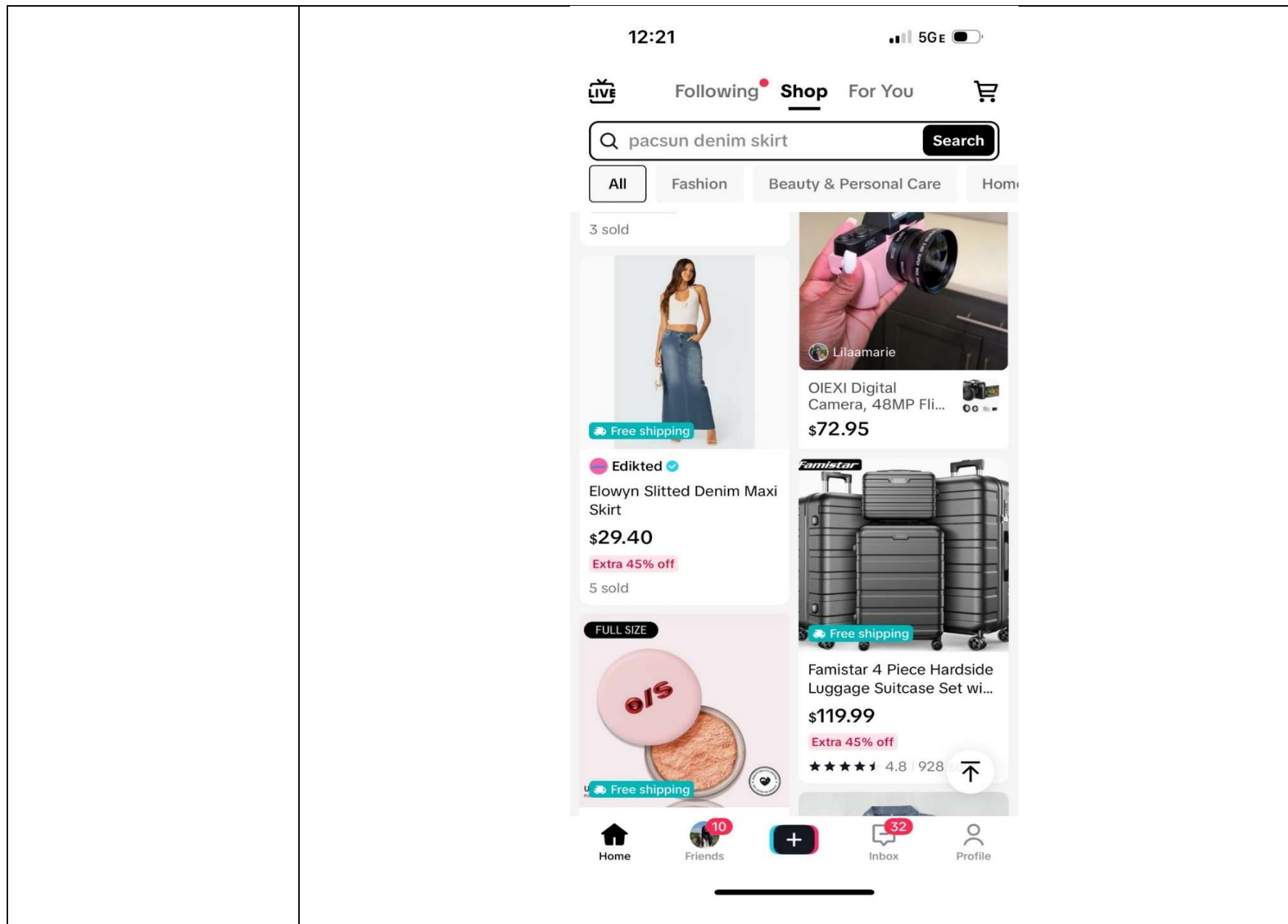
NTECH 002631-NTECH 002632 (A menu of selectable media, displayed within TikTok’s “For You” feed on a computer)

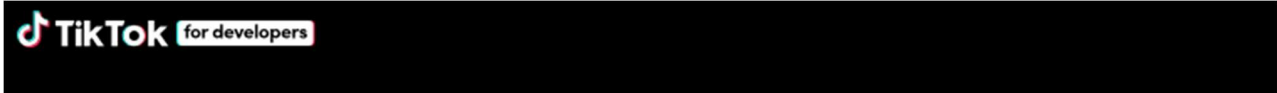


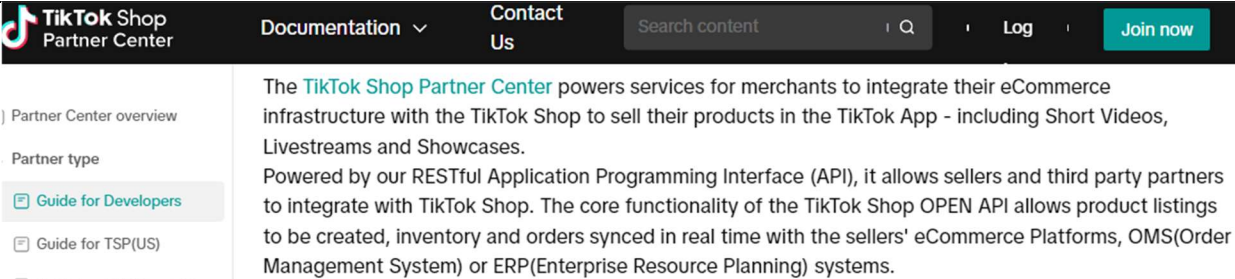
NTECH 002301-NTECH 002306 (Showing a menu of selectable media, displayed within TikTok’s “Following” feed on a computer)



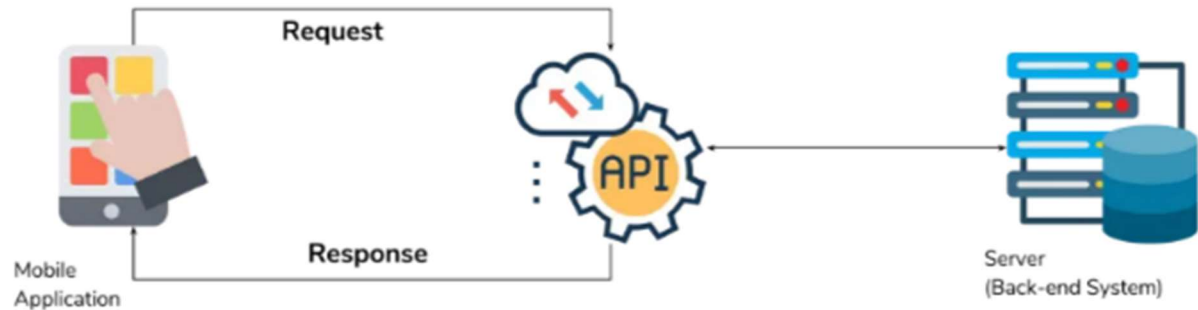
NTECH 002274 (A menu of selectable media, displayed within TikTok's search feed on a mobile phone)



	NTECH 002670 (A menu of selectable media, displayed within TikTok Shop feed on a mobile phone)
1c. receiving by the aggregator from the client a selection of one of the feeds;	TikTok’s aggregators such as its frontend servers use Web and App HTTP based API’s and RESTful API’s, which receive and transfer user selections, from a mobile device or computer, on TikTok’s frontend, to TikTok’s backend such as TikTok Servers, including software supporting the TikTok App and Website, as depicted below.  Docs Overview The Display API contains a set of HTTP-based APIs that your product can use to display a TikTok creator's videos and their profile information. Your platform's influencers can display their TikTok profile identities and videos to enrich content, attract more audiences, and enable their followers to view their TikTok videos without leaving your platform. NTECH 002568 - NTECH 002572 at NTECH 002568 (article describing the functionality of HTTP-based API’s used by TikTok aggregators TikTok to receive user selections)

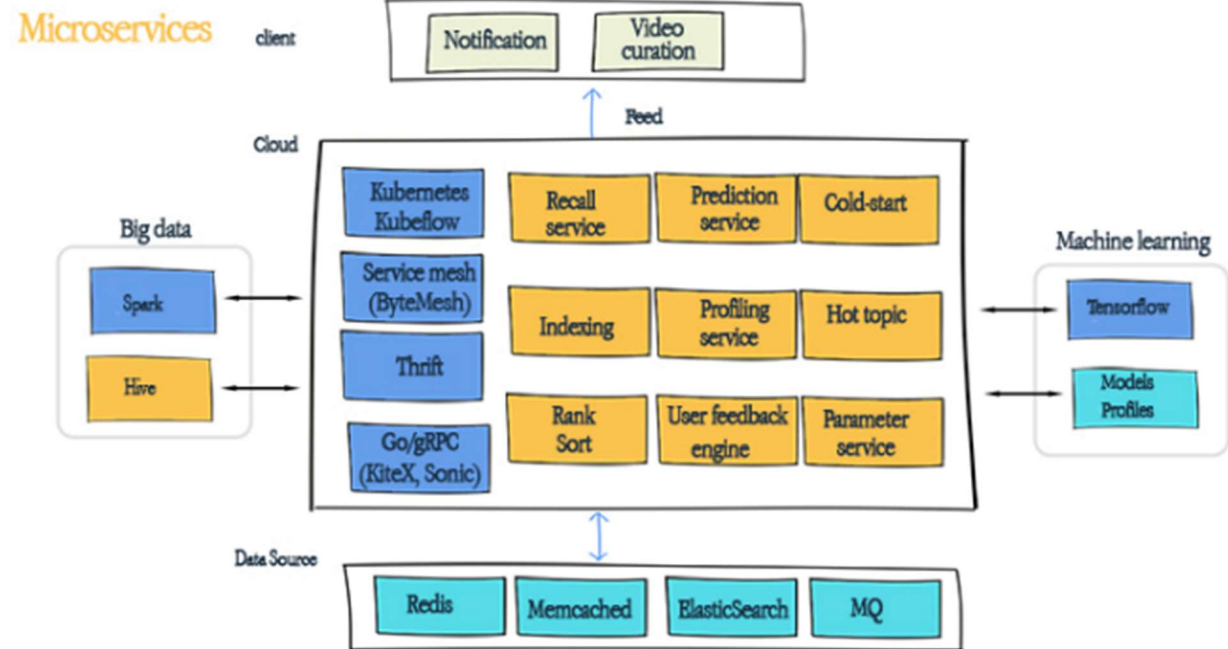
	 NTECH 002585- NTECH 002604 at NTECH 002585 (article describing the functionality of RESTful API's used by TikTok aggregators to receive user selections) When a user selects TikTok's media feeds, this is received by TikTok's aggregators using its API's which operate within its frontend servers. As depicted by the excerpts below, TikTok, including TikTok Shop, uses API's to receive user selections. A user interacts with displays on a client device, such as the shop/PDP display and the order display, by making selections which are received by TikTok's API's. A user may select a part of a display to initiate a return and refund, to contact customer service, to update a catalog listing, and more.
--	--

	NTECH 002585- NTECH 002604 at NTECH 002586 (article depicting the functionality of API's acting as aggregators used by TikTok to receive user selections)
1d. acquiring by a publisher from the aggregator the feed selection;	TikTok publishers, receive a user request from TikTok aggregators. TikTok publishers are TikTok backend servers which host its recommendation engine. TikTok publishers communicate with TikTok aggregators through API's which receive and transfer user selection to TikTok's backend, including TikTok publishers, as depicted below.



