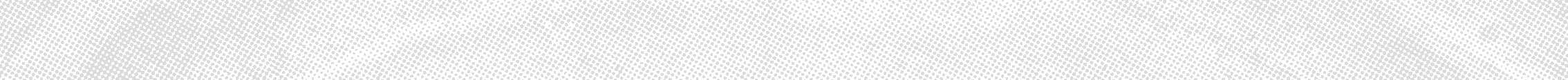
Tiktok Requirement Specification



Review history



Approval history

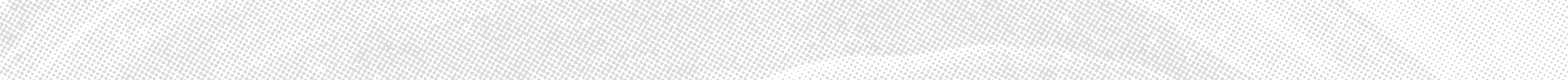
Project name: Tiktok

Date: 03/21/2025

Version:

1.0

By: Hussein Farhat , Hussein Mousawi and Hassan Jawad



Revision history

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| --- | --- | --- | --- |
| Version | Author | Verson description | Date completed |
| 1.0 | Hussein Mousawi |  |  |

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| --- | --- | --- | --- |
| Approving party | Version approved | Signature | Date |
| Hassan Jawad | 1.0 | HJ | 3 |
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| Reviewer | Version reviewed | Signature | Date |
| Hussein Farhat | 1.0 | HF |  |
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Introduction



1

Purpose: TikTok is a social media application designed for creating, sharing, and discovering short-form videos. It combines entertainment, creativity, and community, targeting users of all ages to interact through trending challenges, music overlays, and global trends.

* 1. Product scope

TikTok is a social media application designed for creating, sharing, and discovering short-form videos. It combines entertainment, creativity, and community, targeting users of all ages to interact through trending challenges, music overlays, and global trends.

* 1. Product value

The platform provides users with the tools to express creativity, entertain, and connect. Its advanced algorithm ensures personalized content recommendations, fostering engagement while offering significant value for content creators and businesses for outreach and branding.

* 1. Intended audience

Individual users: Teens, Adults, content creators, business owners, etc…\

Business Companies: marketing, hiring

* 1. Intended use
* Creating and sharing short videos
* Engaging with other users by interacting
* Discovering trending content via algorithm driven feeds
* Monetizing content through ad revenue and ad profits
  1. General description

TikTok is available on IOS and Android devices. It enables users to create short videos ai tools, using editing tools, effects, and music. The platform employs AI driven recommendations and real time engagement analytics.

# Functional requirements.



2

1. **User Management:**

* Account creation through email, phone number, or third-party authentication (e.g., Facebook, Google, or Apple ID).
* Secure login and password recovery mechanisms.

1. **Video Management:**

* Users can upload videos with metadata (title, description, category, tags).
* Support for multiple file formats (MP4,,PNG,JPG,MP3).
* Ability to edit video details (change title, description, privacy settings, background audio, etc).
* Support for private, public, and unlisted video settings.

1. **Video Playback & Streaming**:

 H**igh-Quality Video Playback**

 **Performance Optimization**

 **Interactive Features**

 **Content Accessibility**

 **Live Streaming**

1. **Content Monetization**

* Integration with ad platforms for targeted advertisements.
* Tools for influencers and businesses to track their performance metrics and earnings.

1. **Content Discovery and Recommendation**

* Personalized "FYP" powered by AI-based recommendation algorithms.
* Search and explore functionality for trending hashtags, users, and sounds.

### **Content Sharing**

* Integrated sharing to other social media platforms (e.g., Instagram, Facebook, Twitter).
* Embeddable video player for web sharing.

External interface requirements



3

* 1. User interface

### **1. UI Design**

* **Simplicity**: Intuitive and clean interface with minimal steps for performing primary tasks (e.g., creating or viewing videos).
* **Accessibility**: Support for multiple languages, text-to-speech options, and high-contrast modes for users with disabilities.
* **Navigation**: Easy swipe-based navigation between content (e.g., For You Page, Following, and Explore).
* **Consistency**: Uniform design elements such as buttons, icons, and color schemes across the app.

### **2. Visual Design**

* **Engaging Layout**: A responsive design adaptable to various screen sizes and resolutions.
* **Dynamic Animations**: Smooth transitions between actions, such as tapping to like or navigating to a profile.
* **Brand Identity**: Incorporation of TikTok’s signature branding colors (black, white, and gradient hues) and logo.

