A CASE STUDY (IEEE Format)

Software Requirements Specification Document

Version 1.0

GeniusGPT

TABLE OF CONTENTS

1. Introduction

1.1 Purpose

The purpose of this document is to provide a detailed description of the *GeniusGPT* web application, focused on AI-powered content generation. This document serves as a guide for the development team and end-users, outlining the system's core functionality, performance, and design requirements for delivering high-quality AI-generated content.

1.2 Scope

The *GeniusGPT* web application offers users a seamless experience in generating digital content through AI, including images, audio, video, and code. Users can interact with generative AI models by providing descriptive text prompts, enabling the creation of various content types for both personal and professional use.

The software must be able to perform the following functionalities:

1.2.1 AI-Powered Content Generation

- **Image Generation**: Users can enter descriptive prompts to generate unique images. The AI model interprets these prompts to produce visuals that align with the user's intent.
- **Purpose**: To empower users to create personalized and contextually relevant images, enhancing creative projects or visual content needs.
- **Audio Generation**: Based on user prompts, *GeniusGPT* generates audio clips that align with specified themes or styles. This feature is designed for users needing background music, sound effects, or narration.
- **Purpose**: To simplify the process of creating custom audio, catering to users involved in media production, presentations, and content creation.
- **Video Generation**: Users can generate short video clips by providing detailed descriptions. The AI uses these inputs to create dynamic video content suitable for various applications.
- **Purpose**: To enable users to create engaging video content quickly, streamlining production for marketing, education, or social media needs.
- **Code Generation**: The platform allows users to describe a coding task or request snippets, which the AI generates in response. This feature supports users looking for quick solutions or examples for coding problems.
- **Purpose**: To assist developers by generating functional code based on natural

language descriptions, improving productivity and reducing development time.

- **User Profiles and Dashboard**: Users can manage and view all generated content in a centralized dashboard, allowing easy access to past projects and tracking of generation history.

- **Purpose**: To provide a streamlined user experience where individuals can manage their generated content efficiently.

1.2.2 Communication and Notifications

The application includes basic notification tools to keep users updated on the status of their content generation requests and other important platform updates.

- **Purpose**: To ensure users receive timely updates on content generation processes and are notified about relevant platform features or new capabilities.

Pilot Phase

The initial deployment of *GeniusGPT* will target a select group of AI developers, content creators, and organizations to test core functionalities. This pilot phase will allow the team to monitor performance, gather user feedback, and make adjustments before a broader launch.

Future Expansion

Upon successful completion of the pilot phase, *GeniusGPT* aims to broaden its feature set to include additional capabilities, such as:

- **AI Model Marketplace**: A marketplace where developers can list AI models for sale, with a revenue-sharing mechanism.
- **Challenge Sponsorship**: Companies can sponsor challenges to encourage AI innovation, allowing developers to participate and showcase their skills.
- **Collaborative Development**: A space for AI developers to find collaborative projects based on skills and interests.
- **Enhanced Analytics and Reporting**: Tools to provide users and organizations with insights into content performance and engagement.

These future expansions will transform *GeniusGPT* from a content generation tool into a comprehensive platform for AI development, collaboration, and commercialization.

Conclusion

The *GeniusGPT* application is designed as a powerful platform for AI-driven content generation, focusing on image, audio, video, and code generation features. By prioritizing these core functionalities, *GeniusGPT* enables users to create customized digital assets for various purposes, streamlining creative processes and supporting productivity.

Future expansions of the platform are anticipated to introduce an AI model marketplace with revenue-sharing, AI challenge sponsorship, and collaborative AI development. These additions aim to foster greater community engagement within the AI field, encourage innovative AI solutions, and eventually enhance the scalability and reach of *GeniusGPT* beyond content generation.

1.3 Definitions, Acronyms, and Abbreviations

- **AI:** Artificial Intelligence
- **SMB:** Small and Medium-sized Business
- **SaaS:** Software as a Service
- **CRM:** Customer Relationship Management
- **UX:** User Experience

1.4 References

1. AI Definition: [www.ibm.com/cloud/learn/what-is-artificial-intelligence] (https://www.ibm.com/cloud/learn/what-is-artificial-intelligence)
2. Developer Definition: www.techopedia.com/definition/23193/software-developer
3. Model Definition: www.ibm.com/cloud/learn/machine-learning
4. Sponsor Definition: [www.merriam-webster.com/dictionary/sponsor] (https://www.merriam-webster.com/dictionary/sponsor)
5. Challenge Definition: www.dictionary.com/browse/challenge
6. Collaborator Definition: www.merriam-webster.com/dictionary/collaborator
7. Dataset Definition: www.techtarget.com/searchbusinessanalytics/definition/data-set

1.5 Overview

The remaining sections of this document provide a detailed description of the system's software requirements, functional requirements, and user perspectives. General descriptions, user roles, and system functionalities are covered in Section 2, while Section 3 focuses on the specific functional and interface requirements of the application.

2. Overall Description

2.1 Product Perspective

The GeniusGPT Content Generation Platform is designed as a central hub to support creative AI-driven activities, including the generation of images, audio, video, and code. It operates as a standalone web application, accessible on any device with internet connectivity, including desktops, laptops, tablets, and smartphones. With a user-friendly graphical interface, GeniusGPT aims to deliver a seamless experience for creators, researchers, and developers, allowing them to engage with AI content generation tools effectively.

Upon accessing the website, users are welcomed by a homepage where they can explore content generation tools, experiment with AI-driven creations, view featured works, and interact with other users. Different user roles, including general users, content creators, developers, and administrators, will provide access to various functionalities. Depending on their role, users can generate content, access tutorials, contribute to collaborative projects, and access personal usage data.

The platform's system architecture includes a central database that stores user information, content creation history, and generated assets. GeniusGPT will support the following core functionalities:

- **User Authentication:** Users must create accounts and log in to access personalized features like saving generated content, tracking usage statistics, or accessing premium content generation tools. User credentials will be managed securely with encryption.

- **Content Generation Tools:** The platform will feature various AI-driven tools for generating images, audio, video, and code. Each tool will allow users to input parameters, view previews, and save or download the generated content. Usage statistics and preferences will be logged to enhance personalized recommendations.

- **Project and Collaboration Management:** Users can work on projects individually or in collaboration with others. Organizations and creators will have

tools to manage projects, allowing them to create shared workspaces, assign roles, and track project progress in real time.

- **Usage Analytics:** Users will be able to view detailed analytics on their usage patterns, the performance of generated content, and insights on how their content compares to other users' creations. This data will help users improve their skills and understand trends in content generation.

2.2 Product Features

The product should be able to perform the following operations:

- **User Authentication:** The platform should authenticate users by matching login credentials with stored values in the database during signup and login.
- **Content Generation Capabilities:** Users should be able to access a suite of AI-driven content generation tools. Each tool should allow customization through parameters, previews, and options for saving or downloading generated content.
- **Content Storage and Retrieval:** The platform will store users' generated content securely, allowing them to retrieve it later or use it as a basis for new creations. Users will have personalized content libraries, with features to organize, categorize, and share content with others.
- **Collaboration Tools:** Organizations or teams can create shared projects, with tools for assigning collaborators, setting milestones, and tracking contributions. Collaborative workspaces will support real-time updates and notifications.
- **Analytics and Usage Insights:** Users will have access to metrics showing their usage of tools, popular content types, and comparative analytics to help them understand content trends and refine their creations.
- **Admin Capabilities:** Authorized administrators will have the ability to manage user privileges, such as limiting access for users who violate platform policies or enhancing access for premium members. Admins can also monitor user behavior to ensure compliance with community standards.
- **Content Marketplace (Future Expansion):** Users will eventually be able to list generated assets (like images or audio) in a marketplace. This feature will be accompanied by transaction tracking, content licensing options, and a revenue-sharing model.

2.3 User Characteristics

GeniusGPT is intended for a diverse range of users, each with specific needs related to AI content generation. The primary user types are:

- **General User (Creator/Content Consumer):** Individuals interested in using AI

tools to generate content for personal or professional use. This group includes artists, musicians, and developers.

- **Organization Representative:** Representatives from companies or institutions who use the platform for content creation projects, collaboration, or experimentation.

- **Administrator:** Users who have management roles, responsible for overseeing platform activities, moderating content, and handling user privileges.

- **Premium User (Planned):** A future role that may include advanced features, priority access to new content generation tools, and enhanced support.

2.4 General Constraints, Assumptions and Dependencies

GeniusGPT's development will follow certain constraints, assumptions, and dependencies to ensure smooth functionality and ease of use.

General Constraints

- **Cross-Device Compatibility:** The platform must be fully responsive and work across multiple browsers (Chrome, Firefox, Edge) and devices, including mobile devices. This will ensure that users can create and interact with content anytime, anywhere.

- **Performance Optimization:** Given the potentially high computational requirements of content generation tools, the platform should optimize resource use. Media assets should be compressed to ensure smooth functionality without high bandwidth consumption.

- **Accessible Interface Design:** The platform's interface must be user-friendly and intuitive, with clear navigation and accessible tools to support users with different skill levels.