NTECH 002617- NTECH 002623 at NTECH 002619 (depicting the functionality of an API, including the process of transferring a user request to the backend system of a client server architecture hosting TikTok's recommendation engine)

As depicted below, TikTok servers including its cloud servers and software supporting the TikTok App and Website, host TikTok's microservices powering its recommendation engine.



NTECH 002605 - NTECH 002615 at NTECH 002610 (article describing the microservices that power TikTok's recommendation engine)

TikTok's front-end website and app servers which host its aggregators including, TikTok's API's, provide user information to TikTok publishers, which are TikTok Servers that host its recommendation engine. For example, TikTok's Display API generates user information, as depicted below.

	Components Display API has three major APIs: <code>/v2/user/info/</code>, <code>/v2/video/list/</code>, and <code>/v2/video/query/</code>. <code>/v2/user/info/</code>: Get a TikTok user's basic profile information. This includes the user's open_id, avatar_url, display_name, profile_deep_link, and bio_description. <code>/v2/video/list/</code>: Get the metadata of a TikTok user's recently uploaded videos. <code>/v2/video/query/</code>: Get the metadata of TikTok a user's videos filtered by video Id. NTECH 002568 - NTECH 002572 at NTECH 002568 (article describing the functionality of HTTP-based API's acting as aggregators used by TikTok publishers to receive user selections)
1e. collecting by the publisher from the aggregator client information, wherein said client information comprises user information; and	TikTok's front-end Website and App servers which host its aggregators including, TikTok's API's provide user information to TikTok publishers, which are TikTok Servers that host its recommendation engine. For example, TikTok's Display API includes an API that generates user information, as depicted below.

Components

Display API has three major APIs: `/v2/user/info/`, `/v2/video/list/`, and `/v2/video/query/`.

`/v2/user/info/`: Get a TikTok user's basic profile information. This includes the user's `open_id`, `avatar_url`, `display_name`, `profile_deep_link`, and `bio_description`.

`/v2/video/list/`: Get the metadata of a TikTok user's recently uploaded videos.

`/v2/video/query/`: Get the metadata of TikTok a user's videos filtered by video Id.

NTECH 002568 - NTECH 002572 at NTECH 002568 (article describing the functionality of HTTP-based API's acting as aggregators used by TikTok publishers to receive user selections)

When a user selects a prompt, which indicates TikTok's information requesting Display API, this indicates a request for user information. Information about the mobile phone or computer used to generate the request, such as the device IP address, is also provided to TikTok Servers hosting its recommendation engines (TikTok publishers). The user's section is provided to TikTok publisher, as depicted below.

Display User's TikTok Profile

Use the `/v2/user/info/` API to get a TikTok user's profile data and then display their TikTok identity. In this example, when a visitor clicks the `profile_deep_link`, they will be redirected to the creator's profile page on the TikTok app or website.



Konan 25

UX Designer
Northern Arizona University
Lives In Fremont

About me

In Boston looking for an apartment before I move here in August. think of this as a preview or a pre-release. Currently in a very happy open relationship.

My TikTok



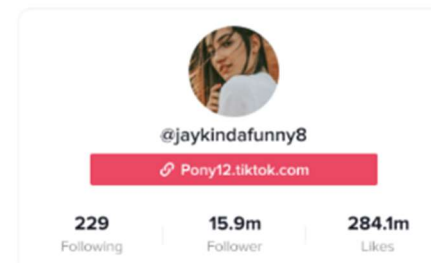
Konan 25

UX Designer
Northern Arizona University
Lives In Fremont

About me

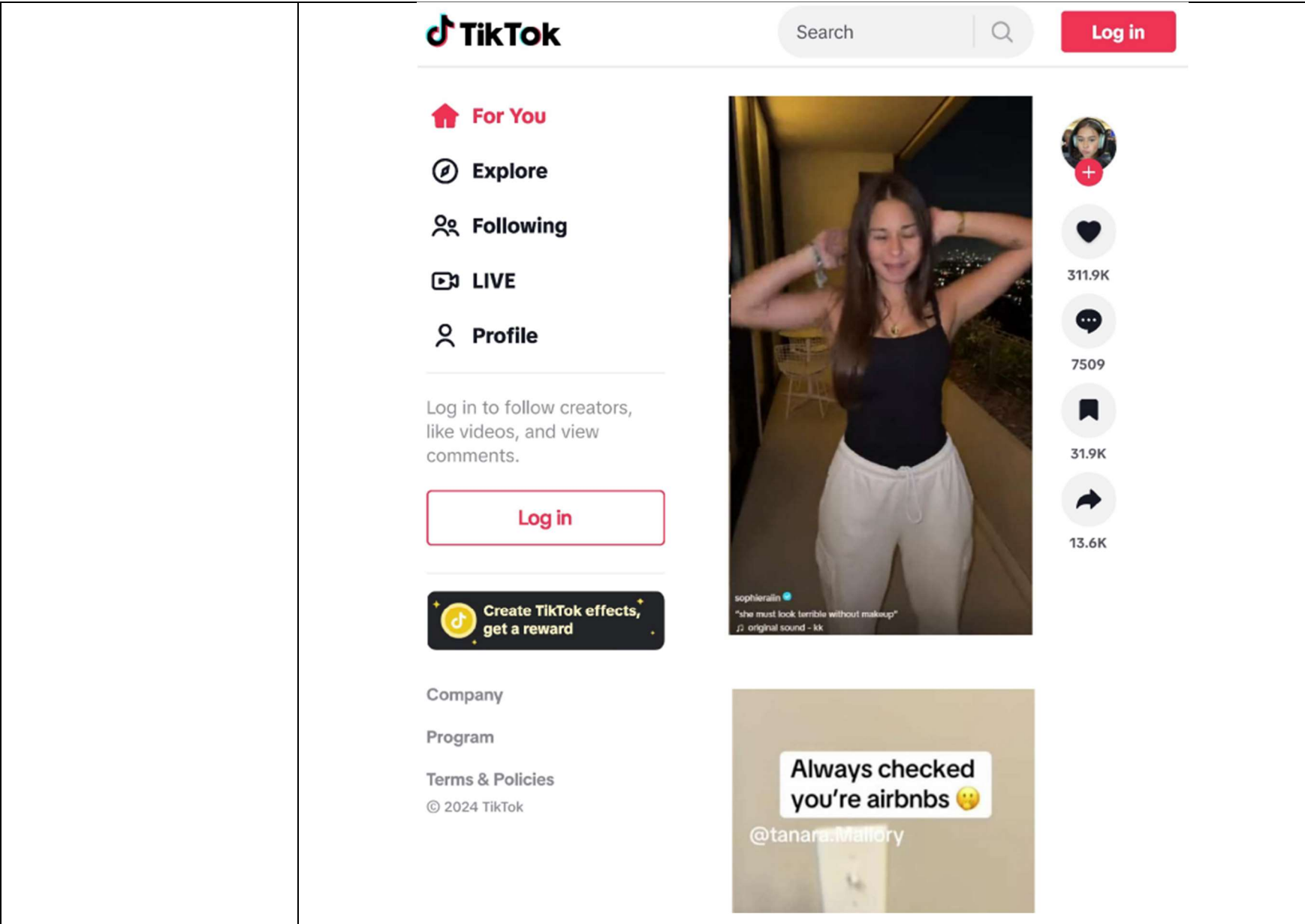
In Boston looking for an apartment before I move here in August. think of this as a preview or a pre-release. Currently in a very happy open relationship.

My TikTok

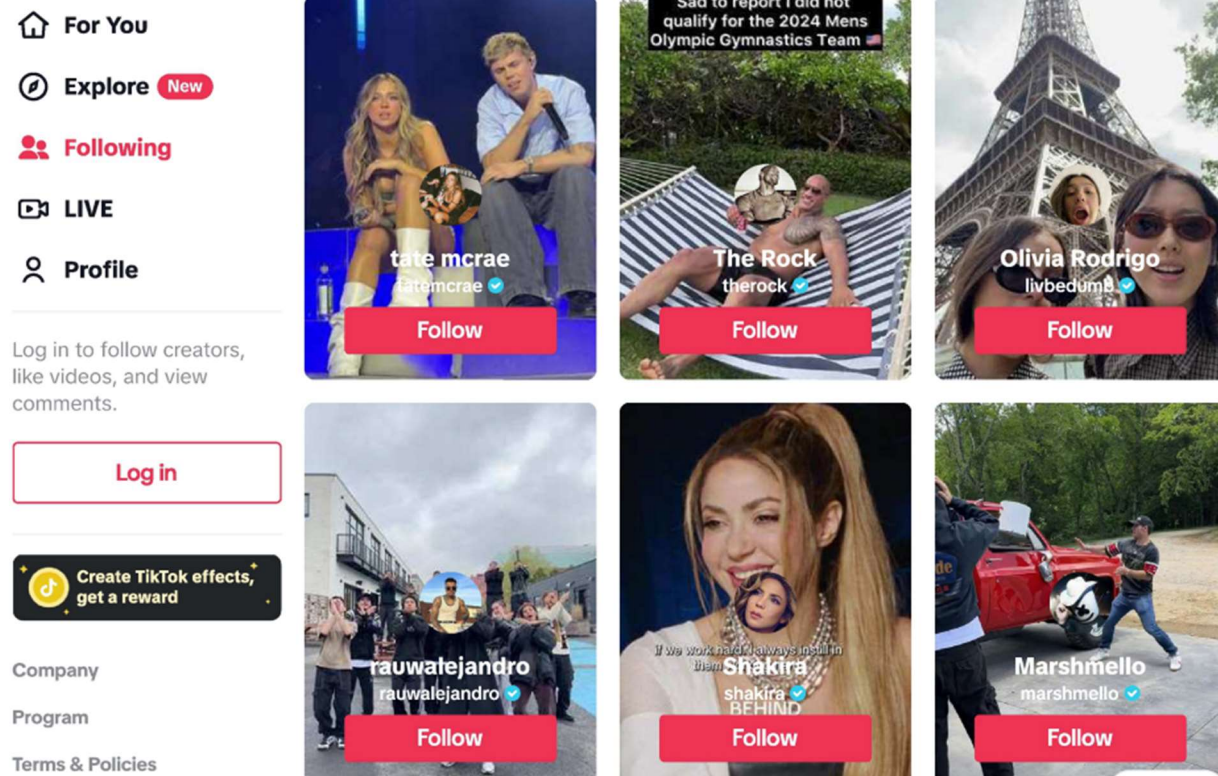


	NTECH 002568 - NTECH 002572 at NTECH 002569 (article describing the functionality of HTTP-based API's acting as aggregators used by TikTok publishers to receive user selections) Why a video is recommended on your For You feed At TikTok, we want to help you understand why certain videos appear on your For You feed. That's why we share this information on each video in the feed. To learn why a video is recommended to you: 1. In the TikTok app, tap the Share button on the side of a video in the For You feed. 2. Tap Why this video. We'll list some reasons why a video shows up on your feed, such as: ◦ You commented on, liked, shared, or watched similar videos ◦ This video is popular in your country ◦ This video was posted recently ◦ This video is longer, and you seem to like longer videos ◦ You're following this creator Keep in mind, if you've recently refreshed your For You feed, you'll see a variety of videos while we learn your preferences to launch your new personalized feed. NTECH 002226 - NTECH 002231 at NTECH 002229 (TikTok help center article describing the type of user information provided to TikTok's publishers, including TikTok Servers which host its recommendation engine)
1f. providing, to the client individual customized media programming based on a publisher-initiated feed responsive to the feed selection and including media elements selected, ordered, and concatenated	When a user requests media programming by selecting a feed or initiating a search, TikTok publishers curate a stream of media elements including music, video and pictures for a client individual such as a user, as depicted below. As depicted below, users request media programming by selecting a media feed such as the "For You" feed and the "Following" feed.