### **3. Graphic Requirements**

* High-quality thumbnail generation for video previews.
* Real-time filters, effects, and AR overlays for video editing.

Optimized image and video compression to balance quality and performance

* 1. Hardware interface requirements

Compatible with smartphones and tablets

Requires camera and microphone access

Support high-definition video recording

* 1. Software interface requirements

 **Frontend and Backend Communication**: Use RESTful APIs to exchange data in lightweight formats like JSON or XML.

 **Backend Framework**: Build with Django, Flask, or Node.js, and manage databases with MySQL, PostgreSQL, or MongoDB.

 **Third-Party Libraries and Services**: Use FFmpeg for video processing and AI libraries for recommendations and filters.

 **Cloud Services**: Host on AWS, Azure, or Google Cloud, and integrate CDNs (e.g., Akamai, Cloudflare) to reduce latency.

 **Security and Privacy**: Implement OAuth 2.0 for authentication and encrypt data with SSL/TLS protocols.

 **External Services Integration**: Enable sharing to platforms like Instagram, and integrate payment gateways like Stripe.

 **Mobile Development Frameworks**: Support Swift/Objective-C for iOS and Kotlin/Java for Android.

* 1. Communication interface requirements

 **Network Requirements**:

* High-speed internet

 **Communication Protocols**:

* Use of HTTPS to ensure secure communication between the app and its servers.
* RTMP for live streaming functionalities.
* WebSocket protocol for real-time data updates, such as likes and comments during a live stream.

 **Third-Party Integration**:

* APIs for integration with social media platforms like Instagram, Facebook, and Twitter for sharing videos.
* Support for email and push notifications to keep users updated about activity on their accounts.

 **Backend Communication**:

* RESTful APIs for handling client-server interactions like user requests for video uploads, retrievals, or profile updates.
* Asynchronous data handling for efficient processing of large-scale content uploads and streaming.

 **Data Transmission and Encryption**:

* End-to-end encryption for sensitive user data during transmission to protect privacy.
* Efficient data compression algorithms to minimize network usage while maintaining content quality.

 **Server Communication**:

* Connection to content delivery networks (CDNs) to ensure fast loading of videos and multimedia content worldwide.
* Automatic fallback mechanisms to handle server failures gracefully.

# Non-functional requirements



4

* 1. Security

 End-to-end encryption for data.

 User privacy settings.

 Advanced content moderation systems.

 Protection against cyber threats like DDoS.

* 1. Capacity
* Storage for billions of video files.
* Support for concurrent global users.
* Scalable databases.
* Manage large file sizes.
  1. Compatibility

  Multi-platform support for iOS, Android, and web browsers.

 Compatibility with major OS like Windows, macOS, Android, and iOS.

 Integration with third-party platforms.

 Consistent performance on varying hardware.

* 1. Reliability

  99.9% uptime.

 Regular backups.

 Robust error handling.

 Real-time issue monitoring.

* 1. Scalability
* Dynamic resource allocation.
* Cloud service integration.
* Horizontal scalability.
* CDN integration for global efficiency.
  1. Maintainability

 Modular code architecture.

 Automated testing and CI/CD pipelines.

 Detailed documentation.

 Version control systems.

* 1. Usability
* Simple and intuitive interface.
* Accessibility options (e.g., captions, high contrast).
* Interactive tutorials for first-time users.
* Consistent design across platforms.
* Real-time feedback features.
  1. Other

 **Localization**: Support multiple languages and region-specific features.

 **Energy Efficiency**: Minimize battery usage on mobile devices.

 **Legal Compliance**: Follow GDPR, and other data privacy laws.

 **Ethical Standards**: Prevent misuse through content warnings and anti-misinformation measures.

# Definitions and acronyms



5

|  |  |
| --- | --- |
| FYP | For you page |
|  |  |
| UI | User Interface |
|  |  |
| CI/CD | Continuous Integration and Delivery/ Continuous Deployment |
|  |  |
| RESTful | Representational State Transfer |
|  |  |
| API | Application Programming Interface |
|  |  |
| CDN | Cloud Distribution Network |
|  |  |
| AWS | Amazon Web Services |
|  |  |
| HTTPS | HyperText Transfer Protocol Secure |
|  |  |
| RTMP | Real Time Messaging Protocol |
|  |  |
| DDOS | Distributed Denial Of Service |
|  |  |
| GDPR | General Data Protection Regulation |
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