**System Requirement Specification**

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# 1. Introduction

**1.1** Purpose:  
This Software Requirements Specification (SRS) document defines the requirements for the Soccer Highlights Generation Platform. This platform is designed to automatically detect, compile, and export key moments from full soccer match videos. The primary purpose of this document is to provide a comprehensive description of the system's functionalities, performance criteria, design constraints, and interfaces. This document serves as a blueprint for the development team, a reference for stakeholders, and a basis for validating the final product. The intended audience includes software developers, testers, project managers, stakeholders, and anyone involved in the development, verification, or deployment of the Soccer Highlights Generation Platform.

**1.2** Scope:  
The Soccer Highlights Generation Platform aims to automate the creation of engaging and customizable highlight from full soccer match videos. The system will provide the following key features:

* **Match Highlights:** Automatically generate condensed highlight from full match videos, including goals, fouls, free kicks, and other major events.
* **Event-Based Clips:** Detect and extract specific moments such as goals, cards, free kicks, and penalties into short standalone clips based on the user choice.
* **Player Highlights:** Generate personalized highlight reels based on jersey number, showcasing a player’s passes, tackles, shots, etc.
* **Social Media Export:** Export individual or compiled clips in platform-ready formats (e.g., square or vertical for Instagram, TikTok).
* **Match Summary:** Auto-generate a visual summary including timeline of key events, score progression, and notable moments.
* **Head-to-Head Player Stats:** Display basic stats comparison between standout players from both teams.
* **Video Clip Editor:** Built-in editor to fine-tune highlight clips (adjust length, frame selection, add overlays or text).

The objectives of the system are to reduce the manual effort required to create soccer highlights, improve the speed and efficiency of highlight generation, and provide customizable options for different audiences. The benefits include increased engagement with soccer content, improved content distribution across various platforms, and enhanced analysis of player performance.

**1.3** Definitions, Acronyms, and Abbreviations:

* **SRS:** Software Requirements Specification
* **GUI:** Graphical User Interface
* **API:** Application Programming Interface
* **FPS:** Frames Per Second
* **Highlights:** A condensed video compilation of key moments from a soccer match.
* **Event-Based Clip:** A short, standalone video clip of a specific event in a soccer match (e.g., goal, foul).
* **Metadata:** Data providing information about other data (e.g., timestamps, event types).

**1.4** Document Conventions:  
This document uses the following conventions:

* Section numbering follows a hierarchical format (e.g., 1.1, 1.2.1).
* Requirements are labeled using "REQ-" followed by a unique numerical identifier (e.g., REQ-001).
* Keywords such as "MUST," "SHOULD," "MAY," and "WILL" are used according to RFC 2119 to indicate requirement levels.
* Figures and tables are numbered sequentially within each section (e.g., Figure 2.1, Table 3.2).
* All times are expressed in UTC unless otherwise specified.

**1.5** Intended Audience and Reading Suggestions:  
This document is intended for the following audience:

* **Software Developers:** To understand the system requirements and implement the software accordingly.
* **Testers:** To develop test cases and verify that the system meets the specified requirements.
* **Project Managers:** To track progress and ensure that the project stays on schedule and within budget.
* **Stakeholders:** To understand the system's capabilities and provide feedback.

It is recommended that readers begin with Section 1 (Introduction) to gain an overview of the document and the system. Software developers should focus on Sections 3 (Functional Requirements) and 4 (Non-Functional Requirements). Testers should focus on Sections 3 (Functional Requirements), 4 (Non-Functional Requirements), and 5 (External Interface Requirements). Project managers should review all sections to gain a comprehensive understanding of the project scope and requirements.