with the feed that are responsive at least in part to the user information.	Watching TikTok videos In a nutshell, like videos from Vine or Instagram, TikTok videos appear vertically on your screen. You can engage with them using “hearts”, which are the same as “likes.” After you download the TikTok app and open it, you’ll immediately see curated featured videos on the “for you” page. You can switch to the “following” page to see videos from users you follow - whether friends or popular TikTokers. NTECH 002624- NTECH 002630 (article explaining how users request media programming by)
--	--

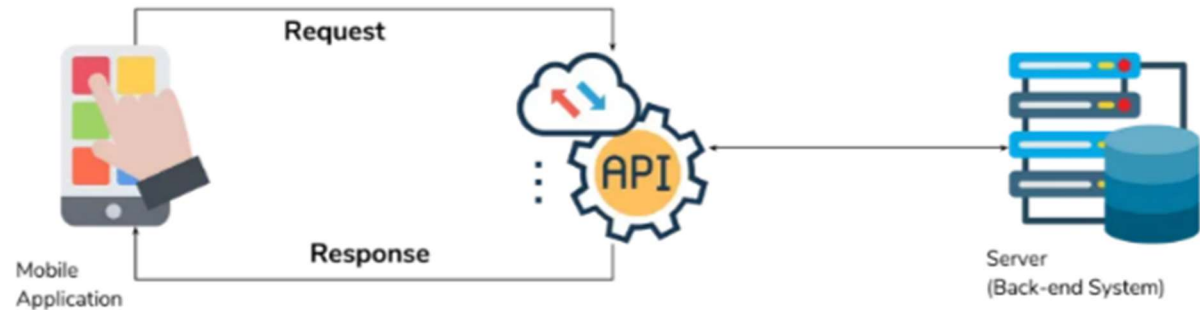


NTECH 002631-NTECH 002632 (Showing media elements generated within the “For You” feed displaying videos on the TikTok Website and displayed on a computer)

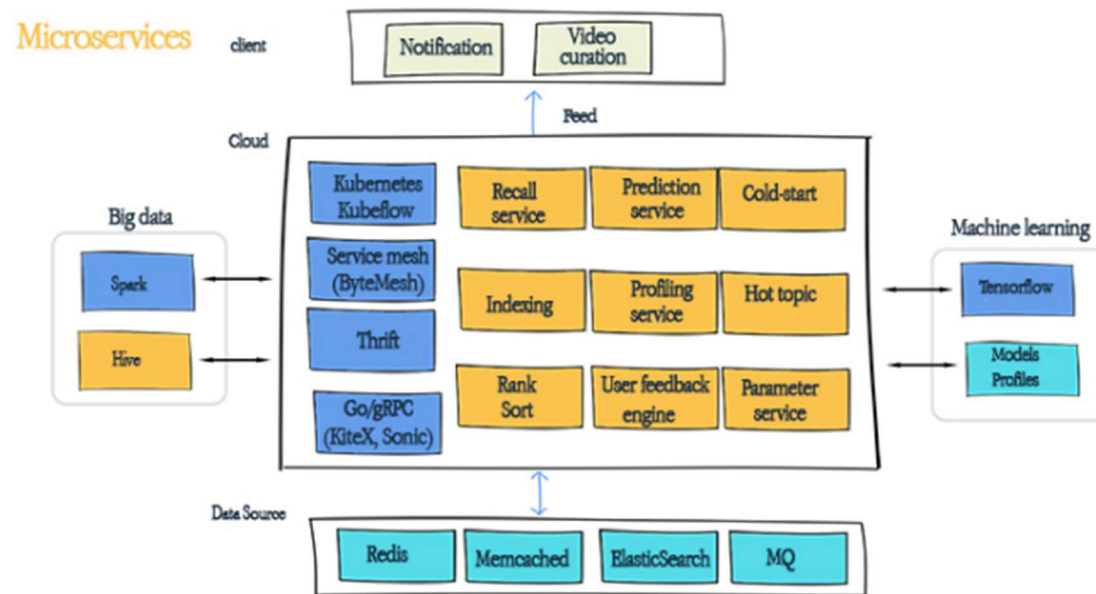


NTECH 002301-NTECH 002306 (Showing media elements generated within the “Following” feed displaying videos on the TikTok Website and displayed on a computer)

TikTok publishers which are held in TikTok backend servers and host TikTok’s recommendation engine, select and curate content, as depicted below.

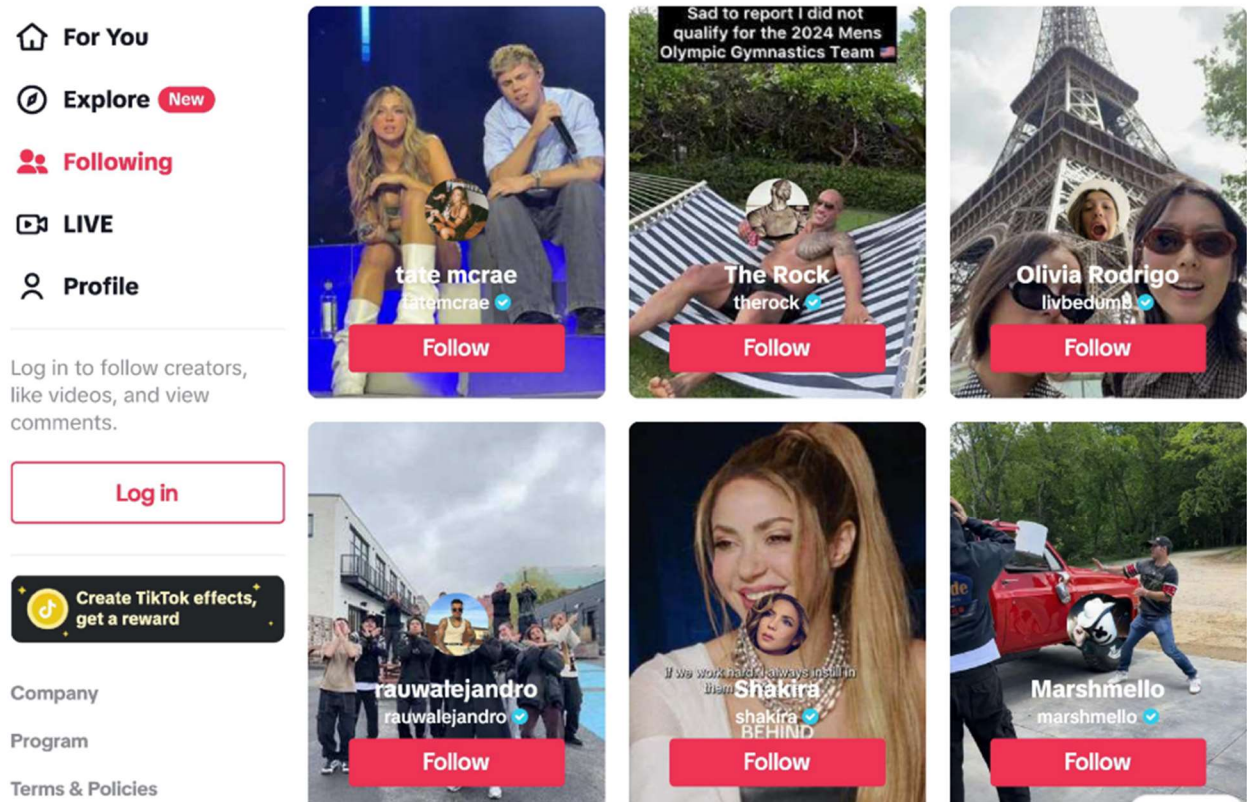


NTECH 002617- NTECH 002623 at NTECH 002619 (depicting how TikTok’s backend servers receive user selection and responds with curated media elements for a user)

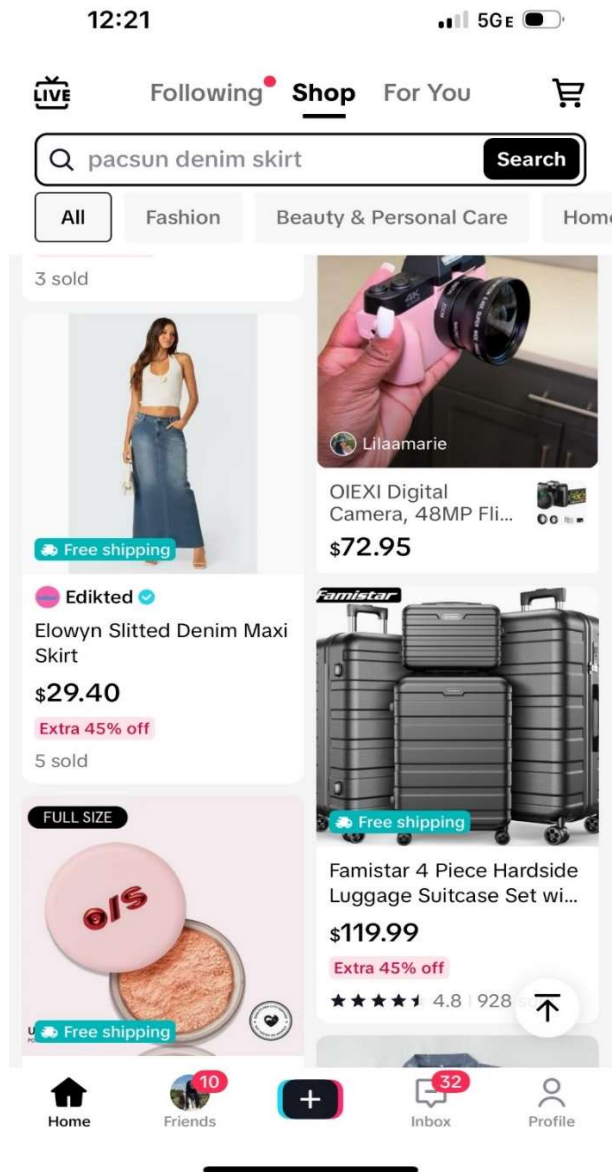


NTECH 002605 - NTECH 002615 at NTECH 002610 (article describing the microservices that power TikTok’s recommendation engine)

Media elements displayed within TikTok's feeds include videos, music and pictures, as depicted below.

