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# Arcanium

Owen Casey

G00383711



## Introduction

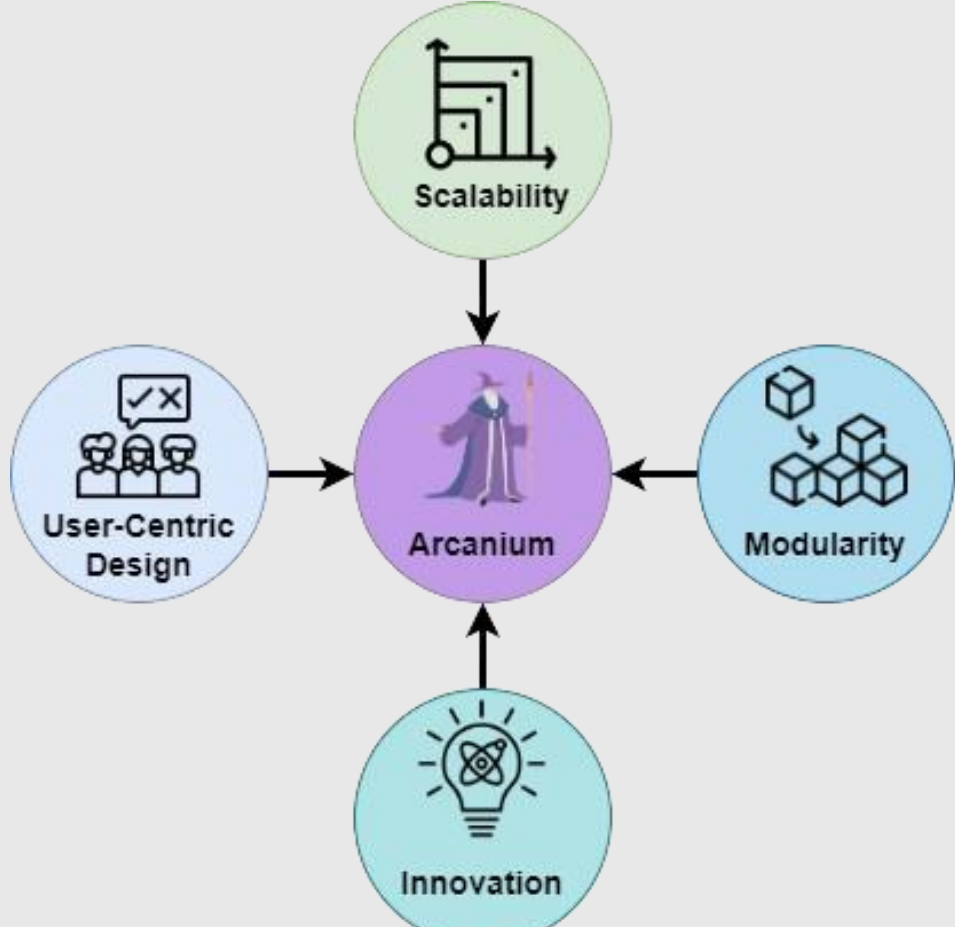
Arcanium redefines the Dungeons & Dragons experience by offering a unified, user friendly and accessible platform that centralizes essential tools and resources for both new and experienced players alike.

Since its inception in the early 1970s by Gary Gygax and Dave Arneson, Dungeons & Dragons has not only pioneered the role-playing game industry but also deeply influenced modern media and fantasy culture. Drawing inspiration from J.R.R. Tolkien's Middle-earth, D&D established new paradigms for immersive storytelling and character development, setting a benchmark for the fantasy genre and leaving a foundational mark on both tabletop and digital gaming landscapes.

Dungeons & Dragons has seen a renaissance in modern times, with notable examples such as *Baldur's Gate 3* showcasing its adaptability and depth. Winning countless awards, including Game of the Year, this title is a direct translation of D&D 5e to a video game context, with its popularity being testament to D&D's expanding modern influence and relevance.