# 2. Overall Description

**2.1 Product Perspective**

The Soccer Highlights Generation Platform is a standalone system that processes soccer match videos to automatically generate highlights. It interacts with the following external systems and interfaces:

* **Video Input Source:** The system ingests video files from various sources, including local storage. Supported video formats include MP4, and MKV.
* **Social Media Platforms:** The system exports highlight clips and match summaries to social media platforms such as YouTube, Facebook, Instagram, and TikTok via their respective APIs. This includes format conversion and direct uploading capabilities.
* **User Interface (GUI):** A web-based GUI allows users to manage video inputs, customize highlight generation parameters, review generated highlights, and export clips.
* **Third-Party Video Analysis Libraries:** The system utilizes third-party video analysis libraries and APIs for object detection (e.g., player and ball tracking), event recognition (e.g., goal detection, foul detection), and optical character recognition (OCR) for scoreboards.

**2.2 Product Functions**

The Soccer Highlights Generation Platform provides the following major functionalities:

* **Video Ingestion:** Accepts full soccer match videos in various format.
* **Event Detection:** Automatically detects key events in the video, such as goals, fouls, free kicks, penalties, cards, and substitutions.
* **Highlight Generation:** Generates condensed highlights based on detected events.
* **Player Identification:** Identifies players based on jersey number and tracks their actions throughout the match.
* **Player Highlight Generation:** Creates personalized highlight reels for individual players, showcasing their key contributions.
* **Clip Extraction:** Extracts specific moments from the video as standalone clips.
* **Social Media Export:** Exports highlight reels and clips in formats suitable for various social media platforms.
* **Match Summary Generation:** Automatically generates a visual summary of the match, including a timeline of key events and score progression.
* **Head-to-Head Player Stats:** Displays basic statistical comparisons between selected players from opposing teams.
* **Video Clip Editor:** Provides a built-in editor for fine-tuning highlight clips, including adjusting length, frame selection, and adding overlays or text.
* **User Management:** Manages user accounts, roles, and permissions.

**2.3 User Classes and Characteristics (To be changed)**

The Soccer Highlights Generation Platform is designed for the following user classes:

* **Administrator:** Manages the system configuration, user accounts, and overall system health. Possesses advanced privileges for system maintenance and troubleshooting. Requires a high level of technical expertise.
* **Content Creator:** Uses the platform to generate match highlights, event-based clips, and player highlights. Customizes highlight reels, edits clips, and exports content to social media platforms. Requires a good understanding of soccer and video editing principles.
* **Social Media Manager:** Focuses on exporting and distributing generated content to various social media platforms. Requires knowledge of social media trends and platform-specific requirements.
* **Analyst/Coach:** Uses the platform to analyze player performance and generate personalized highlight reels for training and evaluation purposes. Requires a deep understanding of soccer tactics and player statistics.
* **Regular User/Fan:** Views and shares generated highlights and match summaries. Interacts with the platform through a simplified interface. Requires basic computer literacy.

**2.4 Operating Environment**

The Soccer Highlights Generation Platform requires the following operating environment:

* **Hardware:**
* **Server:** High-performance server with multi-core CPU (e.g., Intel Xeon or AMD EPYC), dedicated GPU (e.g., NVIDIA Tesla or AMD Radeon Pro) for video processing, and ample RAM (at least 32 GB). Storage requirements depend on the volume of video data and generated highlights.
* **Client:** Standard desktop or laptop computer with a modern web browser (e.g., Chrome, Firefox, Safari, Edge).
* **Software:**
* **Operating System:** Linux (e.g., Ubuntu, CentOS) or Windows Server.
* **Web Server:** Apache or Nginx.
* **Database Management System:** PostgreSQL or MySQL.
* **Programming Languages:** Python, JavaScript, HTML

# 3. System Features

**3.1 Match Highlights**  
**Description:** Automatically generates condensed highlights from full match videos, including goals, fouls, free kicks, and other major events. The system analyzes the video feed, identifies key events using Deep learning models, and compiles these events into a single, coherent highlight.  
**Input:** Full soccer match video file (MP4, MKV).  
**Output:** Condensed highlight video file (MP4), metadata file containing information about the included events (timestamps, event types).  
**Priority:** High  
**Functional Requirements:**  
**FR 3.1.1:** The system MUST be able to ingest full soccer match videos in MP4, and MKV formats.  
**FR 3.1.2:** The system MUST automatically detect goals, fouls, free kicks, corners, penalties, cards ,best tackles, and substitutions.  
**FR 3.1.3:** The system MUST generate a highlight reel in MP4 format.  
**FR 3.1.4:** The system MUST create a metadata file containing information about the included events (timestamps, event types).