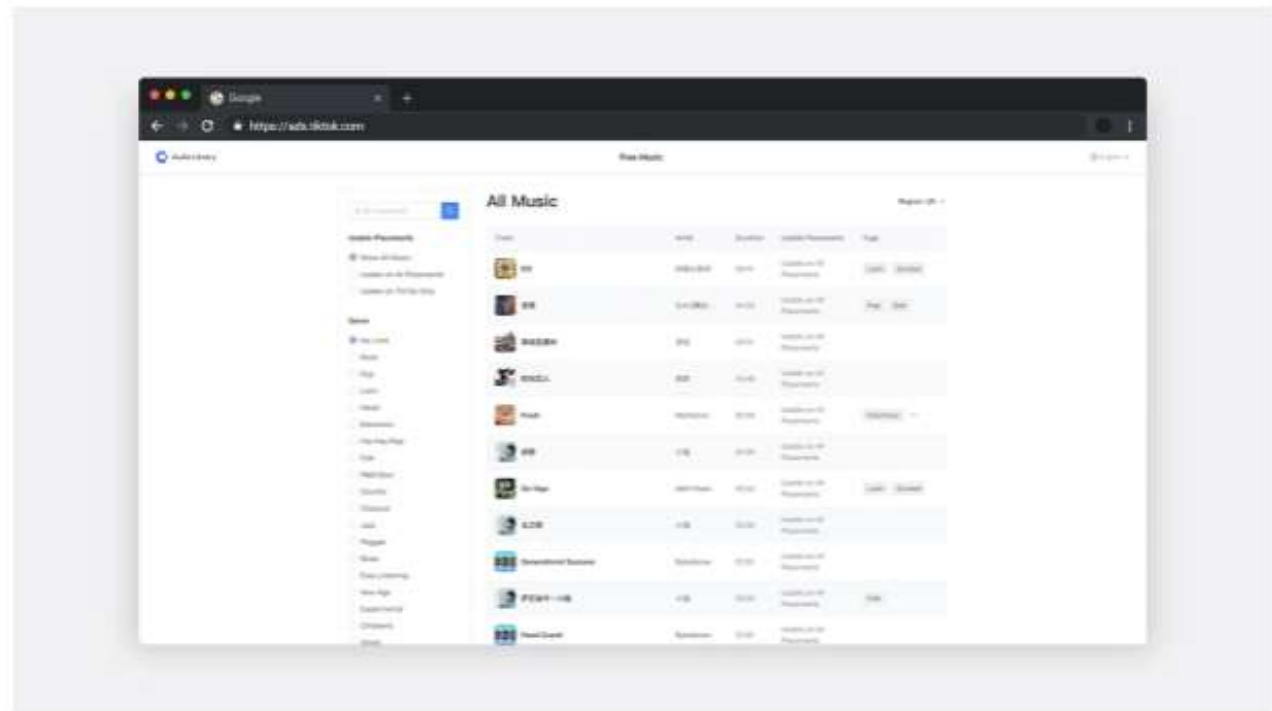


NTECH 002301-NTECH 002306 (Showing media elements generated within the "Following" feed displaying videos on the TikTok Website and displayed on a computer)



NTECH 002670 (TikTok Shop feed displaying pictures)

The TikTok Commercial Music Library is a pool of over 150,000 pre-cleared, royalty-free tracks sourced from emerging artists and top-tier music houses. The library features tracks both with and without lyrics in every genre from rock, to hip-hop, to electronic, to folk music, and is growing every day, so your next campaign will never be short of a soundtrack.



(media element in the form of music stored within TikTok's commercial music library, used on TikTok's videos and pictures displayed with TikTok's feeds)



NTECH 002617- NTECH 002623 at NTECH 002619 (depicting a client server, functionality of an API, including the process of transferring a user request to the backend system of a client server architecture hosting TikTok's recommendation engine)

TikTok publishers use user information to select and concatenate media programming to display on a device for a client individual such a user, as depicted below.

	Why a video is recommended on your For You feed At TikTok, we want to help you understand why certain videos appear on your For You feed. That's why we share this information on each video in the feed. To learn why a video is recommended to you: 1. In the TikTok app, tap the Share button on the side of a video in the For You feed. 2. Tap Why this video. We'll list some reasons why a video shows up on your feed, such as: ◦ You commented on, liked, shared, or watched similar videos ◦ This video is popular in your country ◦ This video was posted recently ◦ This video is longer, and you seem to like longer videos ◦ You're following this creator Keep in mind, if you've recently refreshed your For You feed, you'll see a variety of videos while we learn your preferences to launch your new personalized feed. NTECH 002226 - NTECH 002231 at NTECH 002229 (TikTok help center article describing the type of user information provided to TikTok publishers to generate media elements)
--	---

	For You Factors that may influence your For You feed include: • User interactions: Videos you like, share, or comment on, videos you watch in full or skip, accounts you follow, and accounts that follow you. • Video information: Captions, sounds, hashtags, number of video views, and the country the video was published. • User information: Device and account settings, language preference, country, time zone and day, and device type. We consider all these factors to predict how relevant and interesting content might be to a viewer. Different factors can play a larger or smaller role in what's recommended, and the importance—or weighting—of a factor can change over time. For instance, the time spent watching a specific video is generally weighted more heavily than other factors. However, if a viewer never finishes watching any videos, but watches a lot of videos posted by creators in the same region, then that region may have a relatively stronger weight compared to other factors for that viewer. Factors like device settings generally receive lower weight compared to other factors. NTECH 002226 - NTECH 002231 at NTECH 002229 (TikTok help center article describing the type of user information provided to TikTok publishers to generate media elements)
--	--

12:21

5G E



Following

Shop

For You



Q pacsun denim skirt

Search

All

Fashion

Beauty & Personal Care

Home

3 sold



Free shipping

Edikted

Elowyn Slitted Denim Maxi Skirt

\$29.40

Extra 45% off

5 sold

FULL SIZE



Free shipping



Lilaamarie

OIEXI Digital Camera, 48MP Fli...

\$72.95



Free shipping

Famistar 4 Piece Hardside Luggage Suitcase Set wi...