Assumptions

- **Basic AI Knowledge:** Users are assumed to have some familiarity with AI concepts and content generation tools. However, the platform will provide guides and tooltips to support users with varying levels of experience.

- **Modern Browser and Device Use:** Users are expected to access the platform on modern devices with updated browsers. While mobile support will be provided, the best experience may be on desktops for complex content generation.

Dependencies

- **Third-Party APIs for Content Processing:** The platform will use third-party APIs (e.g., for image processing or music generation). The performance and availability of these APIs will affect GeniusGPT's functionality.

- **Internet Connectivity:** As a web-based platform, GeniusGPT depends on internet connectivity. Real-time collaboration and media-rich content may be impacted by slower connections.

2.5 Apportioning of Requirements

The implementation phases for the GeniusGPT AI Collaboration and Marketplace Platform can be broken down into the following phases:

- **Pilot Phase:** In the pilot phase, the platform's core content generation features will be implemented and tested with a limited group of users and organizations. This initial deployment will include a small number of users, such as content

creators, artists, developers, and a few selected organizations. The pilot phase will emphasize:

Features: Basic content generation capabilities for images, audio, and potentially video. Users will be able to create, save, and download generated content. This phase will also include foundational user authentication, content storage, and retrieval functionalities.

User Roles: Limited access privileges for core user types, such as general users (creators and developers), organization representatives, and administrators.

Scale: Initial deployment for a small, focused community of around 10 organizations and 100 creators or developers to test the platform's content generation tools, usage tracking, and interaction with basic collaborative features.

- **Wider Community Deployment:** Upon successful completion of the pilot phase, the platform will scale to support a larger community of users and additional content generation features. This stage will introduce more tools and expand on collaboration capabilities:

  Features: Integration of advanced content generation tools, such as expanded image and audio options, as well as video and code generation tools. Enhanced collaboration features will be introduced, allowing users to share projects and workspaces. Additionally, usage analytics will enable users to track and analyze content trends.

  User Roles: Introduction of new user roles, such as premium users with access to more specialized tools, and enhanced management features for organizations to monitor content generation statistics and collaborative activities.

  Scale: Expanded to include a larger user base of over 1,000 users and 50 organizations. Enhanced security measures, such as two-factor authentication, may be introduced for user accounts with higher privileges and access to premium tools.

- **Future Expansion and Additional Features**: In the final phase, the platform’s functionality will be extended to support additional applications, marketplace integration, and increased scalability. This stage will focus on meeting the demands of a large user base while introducing new ways for users to interact with and benefit from the platform:

  Features: Introduction of a marketplace for users to sell generated content, advanced AI model versioning, and partnerships with cloud providers for expanded processing power. This phase may also include more sophisticated content collaboration tools, as well as a reputation system to highlight top creators. Opportunities for sponsored projects or partnerships with organizations will also be introduced.

User Roles: Expanded role management for larger organizations, allowing them to monitor internal content projects, employee collaborations, and creative initiatives. Organizations and high-profile users will have more control over collaborative projects and team management.

Scale: Global expansion, with integration of partnerships with large-scale creative institutions, research facilities, and corporate sponsors. The platform will be designed to accommodate a significantly higher volume of content creation, user engagement, and transactions as its capabilities grow.

3. Specific Requirements

3.1 External Interface Requirements

The following outlines the external interface requirements for the GeniusGPT Content Generation and Collaboration Platform:

- The platform will offer a simple, user-friendly graphical user interface (GUI), accessible on both desktop and mobile web browsers. The design will prioritize intuitive navigation to accommodate users with diverse levels of expertise in content creation and digital tools.
- The platform's basic functionality will not rely on sound or animation. However, visual feedback elements, such as confirmation messages for successful content purchases or project submissions, will be provided to enhance user experience.
- The website will be optimized for responsive design, ensuring compatibility with a wide range of screen resolutions, from mobile devices (minimum 320 x 480 pixels) to desktop displays, allowing for a seamless experience on any device.
- The platform will integrate with external services, including payment gateways for secure transactions, as well as third-party APIs for cloud storage and processing to support intensive content generation tasks.

3.2 Functional Requirements

The table below shows a template that I'll be using to describe functional requirements for two types of users: Content Creators and Developers and organizations. One can easily deduce the functional requirements for other user types with this template.

3.2.1 Functional Requirements for Content Creators and Developers Interface

Purpose	The platform will offer personalized dashboards for content creators and developers, providing information on content sales history, collaboration opportunities, and project tracking upon successful login and verification.

Inputs	Users will interact with a user-friendly interface where they can choose from options such as "View Content Sales History," "Browse Collaborative Projects," "Explore Sponsorships," "Manage Profile," and "View Transaction History." Actions are initiated through buttons, dropdowns, or clickable links.
Processing	Once a selection is made, the system retrieves relevant information from the central database. For instance, if a creator selects "View Content Sales History," the system will fetch and display their transaction history. Similarly, choosing "Browse Collaborative Projects" will display relevant opportunities based on the creator's profile and past work.
Outputs	The platform will display specific information tailored to the user's request. For example: • Selecting "Collaboration Opportunities" will show a list of upcoming projects, detailing required skills, timelines, and application instructions. • Choosing "View Content Sales History" will provide a detailed breakdown of sales, including transaction dates, content sold, and total revenue.

3.2.2 Functional Requirements for organization's interface

Purpose	The organization interface will offer tools to manage content generation projects, track purchases, and collaborate with creators for effective project oversight upon login.
Inputs	Organizations will interact via a dashboard with options such as "Initiate New Project," "View Sales Reports," "Manage Collaborations," "Track Project Progress," and "Edit Organization Profile." These options are accessible via buttons, dropdowns, or tabs, making navigation straightforward.

Processing	When an option is selected, the platform retrieves and organizes relevant data. For example: • Selecting "View Sales Reports" compiles transaction data for content sold by the organization, including buyer details, amounts, and purchase dates. • Choosing "Manage Collaborations" displays creator registrations and skills for specific projects, helping the organization assign roles and manage tasks effectively.
Outputs	The system provides comprehensive information based on the organization's selections: • **Initiate New Project:** Organizations can create new projects, adding details such as objectives, evaluation criteria, timelines, and datasets. • **View Sales Reports:** A detailed breakdown of content sales, including revenue, individual purchases, and dates, is displayed. Organizations can also download or export this data. • **Manage Collaborations:** A list of registered creators and their roles in various projects is displayed, along with options to assign new tasks or communicate with collaborators. • **Track Project Progress:** Organizations can monitor progress with visual indicators such as completion percentages, submission counts, or other metrics

3.3 Performance Requirements

The platform is web-based and accessible from any internet-enabled device, with the following performance requirements:

- The platform will support concurrent users, enabling real-time interaction among

creators, organizations, and collaborators.The platform will handle various content types, including images, audio, video, and text-based project details, with content volume scaling according to user activity and project requirements.

- Under standard conditions, 95% of transactions, such as content purchases or project submissions, should be processed promptly, with an estimated processing time of approximately 5 seconds.

- The platform should manage concurrent content generation sessions, allocating resources efficiently to ensure stability and prevent system overload during peak activity.

3.4 Entity-Relationship Diagram (ERD

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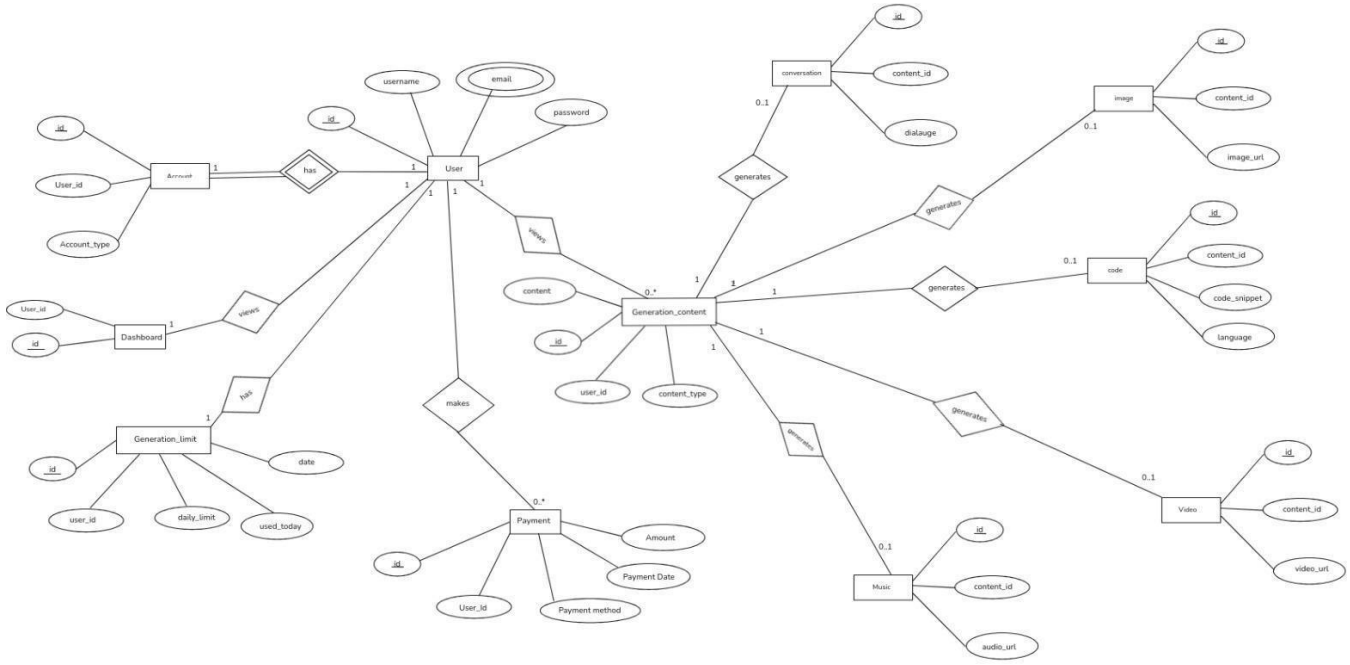


3.5 Quality Attributes

The platform is designed to cater to a diverse user base, including content creators, developers, organizations, and sponsors.