**3.2 Event-Based Clips**  
**Description:** Detects and extracts specific moments such as goals, cards, free kicks, and penalties into short standalone clips. This feature allows users to quickly access and share individual events from a match.  
**Input:** Full soccer match video file (MP4, MKV), event type to extract.  
**Output:** Short video clip (MP4) of the specified event, metadata file containing information about the event (timestamp, event type).  
**Priority:** High  
**Functional Requirements:**  
**FR 3.2.1:** The system MUST be able to extract specific moments from the video based on event type.  
**FR 3.2.2:** The system MUST support extraction of goals, cards, free kicks, and penalties.

**FR 3.2.3:** The system MUST allow users to add the event type.  
**FR 3.2.4:** The system MUST generate a short video clip in MP4 format.  
**FR 3.2.5:** The system MUST create a metadata file containing information about the event (timestamp, event type).  
**FR 3.2.6:** The system SHOULD provide a preview of the clip before extraction.

**3.3 Player Highlights**  
**Description:** Generates personalized highlight reels based on jersey number, showcasing a player’s passes, tackles, shots, etc. This feature enables users to focus on the performance of individual players.  
**Input:** Full soccer match video file (MP4, MKV), player jersey number

**Output:** Personalized highlight reel video file (MP4) for the specified player, metadata file containing information about the included events (timestamps, event types, player jersey number).  
**Priority:** Medium  
**Functional Requirements:**  
**FR 3.3.1:** The system MUST be able to identify players based on jersey number.  
**FR 3.3.2:** The system MUST track player actions throughout the match.  
**FR 3.3.3:** The system MUST generate a personalized highlight reel in MP4 format for the specified player.  
**FR 3.3.4:** The system MUST create a metadata file containing information about the included events (timestamps, event types, player jersey number).

**3.4 Social Media Export**  
**Description:** Exports individual or compiled clips in platform-ready formats (e.g., square or vertical for Instagram, TikTok). This feature facilitates easy sharing of content on various social media platforms.  
**Input:** Video clip or highlight reel (MP4), target social media platform (YouTube, Facebook, Instagram, TikTok), user credentials for the platform.  
**Output:** Video file in the appropriate format for the selected platform (MP4), confirmation message upon successful upload.  
**Priority:** High  
**Functional Requirements:**  
**FR 3.4.1:** The system MUST support exporting to YouTube, Facebook, Instagram, and TikTok.  
**FR 3.4.2:** The system MUST convert the video to the appropriate format for the selected platform (e.g., square or vertical for Instagram, TikTok).  
**FR 3.4.3:** The system MUST allow users to enter their credentials for the selected platform.  
**FR 3.4.4:** The system MUST upload the video to the selected platform.  
**FR 3.4.5:** The system MUST display a confirmation message upon successful upload.  
**FR 3.4.6:** The system SHOULD allow users to add a title and description to the video before uploading.

**3.5 Match Summary**  
**Description:** Auto-generates a visual summary including timeline of key events, score progression, and notable moments. This feature provides a quick overview of the entire match.  
**Input:** Full soccer match video file (MP4, MKV).  
**Output:** Visual summary including timeline of key events, score progression, and notable moments (image or video format).  
**Priority:** Medium  
**Functional Requirements:**  
**FR 3.5.1:** The system MUST automatically generate a timeline of key events.  
**FR 3.5.2:** The system MUST display the score progression throughout the match.  
**FR 3.5.3:** The system MUST highlight notable moments in the match.  
**FR 3.5.4:** The system MUST generate the match summary in text format.