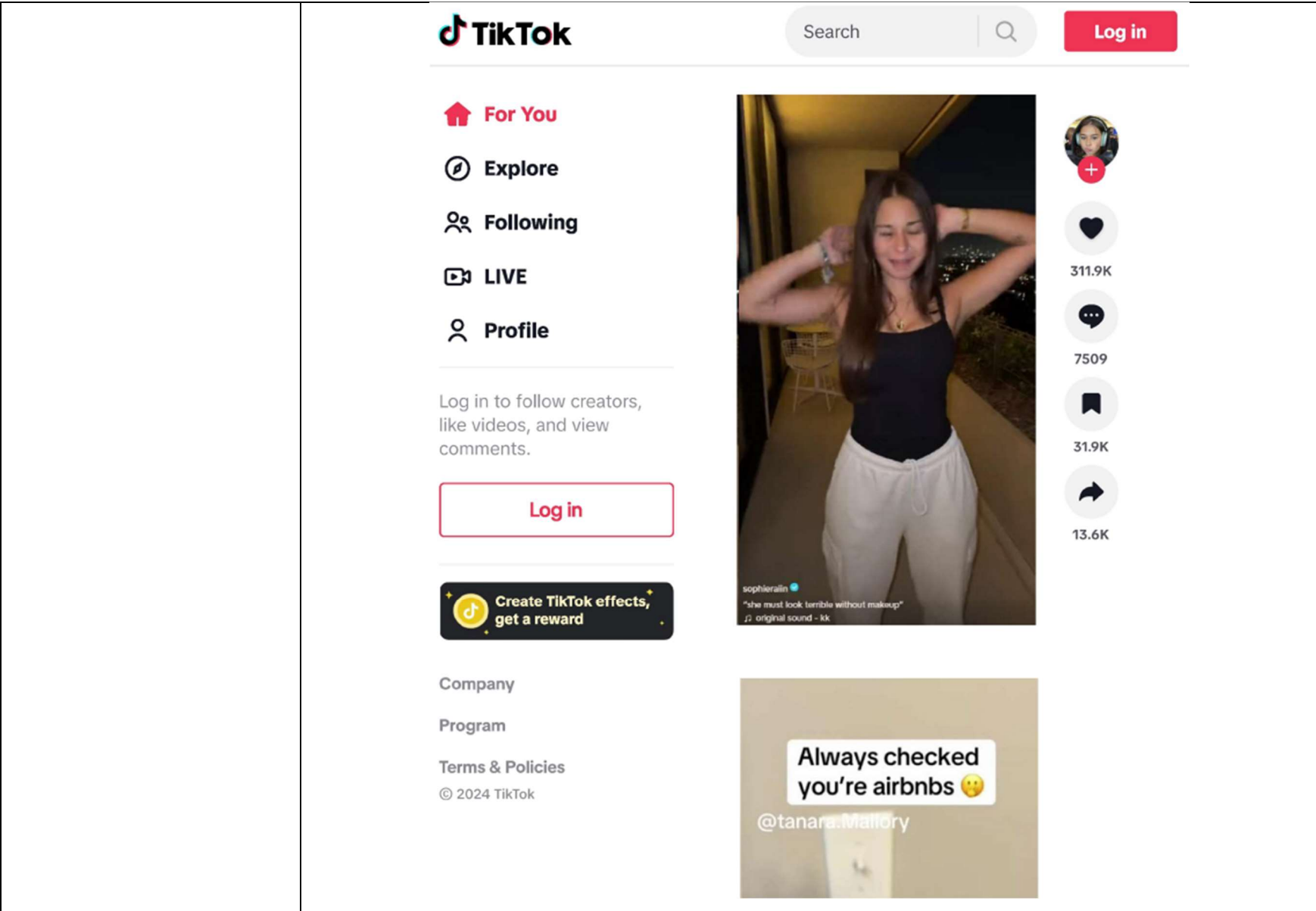
\$119.99

Extra 45% off

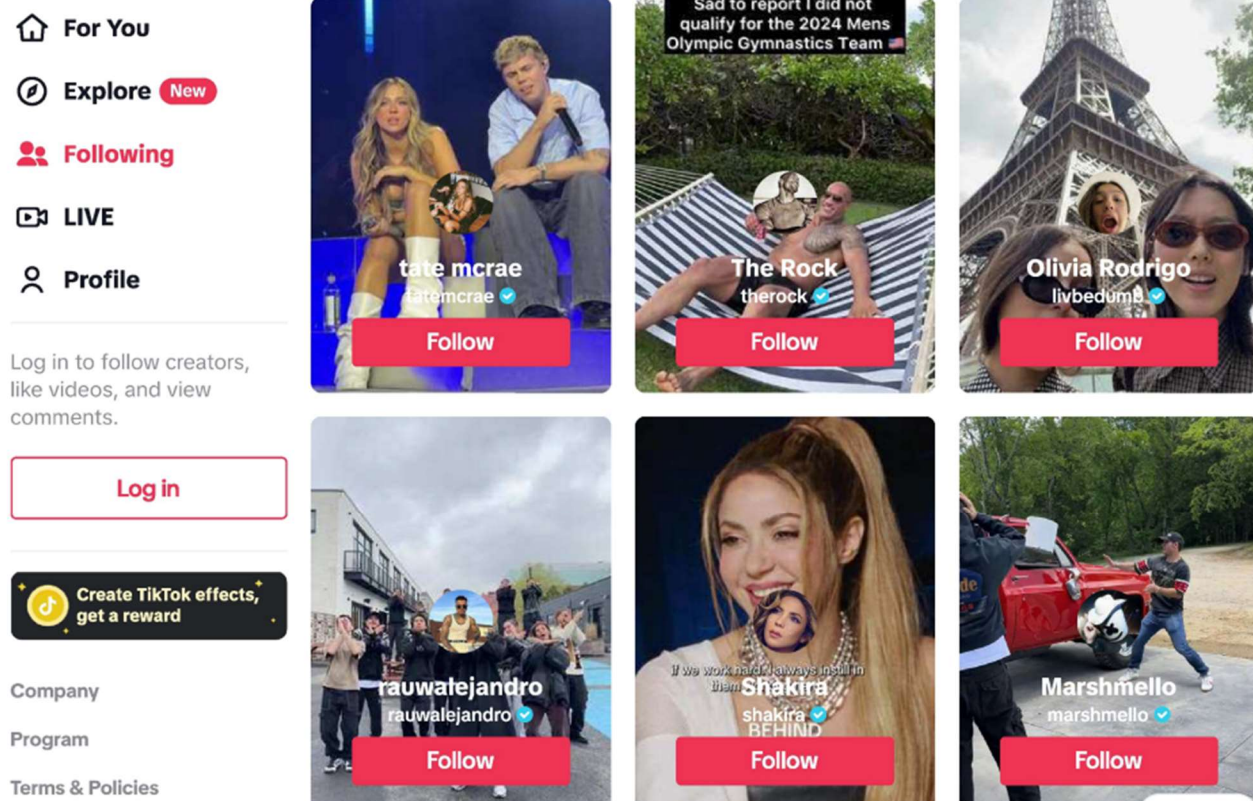
★★★★★ 4.8 928



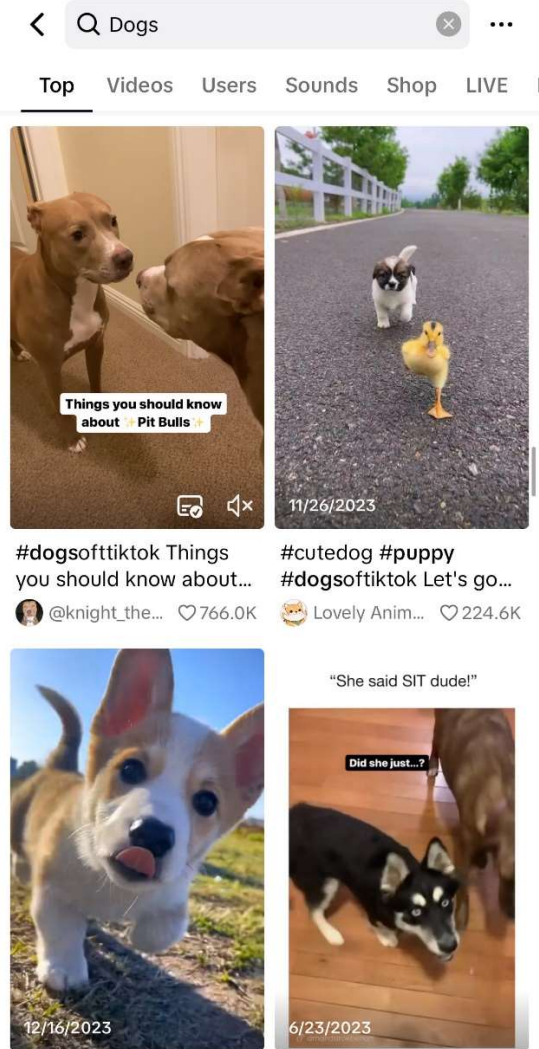
	NTECH 002670 (TikTok Shop feed displaying a menu of concatenated and selectable media programming selected by TikTok publishers on a mobile device)
--	---



NTECH 002631-NTECH 002632 (TikTok’s “For You” feed displaying a menu of concatenated and selectable media programming selected by TikTok publishers on a computer)



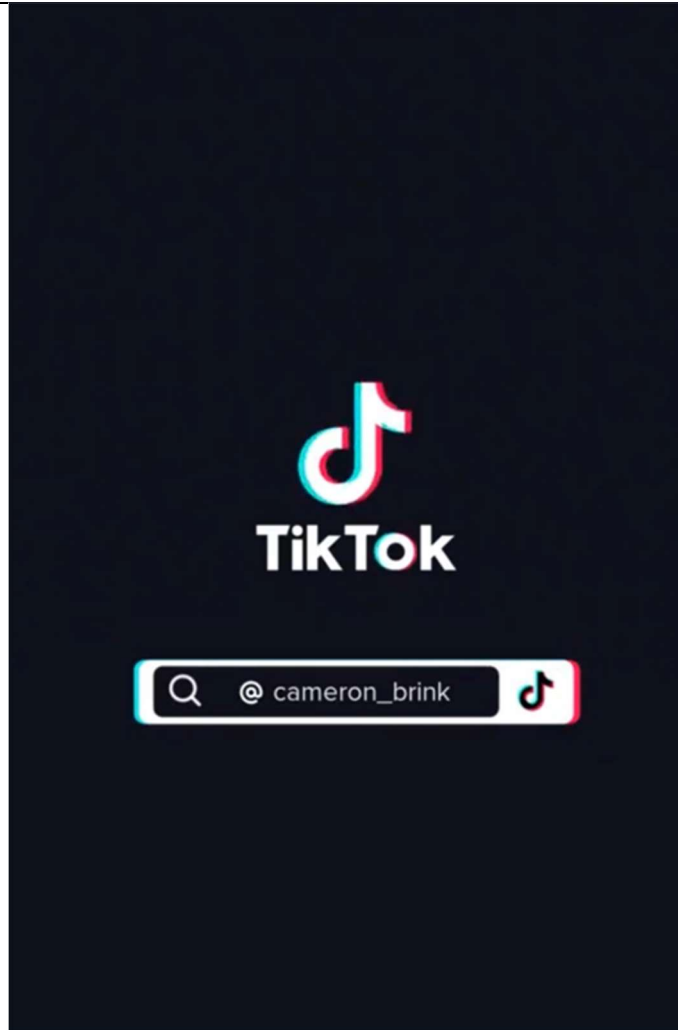
NTECH 002301-NTECH 002306 (TikTok’s “Following” feed displaying a menu of concatenated and selectable media programming media programming selected by TikTok publishers on a computer)



NTECH 002274 (A menu of concatenated and selectable media programming, displayed within TikTok's search feed selected by TikTok publishers, on a mobile phone)

	Further, the TikTok logo and sound is concatenated into the end of video clips, as depicted below.
--	--



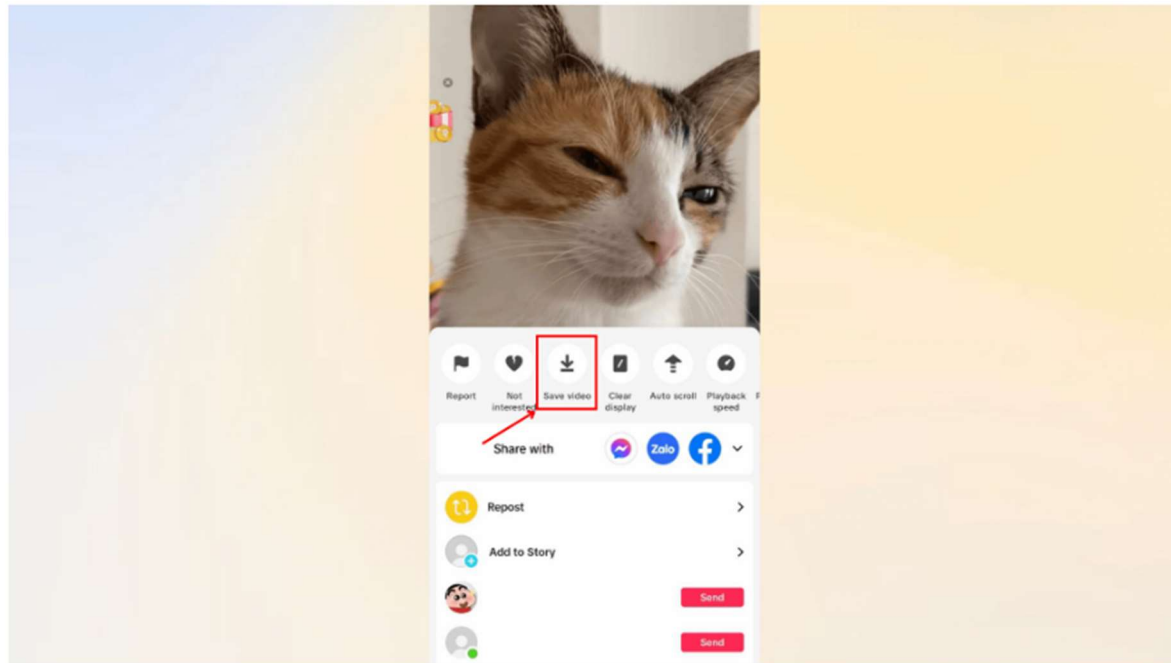


NTECH 002669 and NTECH 002667 (Showing the TikTok logo and sounds concatenated at the end of a video clip)

Further the Accused Instrumentalities concatenate two or more video clips in a process called a “Stitch”. A “Stitch” is a TikTok creative feature that allows videos from various TikTok creators to be

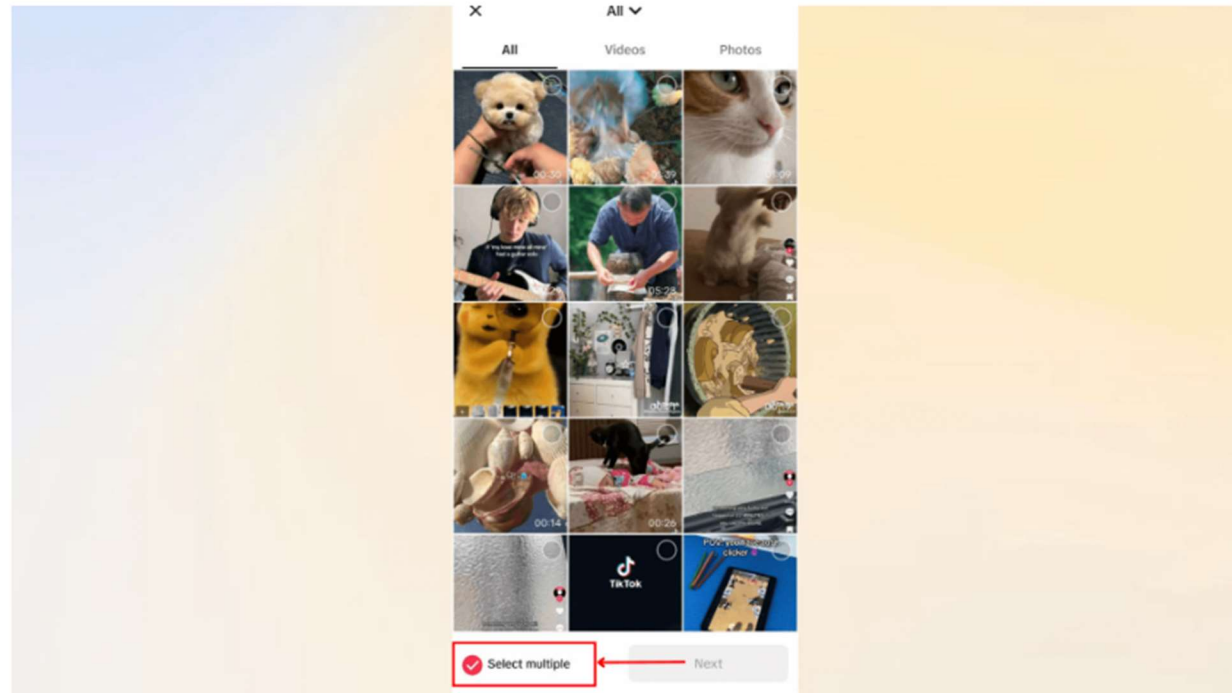
concatenated into other video clips, by editing and trimming parts of these video clip. A first trimmed video clip is edited to incorporate a second video clip at the end, to form one new and concatenated video clip, as depicted below.

Step 1. Download the TikTok video you want to stitch.