- **Performance and Compatibility**: It must load quickly and perform efficiently across various devices, including desktops, tablets, and smartphones, ensuring a seamless experience for all users.

- **User-Friendly and Resilient Interface**: The platform should be intuitive and resilient, capable of handling a wide range of user inputs, including incorrect entries or unexpected actions. It will provide helpful feedback or prompts to guide users back on track, ensuring a smooth navigation experience.

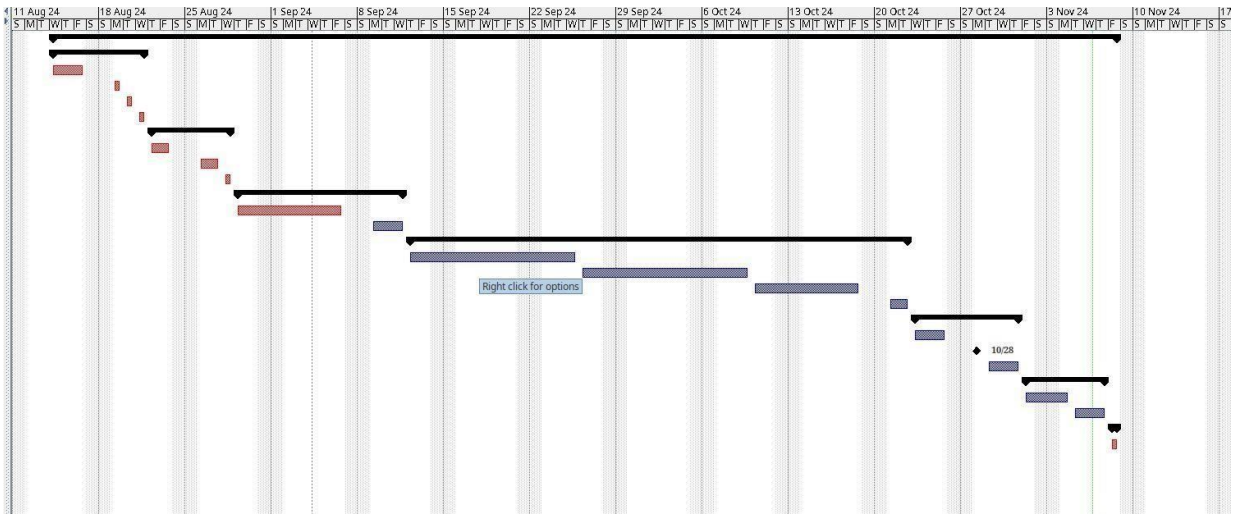
- **Security Standards**:The system must uphold high security standards to protect sensitive content, data, and user information, safeguarding intellectual property and privacy.

- **Scalability**:The platform should be scalable, able to support an increasing number of users, content items, and collaborative projects without performance issues, ensuring it can grow alongside the user base.

- **Version Control and Documentation**: The platform should provide robust version control for content assets, along with comprehensive documentation features to facilitate collaboration, transparency, and reproducibility in projects.

Timeline/ Gantt Chart

		Name	Duration	Start	Finish
1		**InariMind**	63 days?	**8/14/24 8:00 AM**	**11/8/24 5:00 PM**
2		**Planning**	6 days?	**8/14/24 8:00 AM**	**8/21/24 5:00 PM**
3		Feasibility Study	3 days?	8/14/24 8:00 AM	8/16/24 5:00 PM
4		Estimate Cost	1 day?	8/17/24 8:00 AM	8/19/24 5:00 PM
5		Estimate Time	1 day?	8/20/24 8:00 AM	8/20/24 5:00 PM
6		Estimate Effort	1 day?	8/21/24 8:00 AM	8/21/24 5:00 PM
7		**Requirment Analysis**	5 days?	**8/22/24 8:00 AM**	**8/28/24 5:00 PM**
8		Requirment Gatherin	2 days?	8/22/24 8:00 AM	8/23/24 5:00 PM
9		Requirment Design	2 days?	8/24/24 8:00 AM	8/27/24 5:00 PM
10		Requirment Validatio	1 day?	8/28/24 8:00 AM	8/28/24 5:00 PM
11		**Design**	10 days?	**8/29/24 8:00 AM**	**9/11/24 5:00 PM**
12		Module Design	7 days?	8/29/24 8:00 AM	9/6/24 5:00 PM
13		Algorithm Design	3 days?	9/7/24 8:00 AM	9/11/24 5:00 PM
14		**Coding**	29 days?	**9/12/24 8:00 AM**	**10/22/24 5:00 PM**
15		Frontend Coding	10 days?	9/12/24 8:00 AM	9/25/24 5:00 PM
16		Backend Coding	10 days?	9/26/24 8:00 AM	10/9/24 5:00 PM
17		Chatbot	7 days?	10/10/24 8:00 AM	10/18/24 5:00 PM
18		Integration	2 days?	10/19/24 8:00 AM	10/22/24 5:00 PM
19		**Testing**	7 days?	**10/23/24 8:00 AM**	**10/31/24 5:00 PM**
20		Writing Testcases	3 days?	10/23/24 8:00 AM	10/25/24 5:00 PM
21		WhiteBox Testing	0 days?	10/26/24 8:00 AM	10/28/24 5:00 PM
22		BlackBox Testing	3 days?	10/29/24 8:00 AM	10/31/24 5:00 PM
23		**Documentation and M**	5 days?	**11/1/24 8:00 AM**	**11/7/24 5:00 PM**
24		Report Writing	2 days?	11/1/24 8:00 AM	11/4/24 5:00 PM
25		Corrective Maintaine	3 days?	11/5/24 8:00 AM	11/7/24 5:00 PM
26		**Deployment**	1 day?	**11/8/24 8:00 AM**	**11/8/24 5:00 PM**
27		Delivery	1 day?	11/8/24 8:00 AM	11/8/24 5:00 PM



Analysis Phase

Use Cases

Use Case Templates

Use Case Title: Search AI Content

Use Case ID: 1

Actors: User (Content Creator/Manager)

Description:
The user can search for AI-generated content by entering specific search criteria, such as content type (image, audio, video, code), creation date, keywords, etc. The system displays a list of AI-generated content items that match the search criteria.

Pre-Conditions:

The user must be logged into the GeniusGPT platform.
The user has access to search filters for AI-generated content.
Task Sequence:

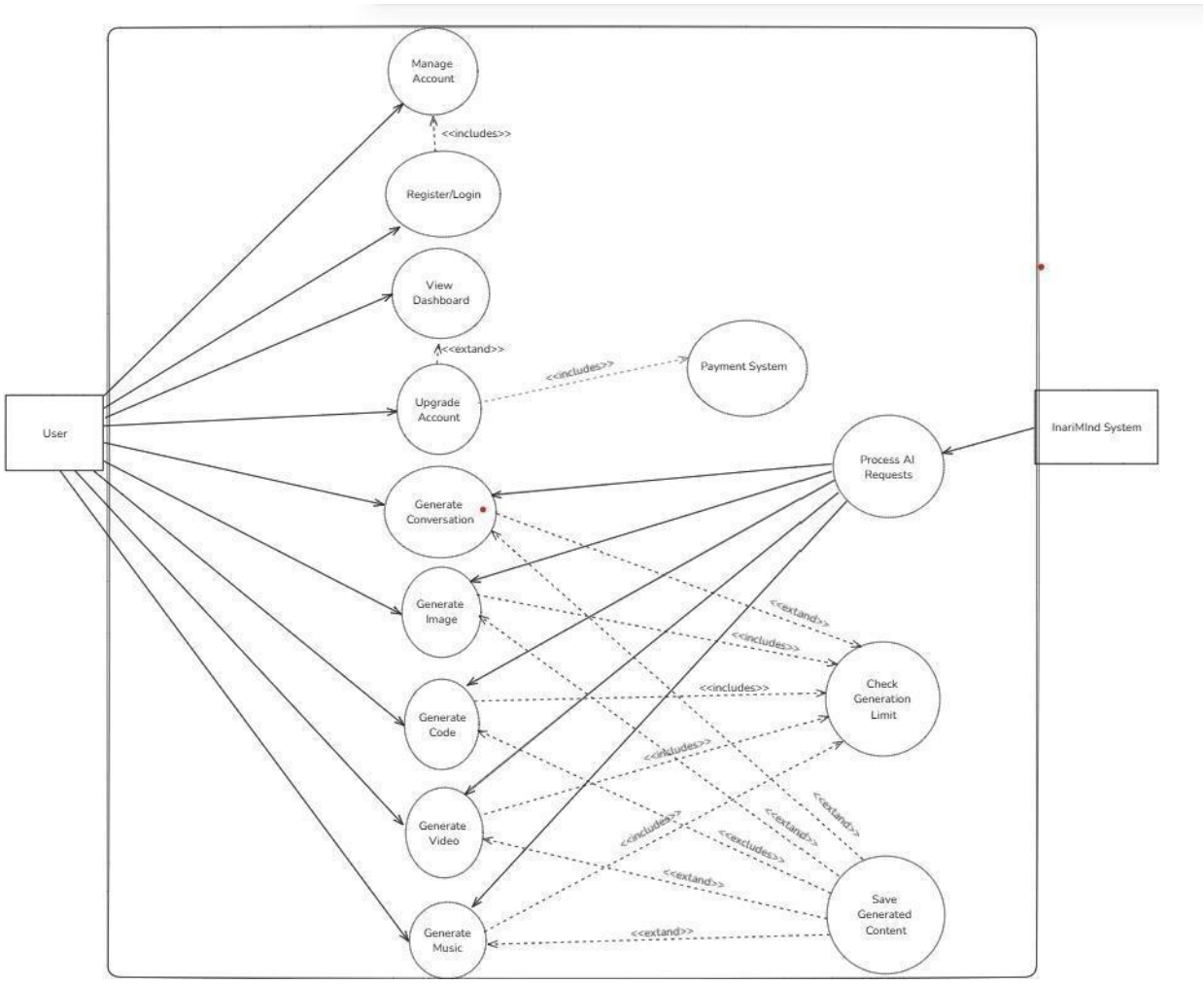
The user selects the search option on the dashboard.
The user enters search criteria (e.g., content type, date range, keywords).
The system retrieves and displays a list of content items that match the search criteria.
Post Conditions:

A list of AI-generated content items matching the criteria is displayed.
The user can select a content item to preview, edit, or initiate further actions.
Modification History:

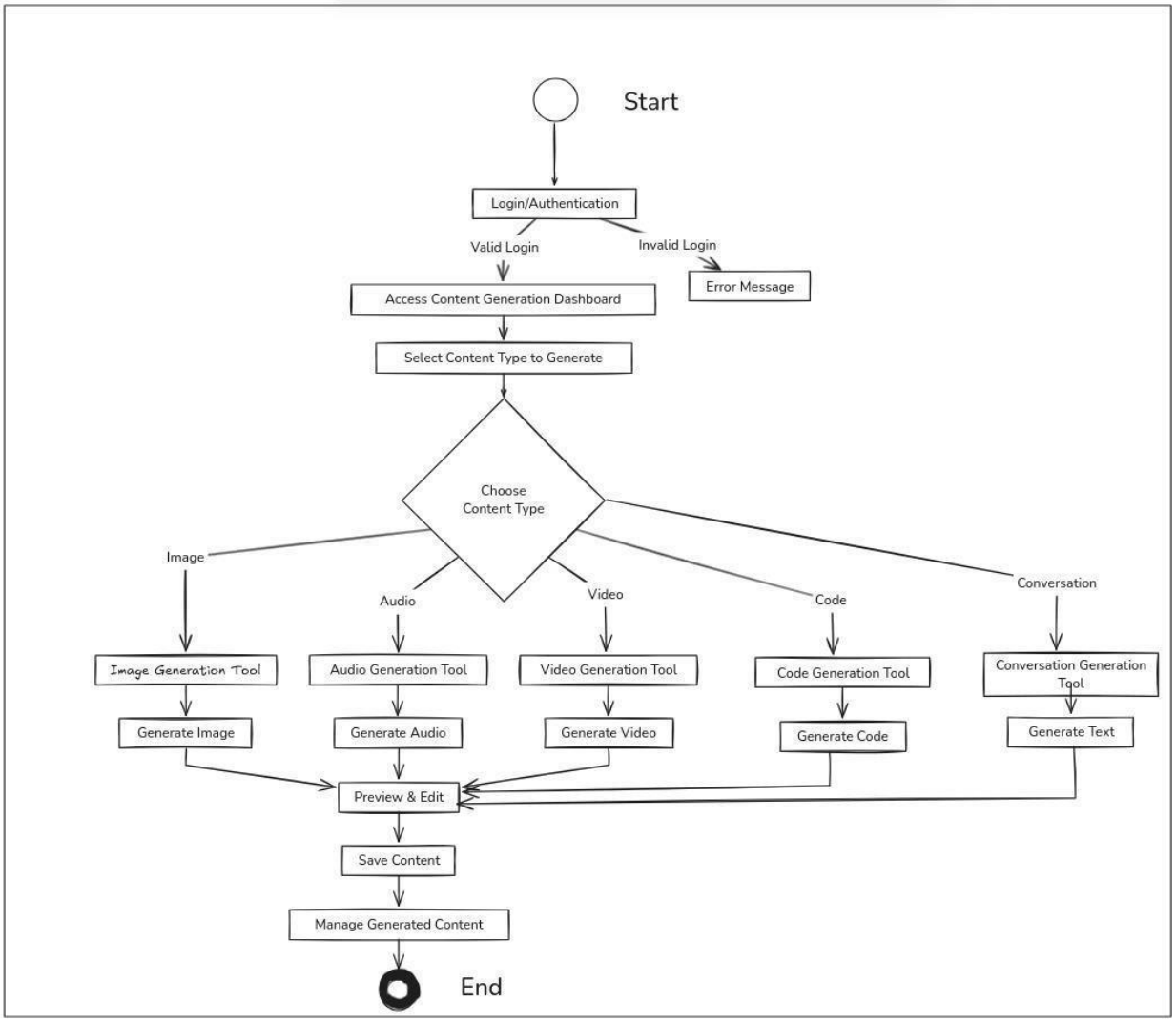
13-10-2024

Authors:
Shivane Kapoor, Kaustubh Singh, Robin Singh, Toshar Bhardwaj

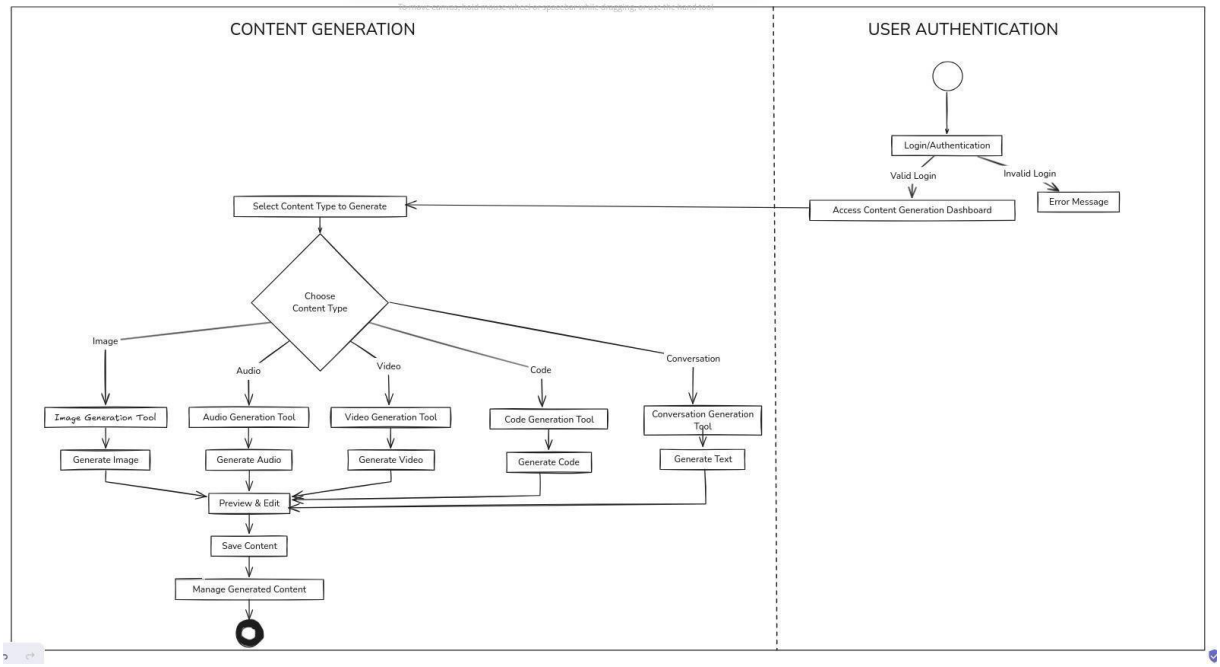
Use case Diagrams



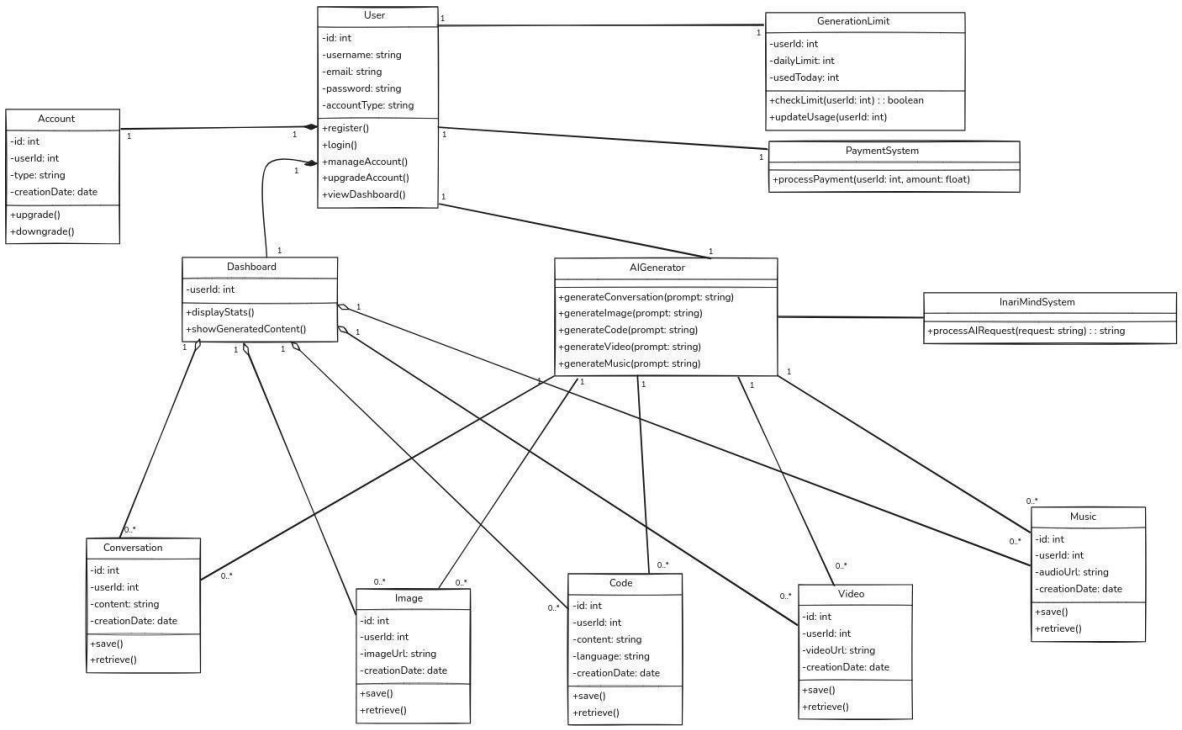
Activity Diagram



Swimlane Diagram

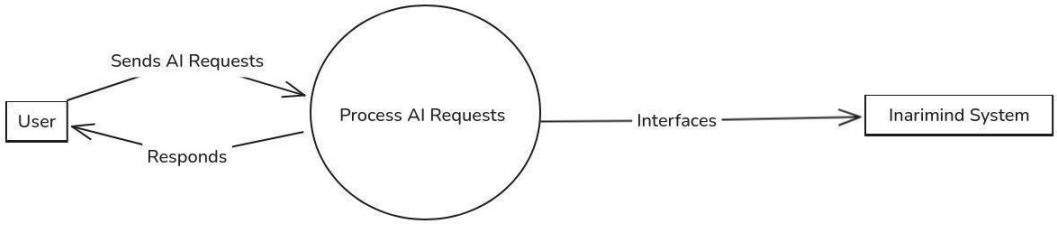


Class Diagrams

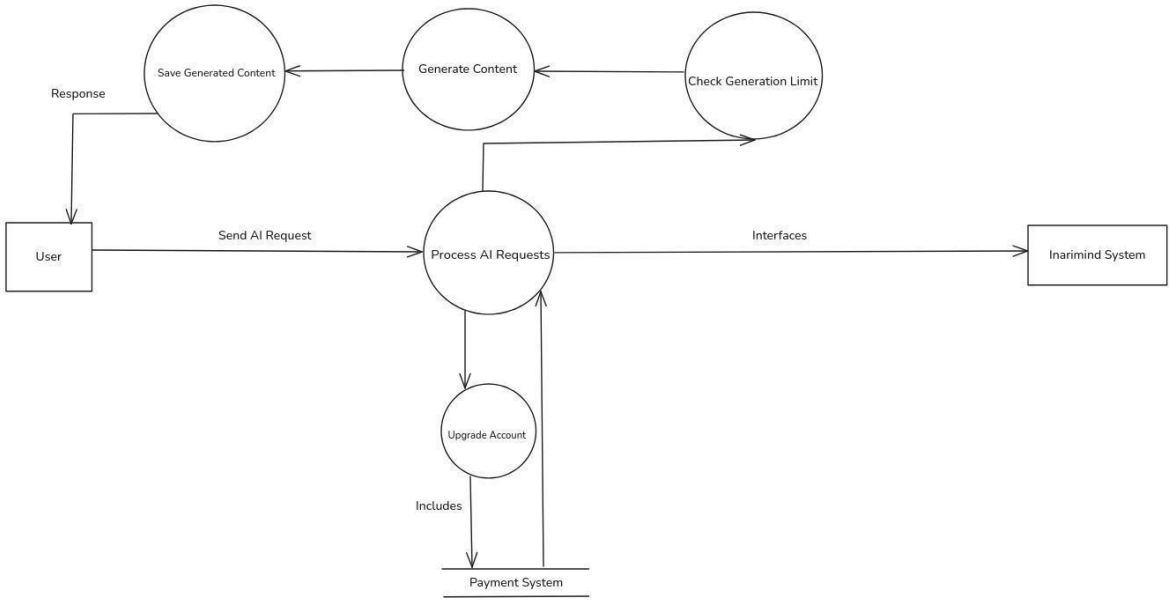


Data Flow Diagrams (DFD's)

DFD level 0



DFD level 1



Other Requirements

- Size (Line of Code)
- Business Rules
- Good network bandwidth

Change History

200209	Version 1.0 – Initial Release

Document Approvers

SRS for GeniusGPT approved by:

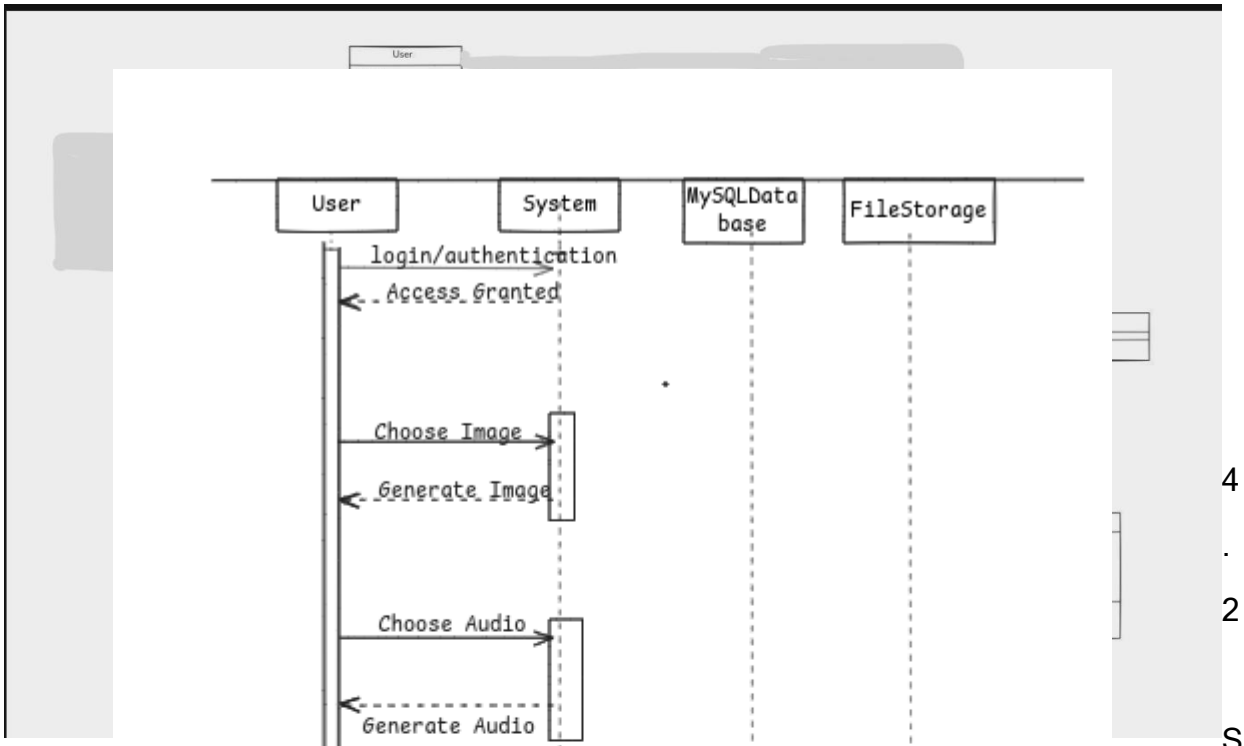
Name: Vinod Bhalla

Designation: Teaching Assistant, Thapar Institute of Engineering and Technology

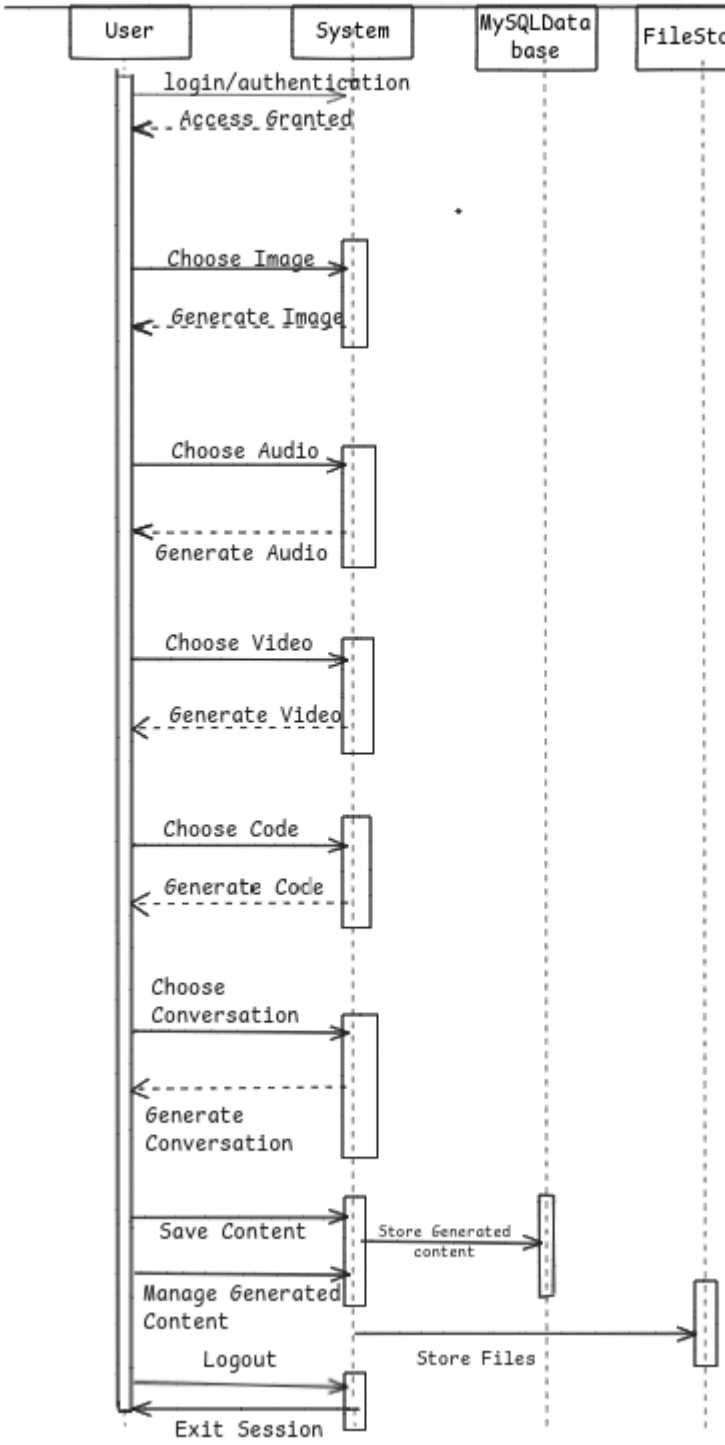
Date:

4. Design Phase (At least two significant cases of each diagram)

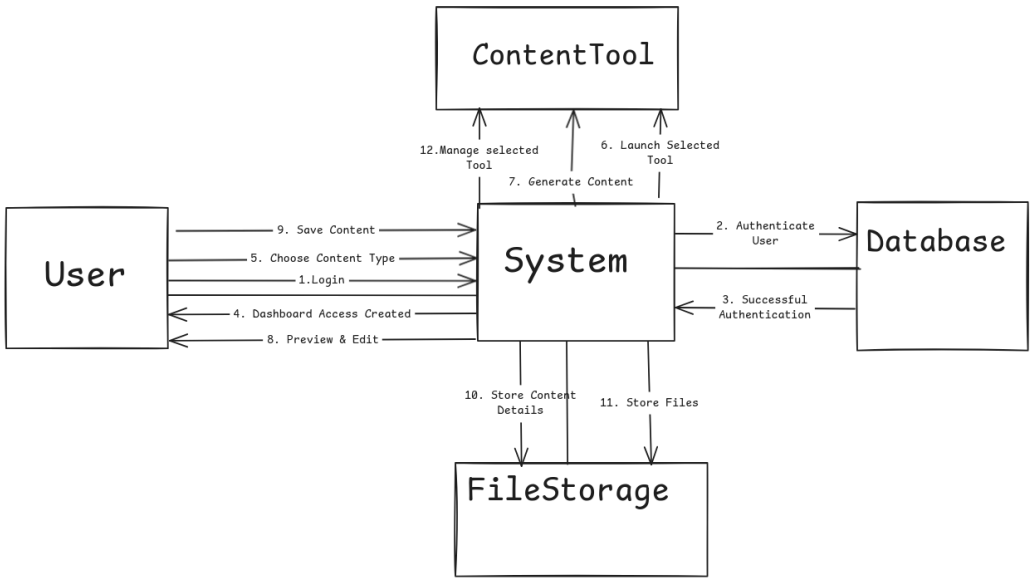
4.1 Class Diagram



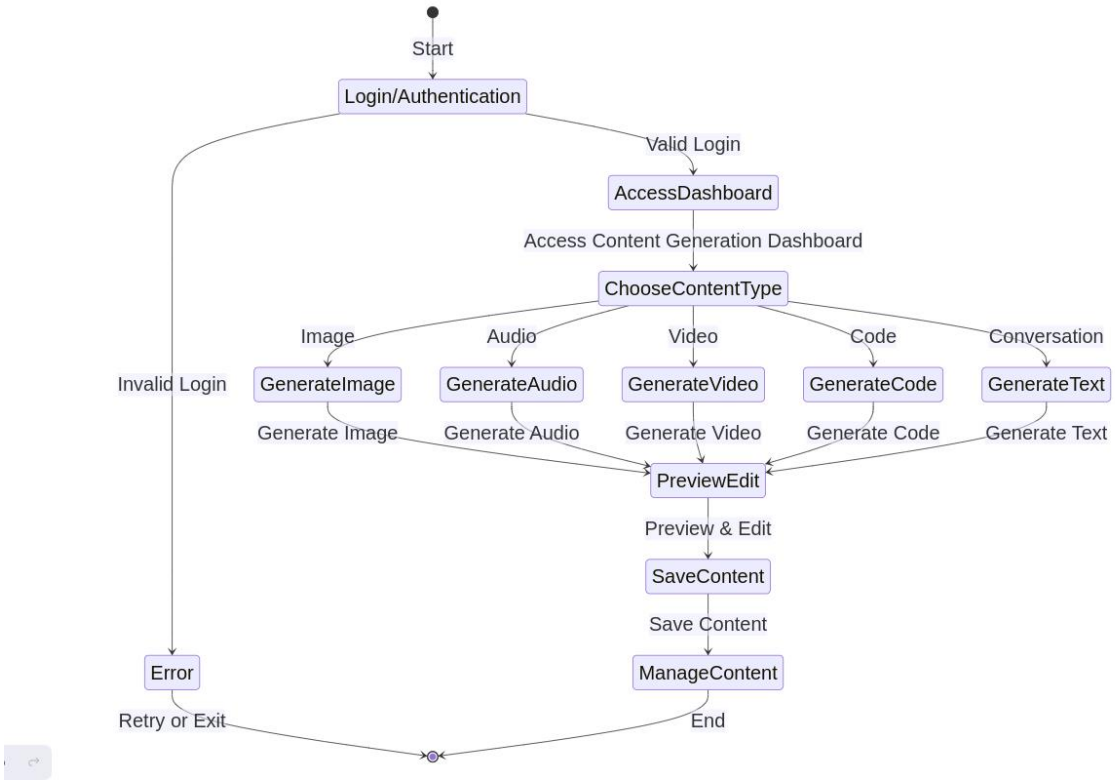
4.2 Sequence Diagram



4.3 Collaboration Diagram

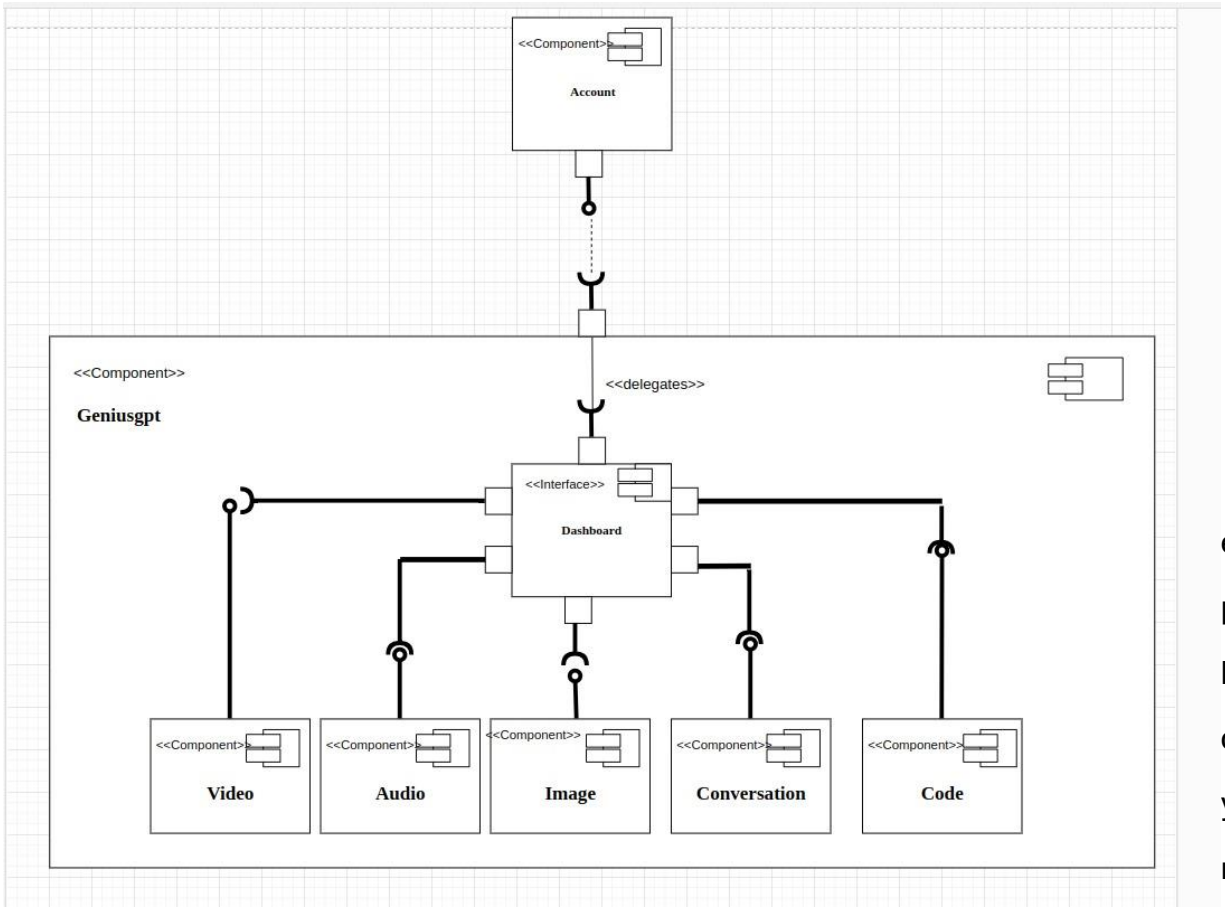


4.4 State Chart Diagrams

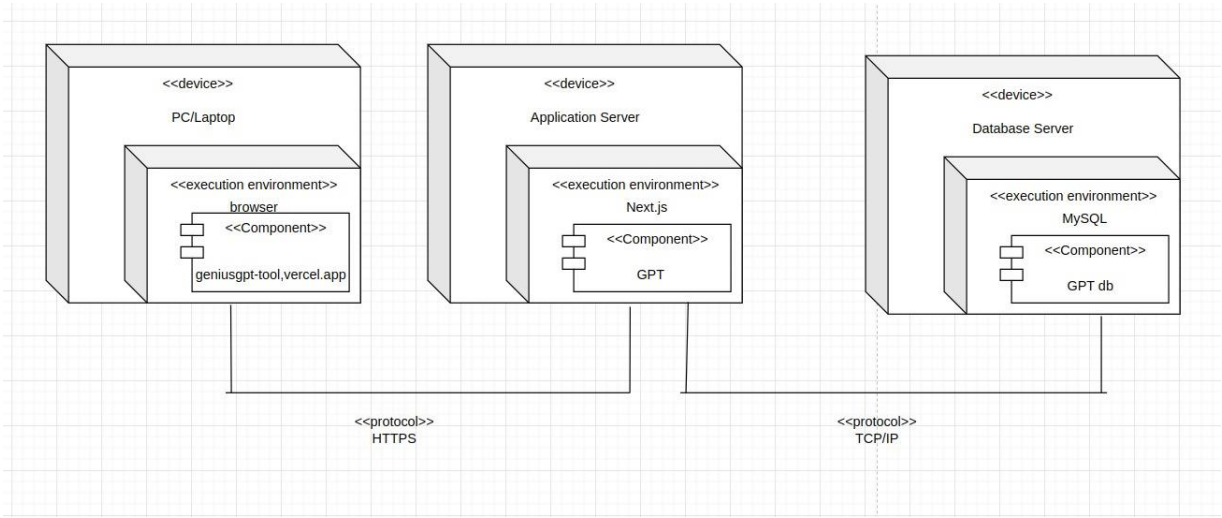


5. Implementation

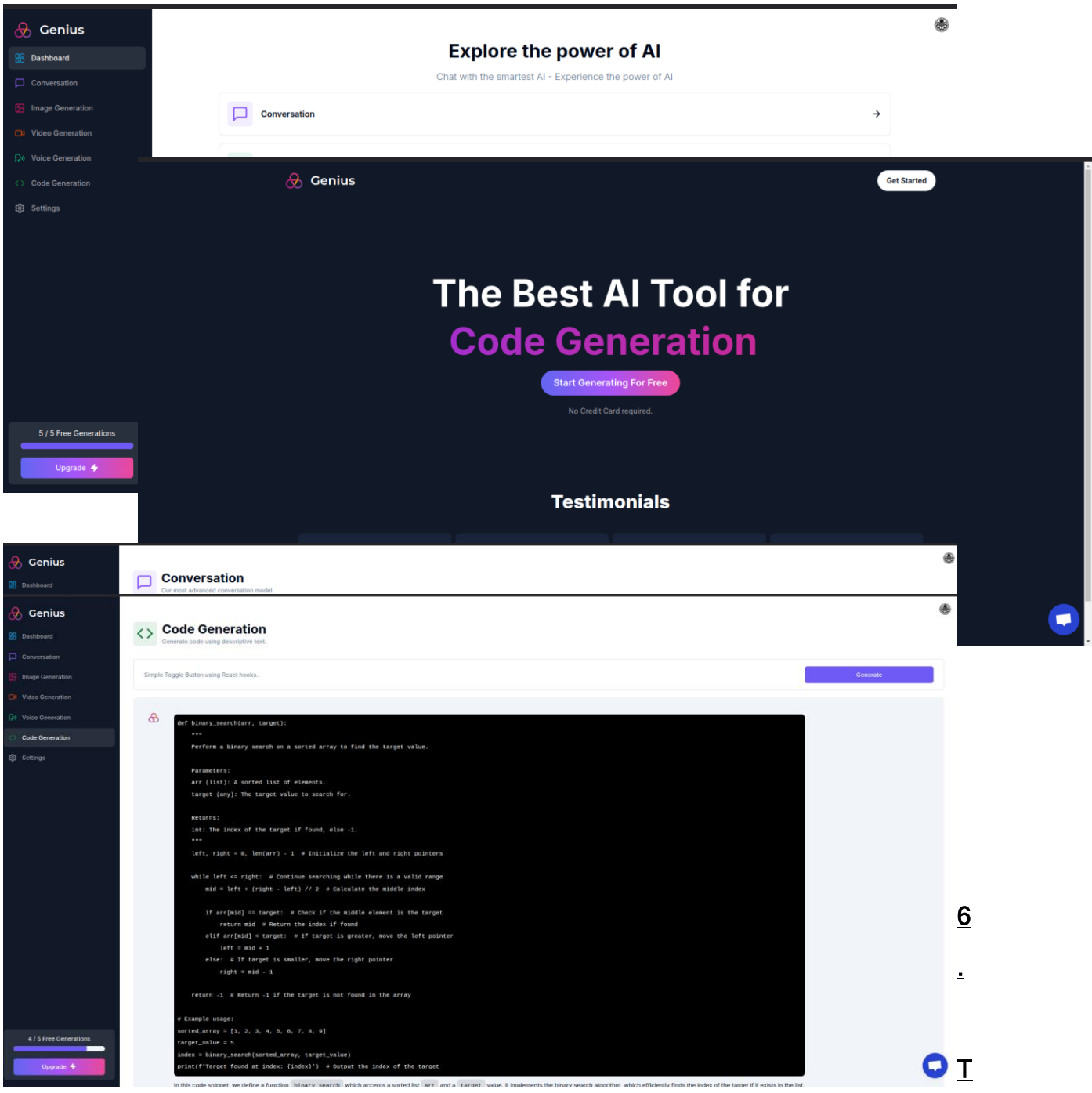
5.1 Component Diagrams



5.2 Deployment Diagrams



5.3 Screenshots



6. Testing

6.1 Test Plan :

1. Introduction

This test plan outlines the approach, scope, resources, and schedule of testing activities for the **Genius GPT** platform. The primary goal is to ensure the core functionalities, including text-to-speech, image generation, video generation, conversation generation, and code generation, perform as expected and provide a seamless user experience.