**3.6 Head-to-Head Player Stats**  
**Description:** Displays basic stats comparison between standout players from both teams. This feature allows users to quickly compare the performance of key players.  
**Input:** soccer match video file (MP4, MKV).  
**Output:** Table or chart displaying basic stats comparison between the two players (e.g., passes, tackles, shots, goals).  
**Priority:** Low  
**Functional Requirements:**  
**FR 3.6.1:** The system MUST display basic stats for each player (e.g., passes, tackles, shots, goals).  
**FR 3.6.2:** The system MUST present the stats in a table or chart format.

**3.7 Video Clip Editor**  
**Description:** Built-in editor to fine-tune highlight clips (adjust length, frame selection, add overlays or text). This feature provides users with the ability to customize the generated clips.  
**Input:** Video clip (MP4), user edits (adjust length, frame selection, overlays, text).  
**Output:** Edited video clip (MP4).  
**Priority:** Medium  
**Functional Requirements:**  
**FR 3.7.1:** The system MUST allow users to adjust the length of the clip.  
**FR 3.7.2:** The system MUST allow users to select specific frames.  
**FR 3.7.3:** The system MUST allow users to add overlays (e.g., logos, scores).  
**FR 3.7.4:** The system MUST allow users to add text annotations.  
**FR 3.7.5:** The system MUST save the edited clip in MP4 format.  
**FR 3.7.6:** The system SHOULD provide a preview of the edited clip.

# 4. External Interfaces

**4.1 User Interfaces**

**4.1.1 Detailed Description of UI Design and Functionality**

The Soccer Highlights Generation Platform will feature a web-based GUI, accessible through standard web browsers (Chrome, Firefox, Safari, Edge). The UI will be designed with a clean, intuitive layout, prioritizing ease of use for all user classes (Administrator, Content Creator, Social Media Manager, Analyst/Coach, Regular User/Fan).

Key UI elements and functionalities include:

* **Dashboard:** A central hub providing an overview of recent activity, system status, and quick access to key features.
* **Video Upload:** A dedicated section for uploading soccer match videos from various sources (local storage, network drives, cloud storage). Users will be able to monitor upload progress and manage video files.
* **Highlight Generation:** An interface for configuring highlight generation parameters, such as highlight reel length, event types to include, and intro/outro options. This section will also allow users to initiate the highlight generation process.
* **Player Highlight Generation:** An interface for generating personalized highlight reels based on player jersey number and event types. Users will be able to select the player and specify the desired events to include.
* **Clip Extraction:** A tool for extracting specific moments from the video as standalone clips. Users will be able to select the event type and manually specify the start and end time of the clip.
* **Social Media Export:** An interface for exporting highlight reels and clips to various social media platforms. Users will be able to select the target platform, enter their credentials, and add a title and description to the video.
* **Match Summary Generation:** A feature for automatically generating a visual summary of the match, including a timeline of key events and score progression.
* **Head-to-Head Player Stats:** A tool for displaying basic stats comparison between standout players from both teams. Users will be able to select the two players for comparison and view their stats in a table or chart format.
* **Video Clip Editor:** A built-in editor for fine-tuning highlight clips, allowing users to adjust length, frame selection, add overlays, and add text annotations.
* **User Management (Administrator):** An administrative interface for managing user accounts, roles, and permissions.
* **Configuration Management (Administrator):** An administrative interface for configuring system parameters and settings.
* **Video Preview:** Integrated video player for previewing videos, selecting start and end points for clips, and reviewing generated highlights.

**4.1.2 Screen Layouts and User Interaction Flows**

The UI will follow a consistent layout across all sections, with a navigation bar on the left side providing access to the main features. The main content area will display the relevant information and controls for the selected feature.