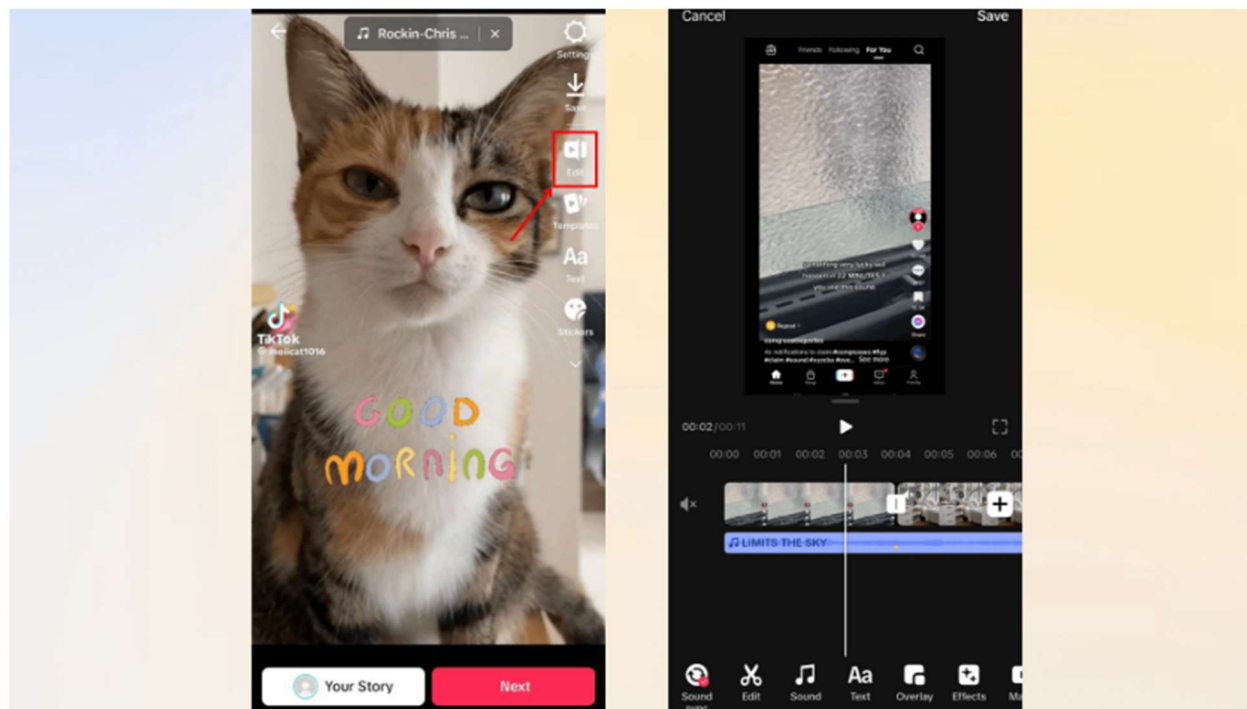
NTECH 002671 – NTECH 002694 (Showing the process of concatenating TikTok videos by a TikTok “Stitch”)

Step 2. Open the TikTok app and hit the (+) button to create a new video. Tick **Select multiple** then choose the video you'd like to Stitch and the video you want to incorporate with it.



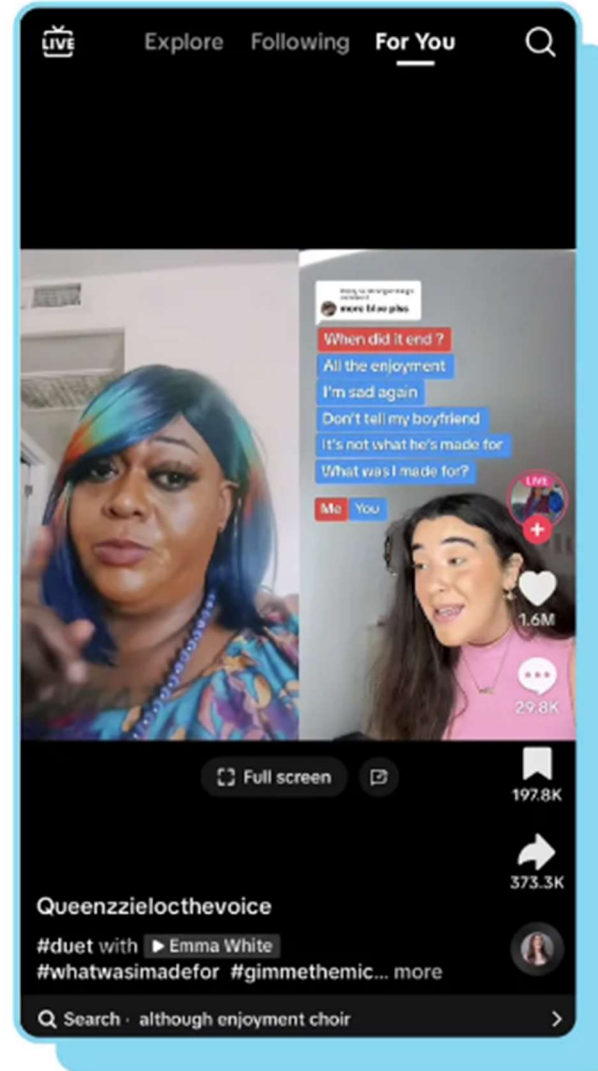
NTECH 002671 – NTECH 002694 (Showing the process of concatenating TikTok videos by a TikTok “Stitch”)

Step 3. Click Edit from the right menu bar and trim the video you want to stitch video to 5s. When you are done editing, tap Save then Next to upload your video. Tag the creator of the initial video.



NTECH 002671 – NTECH 002694 (Showing the process of concatenating TikTok videos by a TikTok “Stitch”)

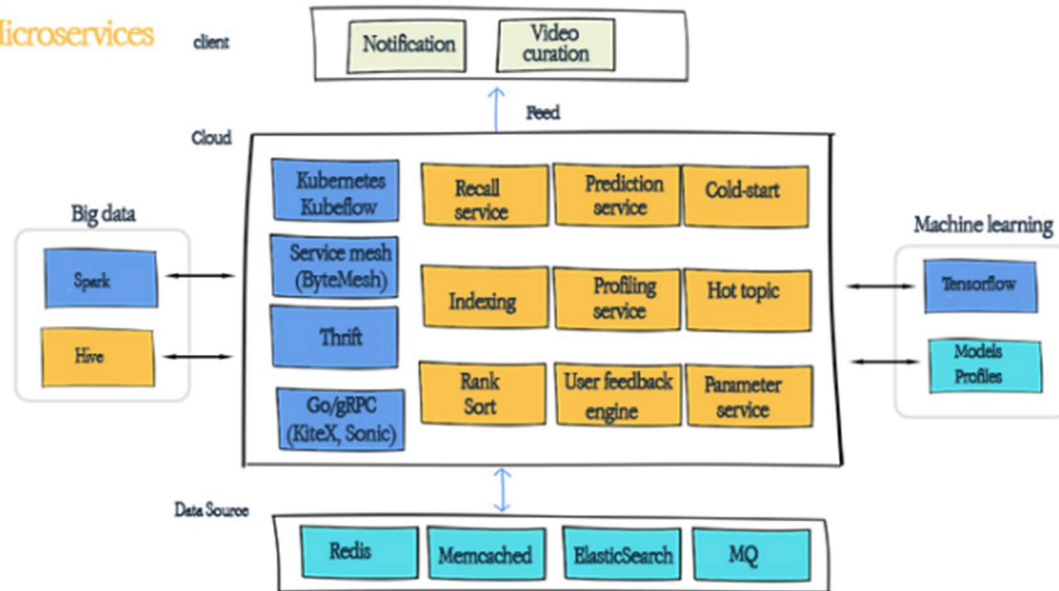
Further the Accused Instrumentalities concatenate two or more video clips in a process called a “Duet”. A “Duet” is a TikTok creative feature that allows videos from various TikTok creators to be concatenated into other video clips, by editing parts of these video clip. A first video clip is edited to incorporate a second video clip beside the first video clip. This forms one new and concatenated video clip, in which both video clips are displayed side by side, as depicted below.



NTECH 002652 – NTECH 002666 (Showing concatenated TikTok video by a TikTok “Duet”)

	To the extent that TikTok argues that the claim element is not met literally, the Accused Instrumentalities also infringe under the doctrine of equivalents. The Accused Instrumentalities perform the element in substantially the same functionality of providing a client individual customized media programming based on feed selection with ordered and concatenated elements based in part by user selection by linking and/or merging clips in the feed display (as shown in the “For You” feed), advertisements, Stitch functionality, Duets functionality, or with adding the TikTok logo and sound clip. The Accused Instrumentalities perform the element in substantially the same way because TikTok servers will link or merge clips by selecting which clips proceeds will proceed in time. The Accused Instrumentalities achieve the same result by linking or merging the clips.
'753 Patent Claim 2	
2. The method according to claim 1, further comprising furnishing a plurality of the media elements according to parameters and instructions for assembling media programming.	See claim 1, Further, as depicted below, the servers of the Accused Instrumentalities host microservices that power TikTok’s algorithms (facilitated by Kubeflow, Kubernetes, KFServing etc.). These microservices provide instructions and parameters for assembling media programming (including parameter services, prediction services, user feedback engines, cold starts, indexing, and more).

Microservices



NTECH 002605 - NTECH 002615 at NTECH 002610 (Graphic showing TikTok's microservices facilitated by Kubernetes and KubeFlow to select a sequence of media)

As depicted below, these instructions include directions to search for, locate and recommend media similar to previous media viewed and liked by a user.

	Why a video is recommended on your For You feed At TikTok, we want to help you understand why certain videos appear on your For You feed. That's why we share this information on each video in the feed. To learn why a video is recommended to you: 1. In the TikTok app, tap the Share button on the side of a video in the For You feed. 2. Tap Why this video. We'll list some reasons why a video shows up on your feed, such as: ◦ You commented on, liked, shared, or watched similar videos ◦ This video is popular in your country ◦ This video was posted recently ◦ This video is longer, and you seem to like longer videos ◦ You're following this creator Keep in mind, if you've recently refreshed your For You feed, you'll see a variety of videos while we learn your preferences to launch your new personalized feed. NTECH 002226 - NTECH 002231 at NTECH 002229 (TikTok help center article describing the type of user activity stored within TikTok's databases that influences subsequent media programming) As depicted below, these parameters include limitations on repetitive patterns in the sequence of media programming.
--	--

	<i>Interrupting repetitive patterns</i> To keep your For You feed interesting and varied, our recommendation system works to intersperse diverse types of content along with those you already know you love. For example, your For You feed generally won't show two videos in a row made with the same sound or by the same creator. We also don't recommend duplicated content, content you've already seen before, or any content that's considered spam. However, you might be recommended a video that's been well received by other users who share similar interests. <i>Diversifying recommendations</i> Diversity is essential to maintaining a thriving global community, and it brings the many corners of TikTok closer together. To that end, sometimes you may come across a video in your feed that doesn't appear to be relevant to your expressed interests or have amassed a huge number of likes. This is an important and intentional component of our approach to recommendation: bringing a diversity of videos into your For You feed gives you additional opportunities to stumble upon new content categories, discover new creators, and experience new perspectives and ideas as you scroll through your feed. NTECH 002387-2394 at NTECH 2389-90 (describing some parameters placed on the media elements recommended to a user within TikTok's "For You" feed)
'753 Patent Claim 3	
3. The method according to claim 2, wherein the parameters and instructions comprise a template.	Further, the servers of the Accused Instrumentalities host microservices that power TikTok's algorithms (facilitated by Kubeflow, Kubernetes, KFServing etc.). These microservices develop templates, that can be replicated endlessly, to execute instructions and parameters for assembling media programming, at scale.

As depicted below, these instructions include directions to search for, locate and recommend media similar to previous media viewed and liked by a user.

Why a video is recommended on your For You feed

At TikTok, we want to help you understand why certain videos appear on your For You feed. That's why we share this information on each video in the feed.