2. Objectives

- Validate **Genius GPT**'s functionality, usability, and performance..
- Ensure core features such as API integration, secure data handling, and generation outputs are error-free and accurate.
- Identify, document, and prioritize issues to maintain product quality.

3. Scope

The following features of the Genius GPT platform will be tested:

1. User Registration and Authentication
2. Text-to-Speech Generation
3. Image Generation
4. Video Generation
5. Conversation (Chat) Generation
6. Code Generation

4. Testing Strategy

Test Levels:

- **Unit Testing**: Conducted by developers to validate individual components (e.g., API responses, UI elements).
- **Integration Testing**: Ensure seamless interaction between modules, such as user inputs and API outputs.
- **System Testing**: Validate end-to-end functionality as a fully integrated system.

Testing Types:

- **Functional Testing**: Verify that features behave according to requirements (e.g., correct image output for a prompt).
- **Usability Testing**: Assess the user interface for intuitiveness and ease of use.
- **Performance Testing:** Measure response times and load-handling capacity of API calls.
- **Regression Testing**: Ensure new updates do not affect existing functionalities.

Testing Approach:

Both manual and automated testing will be conducted:

- **Manual Testing:** To verify UI responsiveness, visual outputs, and functional workflows.
- **Automated Testing:** To test API responses, repetitive workflows, and performance under load.

5. Roles and Responsibilities

- **Test Manager**: Defines the testing strategy, assigns tasks, and ensures deadlines are met.
- **Tester(s)**: Executes test cases, logs issues, and verifies fixes.
- **Developer(s)**: Resolves defects identified during testing.

6. Test Environment

- **Browser Compatibility**: Chrome, Firefox, Edge
- **Operating Systems**: Windows, macOS
- **Devices**: Desktop, tablets and mobile devices

7. Entry & Exit Criteria

Entry Criteria:

- The application is fully deployed to the testing environment.
- All required dependencies, including OpenAI API keys, are integrated and functional.

Exit Criteria:

- All planned test cases are executed successfully.
- All high-priority defects are fixed and retested.
- Performance metrics meet defined benchmarks.

8. Deliverables

- Comprehensive **Test Cases**
- Detailed **Bug Reports**
- Final **Test Summary Report**

5.1 Test Cases

Test Case (Doc:T_01)

Test Case #: 1	**Test Case Name:** User registration
System: Genius GPT	**Subsystem:** User Authentication
Designed by: Shivane Kapoor	**Design Date: 25-10-2024**
Executed by: Shivane Kapoor	**Execution Date: 25-11-2024**
Short Description: Test user registration with valid and invalid inputs	

Pre-conditions
The user should not already have an account.
The registration page should be accessible.

Step	Action	Expected System Response	Pass/ Fail	Comment
1	Navigation to the registration page.	The registration page should load successfully.	Pass	
2	Enter valid details and submit.	A user account is created and confirmation mail is sent.	Pass	
3	Enter invalid email format	An error message is displayed prompting the correct format.	Pass	

Post-conditions
A new user account is created and stored in database.

Test Case (Doc:T_02)

Test Case #: 2

System: Genius GPT

Designed by: Robin Singh Khural

Executed by: Robin Singh Khural

Short Description: Test text-to-speech generation with valid and invalid inputs.

Test Case Name: Text-to-Speech Generation

Subsystem: Text Processing

Design Date: 25-10-2024

Execution Date: 25-11-2024

Pre-conditions
The user must be logged into their account.
The text-to-speech input field must be accessible.

Step	Action	Expected System Response	Pass/ Fail	Comment
1	Navigate to the text-to-speech feature.	The feature loads successfully.	Pass	
2	Enter valid text and click "Generate."	The system generates speech and plays it back.	Pass	
3	Enter invalid input and click "Generate."	An error message is displayed, asking the user to provide valid input.	Pass	

Post-conditions
The generated speech is either played back or appropriate error handling occurs for invalid inputs.

Test Case (Doc:T_03)

Test Case #: 3

System: Genius GPT

Designed by: Kaustubh Singh

Executed by: Kaustubh Singh

Short Description: Test image generation functionality with valid and invalid prompts.

Test Case Name: Image Generation

Subsystem: Media Processing

Design Date: 25-10-2024

Execution Date: 25-11-2024

Pre-conditions

The user must be logged into their account.
The image generation prompt input field must be accessible.

Step	Action	Expected System Response	Pass/ Fail	Comment
1	Navigate to the image generation feature.	The feature loads successfully.	Pass	
2	Enter a valid prompt and click "Generate."	The system generates an image based on the input prompt.	Pass	
3	Enter an invalid prompt and click "Generate."	An error message is displayed, asking the user to modify the prompt.	Pass	

Post-conditions

The generated image is displayed to the user or error handling is triggered for invalid prompts.

Test Case (Doc:T_04)

Test Case #: 4

System: Genius GPT

Designed by: Toshar Bhardwaj

Executed by: Toshar Bhardwaj

Short Description: Test video generation functionality with valid and invalid inputs.

Test Case Name: Video Generation

Subsystem: Media Processing

Design Date: 25-10-2024

Execution Date: 25-11-2024

Pre-conditions

The user must be logged into their account.

The video generation prompt input field must be accessible.

Step	Action	Expected System Response	Pass/ Fail	Comment
1	Navigate to the video generation feature.	The feature loads successfully.	Pass	
2	Enter a valid video prompt and click "Generate."	The system generates an video based on the input prompt.	Pass	
3	Enter an invalid prompt and click "Generate."	An error message is displayed, asking the user to modify the prompt.	Pass	

Post-conditions

The generated video is displayed to the user, or an error message is shown for invalid inputs.

Test Case (Doc:T_05)

Test Case #: 5

System: Genius GPT

Designed by: Robin Singh Khural

Executed by: Robin Singh Khural

Short Description: Test conversation generation functionality with varying prompts.

Test Case Name: Conversation Generation

Subsystem: Chat Processing

Design Date: 25-10-2024

Execution Date: 25-11-2024

Pre-conditions

The user must be logged in and the conversation input field must be accessible.

Step	Action	Expected System Response	Pass/ Fail	Comment
1	Navigate to the conversation generation feature.	The feature loads successfully.	Pass	
2	Enter a valid prompt and click "Generate."	The system generates a coherent and relevant response based on the input.	Pass	
3	Enter an invalid prompt and click "Generate."	An error message is displayed, asking the user to modify the prompt.	Pass	

Post-conditions

A conversation response is generated for valid inputs, or error handling is triggered for invalid inputs.

Test Case (Doc:T_06)

Test Case #: 6	**Test Case Name:** Code Generation
System: Genius GPT	**Subsystem: Developer Tools**
Designed by: Kaustubh Singh	**Design Date: 25-10-2024**
Executed by: Kaustubh Singh	**Execution Date: 25-11-2024**
Short Description: Test code generation functionality with valid and invalid prompts.	

Pre-conditions
The user must be logged in and the code generation input field must be accessible.

Step	Action	Expected System Response	Pass/ Fail	Comment
1	Navigate to the code generation feature.	The feature loads successfully.	Pass	
2	Enter a valid prompt and click "Generate."	The system generates accurate and functional code based on the input.	Pass	
3	Enter an invalid prompt and click "Generate."	An error message is displayed, asking the user to provide a more specific prompt.	Pass	

Post-conditions
The generated code meets the input prompt specifications, or an error is handled for invalid inputs.

5.2 Test Reports

1. Summary

1. Testing was conducted on **Genius GPT's core functionalities**, including text-to-speech, image generation, video generation, conversation generation, and code generation. Most features performed as expected, with a few medium-severity issues identified and logged.

2. Test Cases Execution Summary

Test Case #	Test Case Name	Status	Comments
001	User Registration	Passed	All valid and invalid cases tested successfully.
002	Text-to-Speech	Passed	Clear and accurate audio generation.
003	Image Generation	Passed	High-quality images generated for valid prompts.
004	Video Generation	Passed	Video output matches input descriptions.
005	Conversation Generation	Passed	Coherent and relevant responses for all prompts.
006	Code Generation	Passed	Functional and error-free code generated.

3. Defect Summary

Defect ID	Description	Severity	Status
001	Video quality degrades for long prompts.	Medium	Open
002	Image generation fails for highly complex inputs.	Medium	Resolved

4. Observations

- The application is **stable and functional** for most cases.
- Medium-severity issues were noted in the **video and image generation features**, requiring optimization.

All other core functionalities, including text-to-speech and conversation generation,

performed as expected.

5. Recommendations

- Optimize video generation algorithms for long and complex prompts to maintain consistent quality.
- Enhance image generation model to handle edge cases with higher input complexity.
- Continue improving error messages for better user feedback.

6. Conclusion :

- The **Genius GPT platform** passed most test cases successfully, demonstrating readiness for deployment after addressing medium-severity issues in video and image generation.