**Example User Interaction Flows:**

* **Generating a Match Highlight:**
* **Exporting a Clip to Social Media:**

**4.1.3 Response Time Requirements**

The UI must provide a responsive and interactive experience for users. The following response time requirements apply:

* **Page Load Time:** The initial page load time for any section of the UI MUST be less than 3 seconds.
* **Button Click Response:** The response time for button clicks and other interactive elements MUST be less than 0.5 seconds.
* **Video Playback:** Video playback MUST start within 1 second of clicking the play button.
* **Highlight Generation:** Highlight generation time SHOULD be proportional to the length of the video and the complexity of the analysis, but MUST not exceed 30 minutes for a standard 90-minute match.
* **Social Media Export:** Upload times will vary depending on video size and network bandwidth, but the system MUST provide a clear progress indicator and estimated completion time.

**4.1.4 UI Standards and Guidelines**

The UI will adhere to the following

# 5. Non Functional Requirements

**5.1 Performance Requirements**

* **Speed, Latency, and Response Time Requirements:**
* The system MUST process a 90-minute soccer match video and generate a highlight reel within 30 minutes.
* Event-based clip extraction MUST complete within 5 seconds of request.
* Player highlight generation MUST complete within 10 minutes.
* Social media export MUST initiate within 2 seconds of user confirmation.
* The system MUST maintain a consistent frame rate (minimum 24 FPS) during video playback and editing.
* API response times for data retrieval (e.g., player stats) MUST be less than 1 second.
* **Maximum Concurrent Users and System Load Capacity:**
* The system MUST support at least 50 concurrent users accessing the platform simultaneously.
* The system MUST be able to handle a peak load of 100 concurrent highlight generation requests without significant performance degradation (defined as an increase in processing time of more than 20%).
* The system MUST be able to process at least 20 video uploads concurrently.
* **Data Processing Times and Throughput:**
* The system MUST be able to ingest video data at a rate of at least 100 MB/s.
* The system MUST be able to process video frames for event detection at a rate of at least 30 FPS.
* The system MUST be able to store and retrieve match metadata and event data with a latency of less than 0.5 seconds.

**5.2 Security Requirements**

* **Data Security and Encryption Standards:**
* All video data stored on the server MUST be encrypted using AES-256 encryption.
* All sensitive data transmitted between the client and server (e.g., user credentials, API keys) MUST be encrypted using TLS 1.3 or higher.
* The database MUST be protected against SQL injection and other common web vulnerabilities.
* **Authentication and Authorization Mechanisms:**
* The system MUST use strong password hashing algorithms (e.g., bcrypt, Argon2) to store user passwords.
* The system MUST implement multi-factor authentication (MFA) for administrator accounts.
* The system MUST enforce role-based access control (RBAC) to restrict access to sensitive data and functionalities based on user roles (Administrator, Content Creator, Social Media Manager, Analyst/Coach, Regular User/Fan).
* The system MUST implement secure session management to prevent unauthorized access to user accounts.
* **Protection Against Data Breaches and Cyber Threats:**
* The system MUST be protected against common web vulnerabilities such as cross-site scripting (XSS) and cross-site request forgery (CSRF).
* The system MUST be regularly scanned for vulnerabilities using automated security scanning tools.
* The system MUST implement intrusion detection and prevention mechanisms to detect and prevent unauthorized access to the system.
* The system MUST have a documented incident response plan for handling security breaches and data leaks.
* **Compliance with Security Regulations:**
* If the system processes personal data of users located in the European Union, it MUST comply with the General Data Protection Regulation (GDPR).
* If the system processes personal data of users located in California, it MUST comply with the California Consumer Privacy Act (CCPA).
* The system MUST comply with industry-standard security best practices, such as the OWASP Top Ten.