To learn why a video is recommended to you:

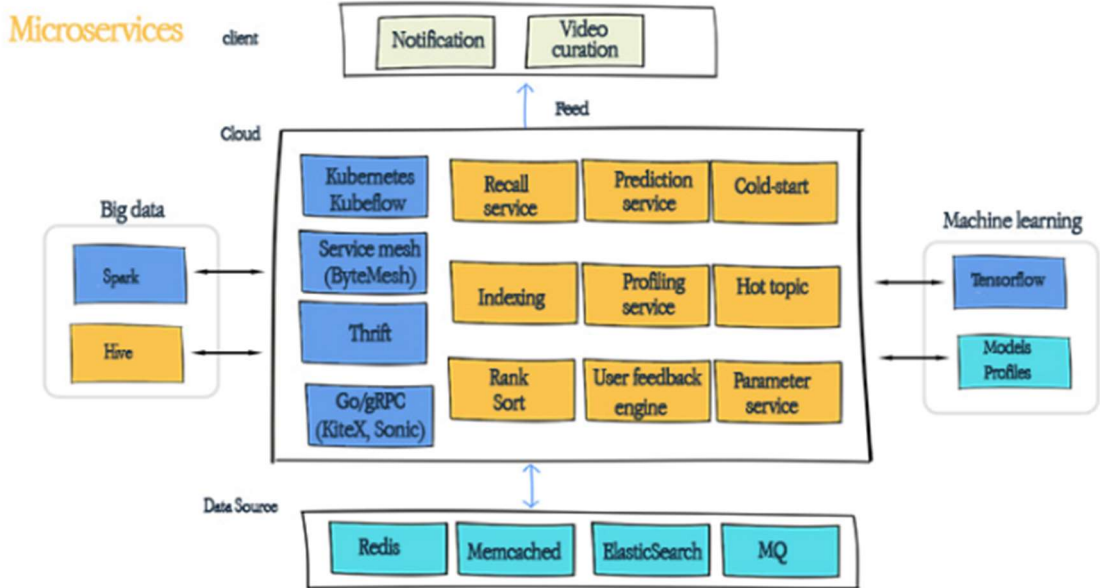
1. In the TikTok app, tap the **Share** button on the side of a video in the **For You** feed.
2. Tap **Why this video**. We'll list some reasons why a video shows up on your feed, such as:
 - You commented on, liked, shared, or watched similar videos
 - This video is popular in your country
 - This video was posted recently
 - This video is longer, and you seem to like longer videos
 - You're following this creator

Keep in mind, if you've recently [refreshed your For You feed](#), you'll see a variety of videos while we learn your preferences to launch your new personalized feed.

NTECH 002226 - NTECH 002231 at NTECH 002229 (TikTok help center article describing the type of user activity stored within TikTok's databases that influences subsequent media programming)

As depicted below, these parameters include limitations on repetitive patterns in the sequence of media programming.

	<i>Interrupting repetitive patterns</i> To keep your For You feed interesting and varied, our recommendation system works to intersperse diverse types of content along with those you already know you love. For example, your For You feed generally won't show two videos in a row made with the same sound or by the same creator. We also don't recommend duplicated content, content you've already seen before, or any content that's considered spam. However, you might be recommended a video that's been well received by other users who share similar interests. <i>Diversifying recommendations</i> Diversity is essential to maintaining a thriving global community, and it brings the many corners of TikTok closer together. To that end, sometimes you may come across a video in your feed that doesn't appear to be relevant to your expressed interests or have amassed a huge number of likes. This is an important and intentional component of our approach to recommendation: bringing a diversity of videos into your For You feed gives you additional opportunities to stumble upon new content categories, discover new creators, and experience new perspectives and ideas as you scroll through your feed. NTECH 002387-2394 at NTECH 2389-90 (describing some parameters placed on the media elements recommended to a user within TikTok's "For You" feed)
'753 Patent Claim 4	
4. The method according to claim 3, wherein the template is processed according to collected user information and at least one algorithm for selection and sequencing of media	See claim 3. Further, as depicted below, the servers of the Accused Instrumentalities host microservices that power TikTok's algorithms (facilitated by Kubeflow, Kubernetes, KFServing etc.). These microservices develop templates containing rules to select and create a sequence of media elements, by connecting tagged media elements clips with tagged user information. These media elements are assembled to curate a stream of media elements known as a feed, which is provided to a user on a client device.

elements, assembling the media elements, and providing a feed to the user.	 The diagram illustrates the microservices architecture of TikTok. At the top, a 'client' box contains 'Notification' and 'Video curation' services. Below this is the 'Cloud' layer, which is a central box containing several services: 'Kubernetes KubeFlow', 'Service mesh (ByteMesh)', 'Thrift', and 'Go/gRPC (KiteX, Sonic)' on the left; 'Recall service', 'Prediction service', 'Cold-start', 'Indexing', 'Profiling service', 'Hot topic', 'Rank Sort', 'User feedback engine', and 'Parameter service' on the right. To the left of the cloud is the 'Big data' layer with 'Spark' and 'Hive'. To the right is the 'Machine learning' layer with 'Tensorflow' and 'Models Profiles'. At the bottom is the 'Data Source' layer with 'Redis', 'Memcached', 'ElasticSearch', and 'MQ'. Arrows indicate data flow: from client to cloud (labeled 'Feed'), from big data and machine learning to cloud, and from cloud to data sources. NTECH 002605 - NTECH 002615 at NTECH 002610 (Graphic showing TikTok’s microservices facilitated by Kubernetes and KubeFlow to select a sequence of media)
'753 Patent Claim 5	
5. The method according to claim 1, wherein a first feed responsive to the selection of one of the feeds is furnished during a first time period and a second feed comprising the individual customized media programming is furnished during a second time period.	See Claim 1. This claim element is met for the same reasons discussed above regarding claim 1.

'753 Patent Claim 6	
6. The method according to claim 1, wherein the user information comprises a user profile	See Claim 1. Further, the Accused Instrumentalities use user information including a user's profile to recommend media elements, as depicted below. We may collect information from and about you, including information that you provide, information from other sources, and automatically collected information. Information You Provide When you create an account, upload content, contact us directly, or otherwise use the Platform, you may provide some or all of the following information: • Account and profile information, such as name, age, username, password, language, email, phone number, social media account information, and profile image. NTECH 002449 - NTECH 002467 (TikTok's privacy policy describing the type of user data collected and stored within TikTok's Servers and databases).

	Why a video is recommended on your For You feed At TikTok, we want to help you understand why certain videos appear on your For You feed. That's why we share this information on each video in the feed. To learn why a video is recommended to you: 1. In the TikTok app, tap the Share button on the side of a video in the For You feed. 2. Tap Why this video. We'll list some reasons why a video shows up on your feed, such as: ◦ You commented on, liked, shared, or watched similar videos ◦ This video is popular in your country ◦ This video was posted recently ◦ This video is longer, and you seem to like longer videos ◦ You're following this creator Keep in mind, if you've recently refreshed your For You feed, you'll see a variety of videos while we learn your preferences to launch your new personalized feed. NTECH 002226 - NTECH 002231 at NTECH 002229 (TikTok help center article describing the type of user activity stored within TikTok's databases that influences subsequent user requests)
'753 Patent Claim 7	
7. The method according to claim 1, wherein the user information comprises user preference data	See Claim 1. Further, the Accused Technologies, use user information including a user's preference indicated by a user's interactions, such as media elements liked, commented on, shared, viewed, accounts followed, and more by a user, as depicted below.

	For You Factors that may influence your For You feed include: • User interactions: Videos you like, share, or comment on, videos you watch in full or skip, accounts you follow, and accounts that follow you. • Video information: Captions, sounds, hashtags, number of video views, and the country the video was published. • User information: Device and account settings, language preference, country, time zone and day, and device type. We consider all these factors to predict how relevant and interesting content might be to a viewer. Different factors can play a larger or smaller role in what's recommended, and the importance—or weighting—of a factor can change over time. For instance, the time spent watching a specific video is generally weighted more heavily than other factors. However, if a viewer never finishes watching any videos, but watches a lot of videos posted by creators in the same region, then that region may have a relatively stronger weight compared to other factors for that viewer. Factors like device settings generally receive lower weight compared to other factors. NTECH 002226 - NTECH 002231 at NTECH 002229 (TikTok help center article describing the type of user information provided to TikTok publishers to generate media elements)
'753 Patent Claim 8	
8. The method according to claim 1, wherein the media programming comprises multiple streams of media elements.	See claim 1, Further, the Accused Instrumentalities generate multiple streams of media programming such as the “For You” feed and the “Following feed”, as depicted below.



Search



Log in



 **For You**

 **Explore**

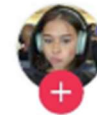
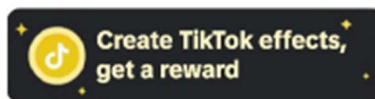
 **Following**

 **LIVE**

 **Profile**

Log in to follow creators,
like videos, and view
comments.