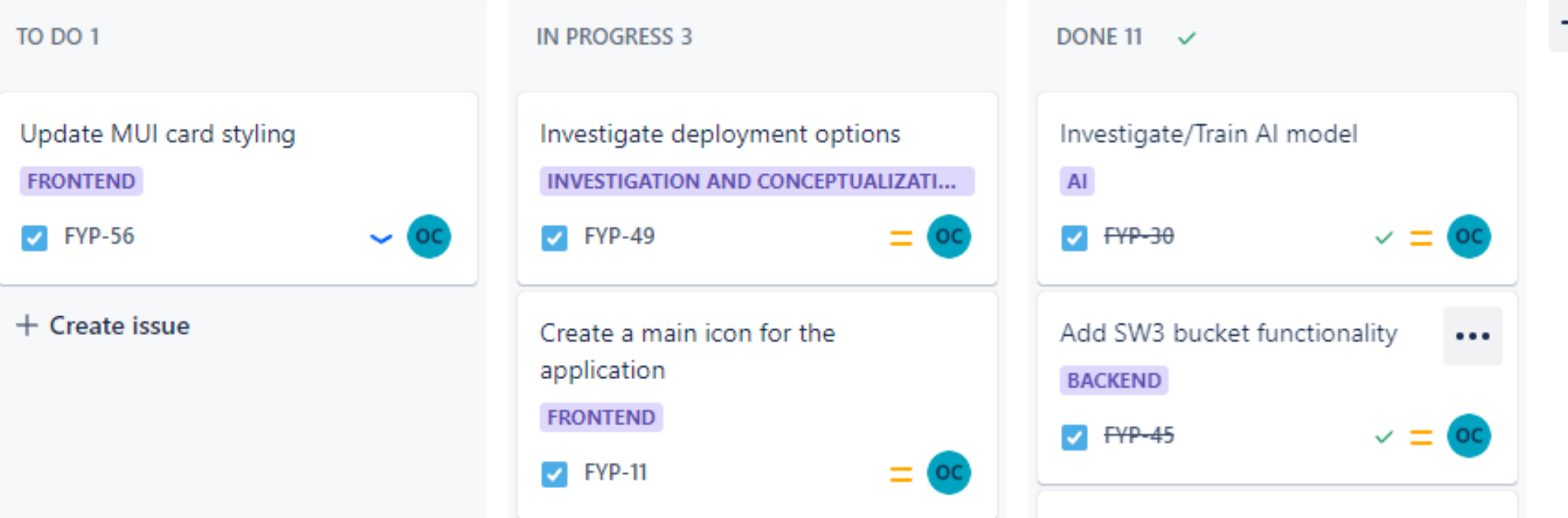
Arcanium utilizes D&D's recent momentum, leveraging the modern relevance and renewed enthusiasm for Dungeons & Dragons to create an application which is accessible to all players of the game. Arcanium provides a scalable, cloud based and efficient solution.

## Design Philosophy



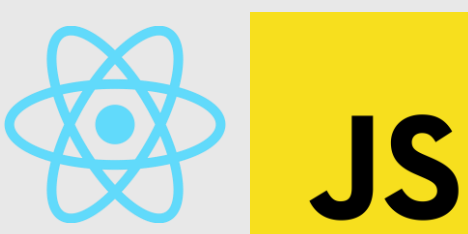
## Software Development Methodology

**Development Period:** Developed over an academic year, necessitating a highly adaptable methodology.  
**Methodology Choice:** Chose **Kanban** for its flexibility, continuous integration, and suitability for solo development.  
**Continuous Development:** Enabled sustained momentum and seamless integration throughout the project lifecycle.  
**Solo Development:** Kanban supports manageable task progress, essential for maintaining consistent delivery as a solo developer.