**5.3 Reliability Requirements**

* **Uptime and Availability Targets:**
* The system MUST achieve an uptime of at least 99.9%.
* Scheduled maintenance MUST be performed during off-peak hours to minimize disruption to users.
* **Backup and Disaster Recovery Mechanisms:**
* The system MUST have a robust backup and disaster recovery plan in place.
* Data MUST be backed up daily to a geographically separate location.
* The system MUST be able to recover from a disaster within 4 hours.
* Regular disaster recovery drills MUST be conducted to ensure the effectiveness of the plan.
* **Error Detection and Self-Healing Features:**
* The system MUST implement comprehensive error logging and monitoring.
* The system MUST automatically detect and recover from common errors, such as network outages and database connection failures.
* The system MUST provide alerts to administrators when critical errors occur.
* The system SHOULD implement self-healing mechanisms to automatically restart failed services and processes.

**5.4 Usability Requirements**

* **User Experience Standards and Accessibility Guidelines:**
* The system MUST adhere to established user experience (UX) principles, such as consistency, clarity, and efficiency.
* The system MUST comply with accessibility guidelines, such as WCAG 2.1, to ensure that it is usable by people with disabilities.
* The UI MUST be responsive and adapt to different screen sizes and devices.
* **Ease of Navigation and Learnability:**
* The system MUST have a clear and intuitive navigation structure.
* The system MUST provide context-sensitive help and documentation.
* The system MUST be easy to learn and use, even for users with limited technical expertise.
* Onboarding tutorials and tooltips SHOULD be provided to guide new users.
* **Multi-Language Support:**
* The system MAY support multiple languages in the future. If implemented, the UI MUST be easily localizable, and all text MUST be stored in a separate resource file.

**5.5 Scalability Requirements**

* **Support for Increasing User Load and Data Growth:**
* The system MUST be able to handle a significant increase in user load and data volume without significant performance degradation.
* The system MUST be designed to accommodate future growth and expansion.
* **Horizontal and Vertical Scaling Capabilities:**
* The system MUST support horizontal scaling, allowing administrators to add more servers to the cluster to handle increased load.
* The system MUST support vertical scaling, allowing administrators to increase the resources (CPU, memory, storage) of individual servers.
* **Performance Under Peak Load Conditions:**
* The system MUST maintain acceptable performance levels (as defined in Section 5.1) even under peak load conditions.
* Load testing MUST be performed regularly to identify and address potential performance bottlenecks.

**5.6 Maintainability Requirements**

* **Code Structure and Modularity:**
* The system MUST be designed with a modular architecture, with well-defined components and interfaces.
* The code MUST be well-structured, documented, and easy to understand.
* The system MUST follow established coding standards and best practices.
* **Ease of Debugging and Updating:**
* The system MUST provide comprehensive logging and debugging tools.
* The system MUST be designed to allow for easy updates and patches without requiring significant downtime.
* The system MUST support remote debugging and monitoring.
* **Automated Testing and CI/CD Integration:**
* The system MUST have a comprehensive suite of automated unit tests, integration tests, and system tests.
* The system MUST be integrated with a continuous integration/continuous deployment (CI/CD) pipeline to automate the build, test, and deployment process.

**5.7 Compliance Requirements**

* **Legal or Regulatory Compliance:**
* The system MUST comply with all applicable legal and regulatory requirements, including GDPR and CCPA if processing user data from those regions.
* The system MUST comply with copyright laws and regulations related to video content.
* The system SHOULD be designed to comply with ISO 27001 standards for information security management.
* **Data Retention Policies and Audit Requirements:**
* The system MUST enforce data retention policies to ensure that data is not stored for longer than necessary.
* The system MUST provide audit logging capabilities to track user activity and system events.
* The system MUST be able to generate reports for compliance auditing purposes.
* **Compliance with Industry-Specific Standards:**
* The system MUST comply with any relevant industry-specific standards related to video processing and distribution.