Log in



311.9K



7509

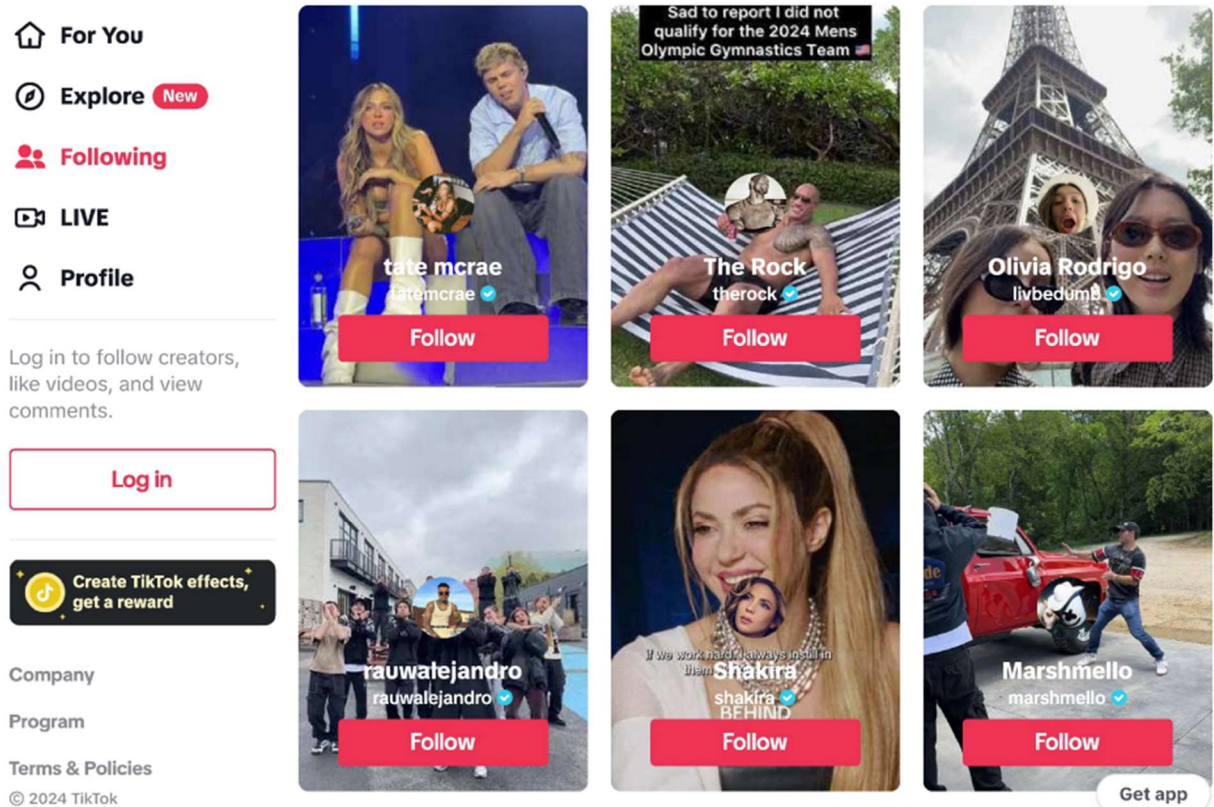


31.9K



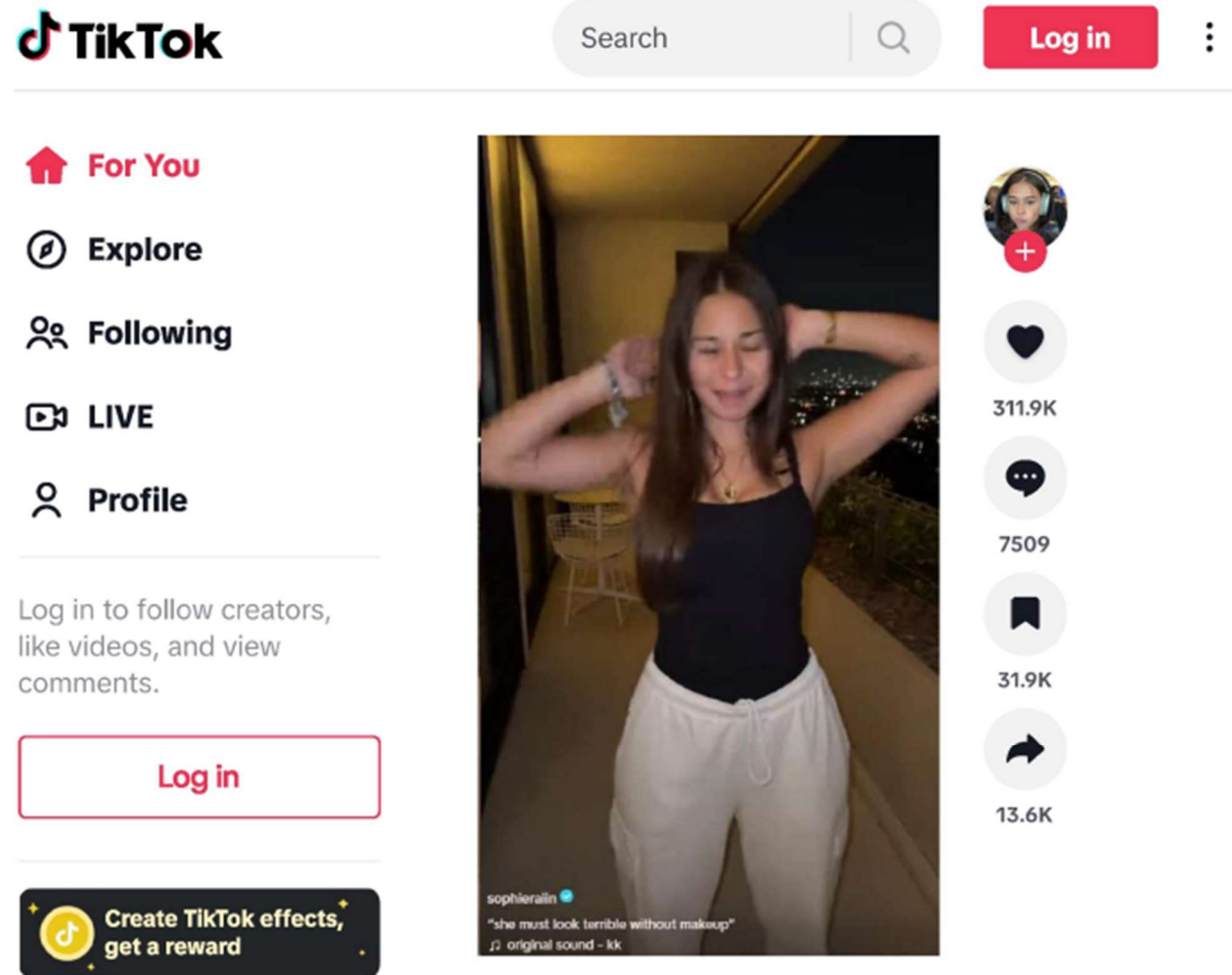
13.6K

NTECH 0022631-32 (showing a selectable media, displayed within TikTok's "For You" feed on a computer)

	 NTECH 002301-NTECH 002306 (showing a selectable media, displayed within TikTok’s “Following” feed on a computer)
’753 Patent Claim 9	
9. The method according to claim 8, wherein portions of the multiple streams are	See claim 8, Further, TikTok Servers which host its recommendation engine curate a predetermined order of media elements. These media elements are linked to form a concatenated stream of media elements for a user to scroll through. As depicted below, the concatenated stream of media is determined by user

concatenated according to user information.	information such as previous media viewed by a user, media liked by a user, media commented on by a user, media shared by a user and more. Why a video is recommended on your For You feed At TikTok, we want to help you understand why certain videos appear on your For You feed. That's why we share this information on each video in the feed. To learn why a video is recommended to you: 1. In the TikTok app, tap the Share button on the side of a video in the For You feed. 2. Tap Why this video. We'll list some reasons why a video shows up on your feed, such as: ◦ You commented on, liked, shared, or watched similar videos ◦ This video is popular in your country ◦ This video was posted recently ◦ This video is longer, and you seem to like longer videos ◦ You're following this creator Keep in mind, if you've recently refreshed your For You feed, you'll see a variety of videos while we learn your preferences to launch your new personalized feed. NTECH 002226 - NTECH 002231 at NTECH 002229 (TikTok help center article describing the type of user information provided to TikTok's publishers to generate media elements)
'753 Patent Claim 10	
10. The method according to claim 1, wherein the media elements comprise transitions, and the media elements are dynamically positioned, temporally or	See claim 1. Further, the Accused Instrumentalities present a stream of media elements, making up media programming, within the "For You" and "Following" feeds.

spatially, within the context of the media programming.



NTECH 0022631-32 (Media programming generated within the “For You” feed and displayed on a computer)

🏠 For You

🔍 Explore New

👤 Following

📺 LIVE

👤 Profile

Log in to follow creators,
like videos, and view
comments.

Log in

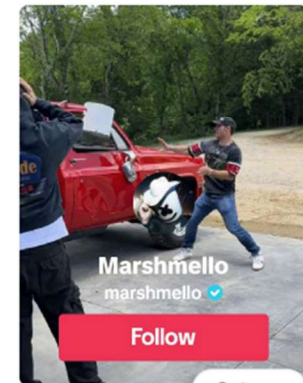
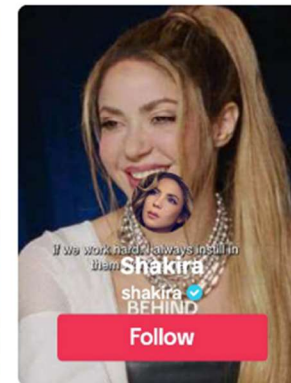
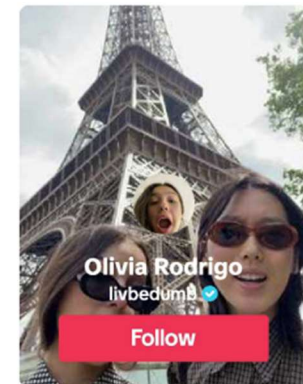
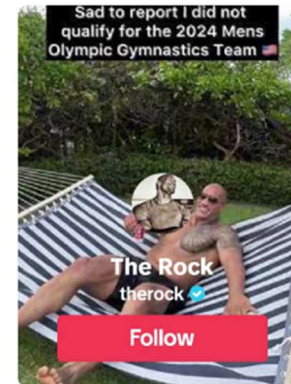
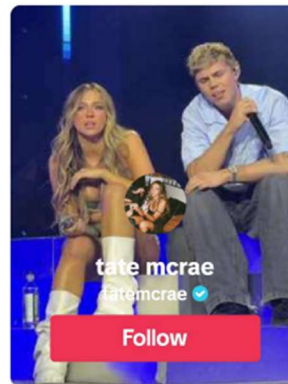
🎵 Create TikTok effects,
get a reward

Company

Program

Terms & Policies

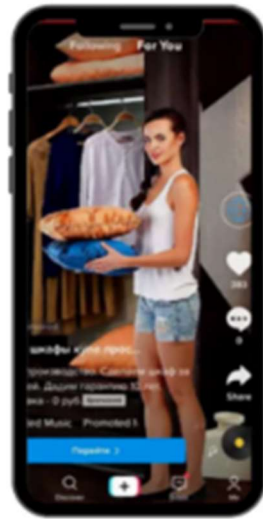
© 2024 TikTok



Get app

NTECH 002301-NTECH 002306 ((Media programming generated within the “Following” feed and displayed on a computer)

Transitional clips such as advertisements are placed within these media elements, as depicted below.

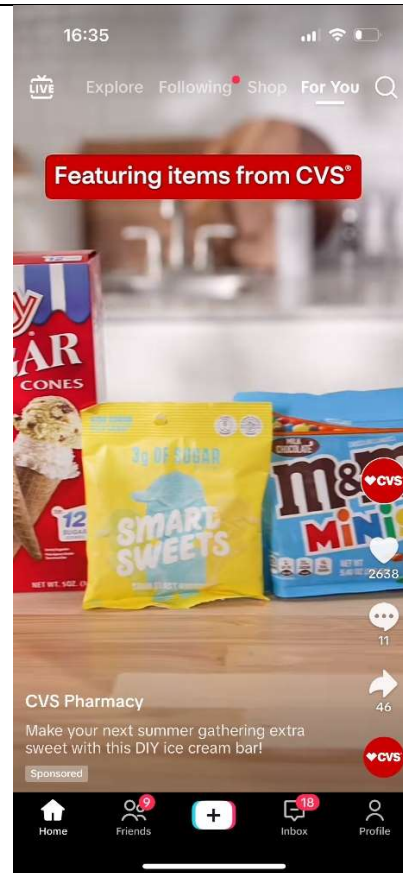


 **TikTok Ads**

In-Feed Ads

- 9-15 secs long vertical video ads on 'For You' page
- Skippable, native ad format
- Supports call-to-actions and URL visit.
- CPM buying with gender and location targeting

NTECH 002314-2324 at NTECH 2315 (TikTok in-feed ads – describing the transitional manner with which TikTok Advertisements appear within a user's media feed)



NTECH 002285 (An advertisement presented within the “For You” feed and displayed on the TikTok app on a mobile phone)

The media elements within TikTok’s media feeds produce a temporal sequence of media which automatically update, resulting in media elements dynamically positioned to each Individual user. As depicted below, this dynamic media feeds.

	<i>Interrupting repetitive patterns</i> To keep your For You feed interesting and varied, our recommendation system works to intersperse diverse types of content along with those you already know you love. For example, your For You feed generally won't show two videos in a row made with the same sound or by the same creator. We also don't recommend duplicated content, content you've already seen before, or any content that's considered spam. However, you might be recommended a video that's been well received by other users who share similar interests. <i>Diversifying recommendations</i> Diversity is essential to maintaining a thriving global community, and it brings the many corners of TikTok closer together. To that end, sometimes you may come across a video in your feed that doesn't appear to be relevant to your expressed interests or have amassed a huge number of likes. This is an important and intentional component of our approach to recommendation: bringing a diversity of videos into your For You feed gives you additional opportunities to stumble upon new content categories, discover new creators, and experience new perspectives and ideas as you scroll through your feed. NTECH 002387-2394 at NTECH 2389-90 (describing the temporal and dynamic positioning of media elements within media programming on TikTok)
--	---