**5.8 Availability Requirements**

* **System Uptime and Fault Tolerance:**
* The system MUST be designed to be highly available and fault-tolerant.
* The system MUST be able to automatically recover from hardware and software failures.
* The system MUST implement redundancy at all critical points.
* **Offline Mode Functionality and Data Synchronization:**
* The system MAY provide limited offline mode functionality, allowing users to access previously generated highlights and clips even when they are not connected to the internet.
* If offline mode is supported, the system MUST automatically synchronize data when the user reconnects to the internet.
* **Redundancy and Failover Mechanisms:**
* The system MUST implement redundancy for all critical components, such as web servers, database servers, and video processing servers.
* The system MUST have automatic failover mechanisms in place to ensure that services are automatically switched to a backup server in the event of a failure.
* Load balancers MUST be used

# 6. Use Cases

* The user has a valid account and is logged into the system.
* A full soccer match video file has been uploaded to the system.
* The video file is in a supported format (MP4, AVI, MOV, MKV).
* A condensed highlight reel video file (MP4) is generated.
* A metadata file containing information about the included events (timestamps, event types) is created.
* The highlight reel is available for preview and download.
* Highlight reel length (e.g., 5 minutes, 10 minutes).
* Event types to include (goals, fouls, free kicks, penalties, cards, substitutions).
* Optionally, adds intro and outro sequences.

**6.1.6.1 Video Upload Failure**: If the video upload fails, the system displays an error message and prompts the user to retry the upload.

**6.1.6.2 Unsupported Video Format**: If the video file is in an unsupported format, the system displays an error message and prompts the user to upload a video in a supported format.

**6.1.6.3 Event Detection Failure**: If the system fails to detect any events of the selected types, it notifies the user and allows them to adjust the event types or video.

**6.1.6.4 Highlight Generation Timeout**: If the highlight generation process exceeds a predefined timeout (e.g., 30 minutes), the system cancels the process and notifies the user.

* The user has a valid account and is logged into the system.
* A full soccer match video file has been uploaded to the system.
* The video file is in a supported format (MP4, AVI, MOV, MKV).
* A short video clip (MP4) of the specified event is generated.
* A metadata file containing information about the event (timestamp, event type) is created.
* The clip is available for preview and download.
* Option 1: Manually enters the start and end time.
* Option 2: Uses the video preview to select the start and end frames.
* **6.2.6.1 Invalid Time Range**: If the specified start and end time are invalid (e.g., start time is after end time), the system displays an error message and prompts the user to correct the time range.
* **6.2.6.2 Clip Extraction Failure**: If the clip extraction process fails, the system displays an error message and prompts the user to retry the extraction.
* **6.2.6.3 Event Not Found**: If the specified event is not found within the video, the system notifies the user.
* The user has a valid account and is logged into the system.
* A full soccer match video file has been uploaded to the system.
* The video file is in a supported format (MP4, AVI, MOV, MKV).
* A personalized highlight reel video file (MP4) is generated for the specified player.
* A metadata file containing information about the included events (timestamps, event types, player jersey number) is created.
* The highlight reel is available for preview and download.
* **6.3.6.1 Player Not Found**: If the system cannot identify the player based on the jersey number, it displays an error message and prompts the user to verify the jersey number.
* **6.3.6.2 No Events Found**: If the system does not find any events of the selected types for the player, it notifies the user and allows them to adjust the event types or time range.
* **6.3.6.3 Player Identification Error**: If the system incorrectly identifies the player, the user can manually correct the identification.
* The user has a valid account and is logged into the system.
* A video clip or highlight reel (MP4) is available in the system.
* The user has valid credentials for the target social media platform.
* The video file is converted to the appropriate format for the selected platform.
* The video is uploaded to the selected platform.
* A confirmation message is displayed upon successful upload.

# 7. System Models and Diagrams

This section presents the system models using various UML diagrams to visualize different aspects of the system.

## 7.1 ActivityDiagram

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## 7.2 SequenceDiagram

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## 7.3 ClassDiagram

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