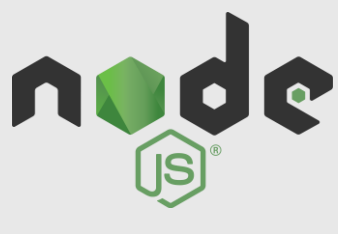


## Main Technologies

Frontend



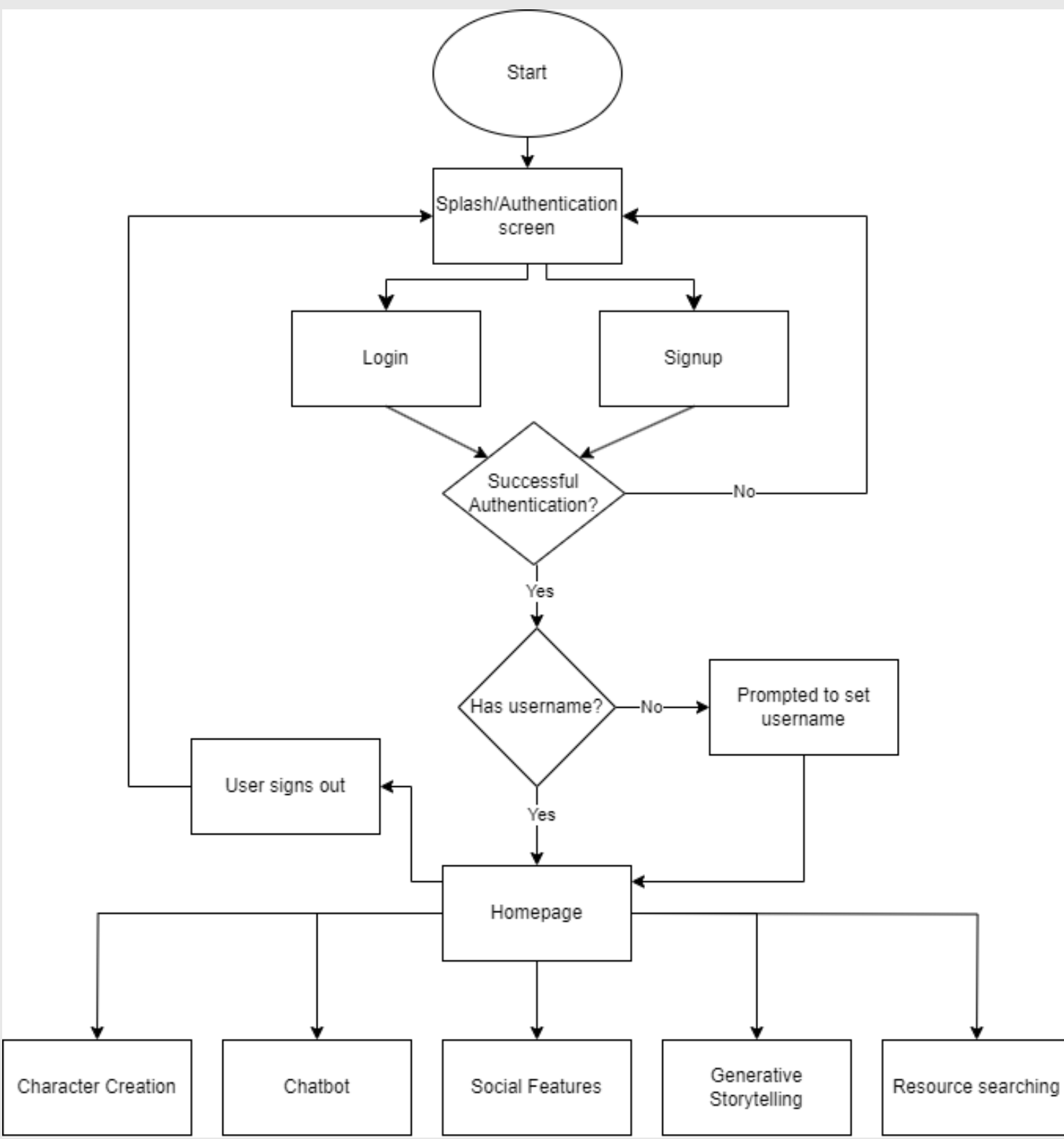
Backend



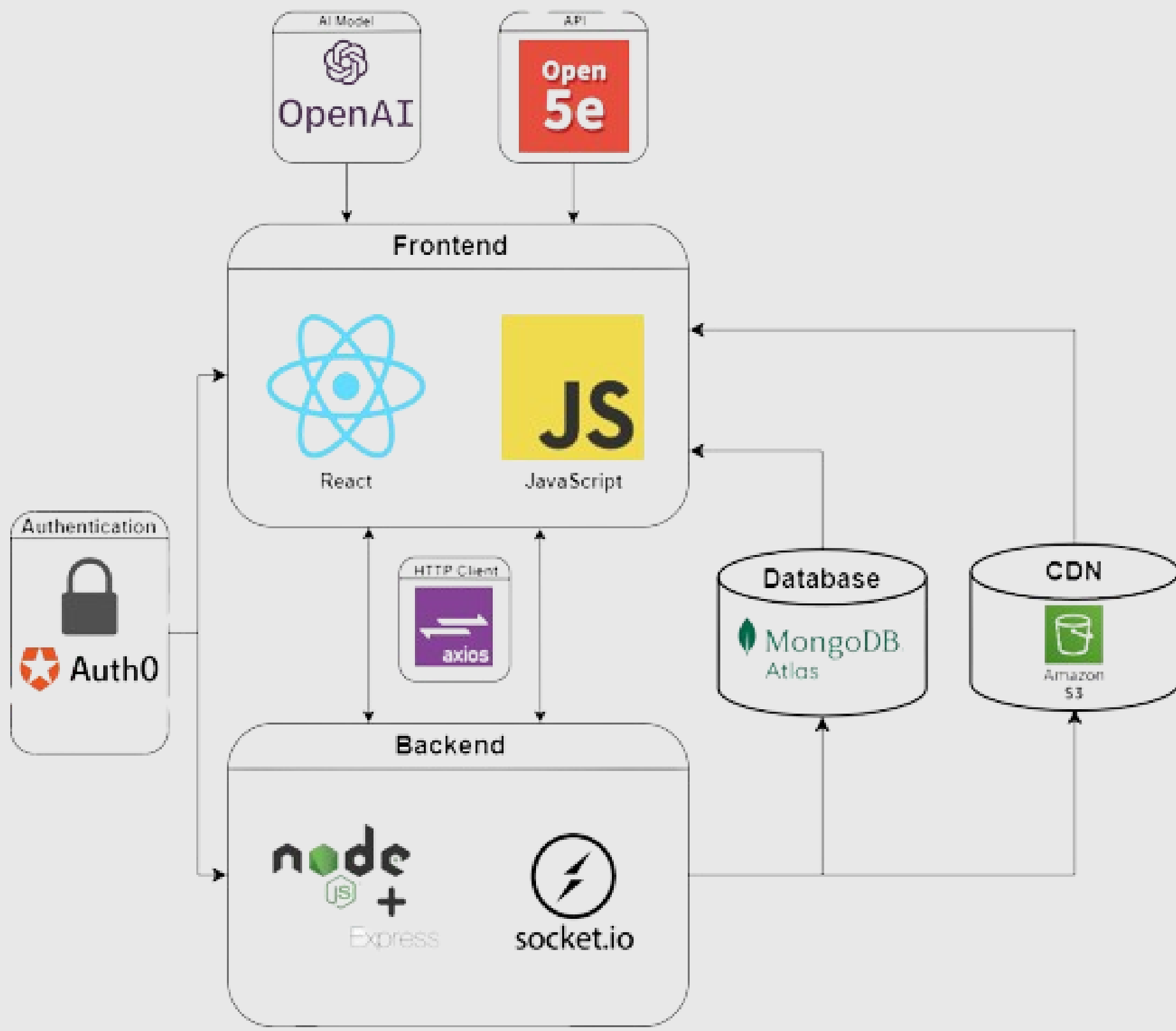
Database



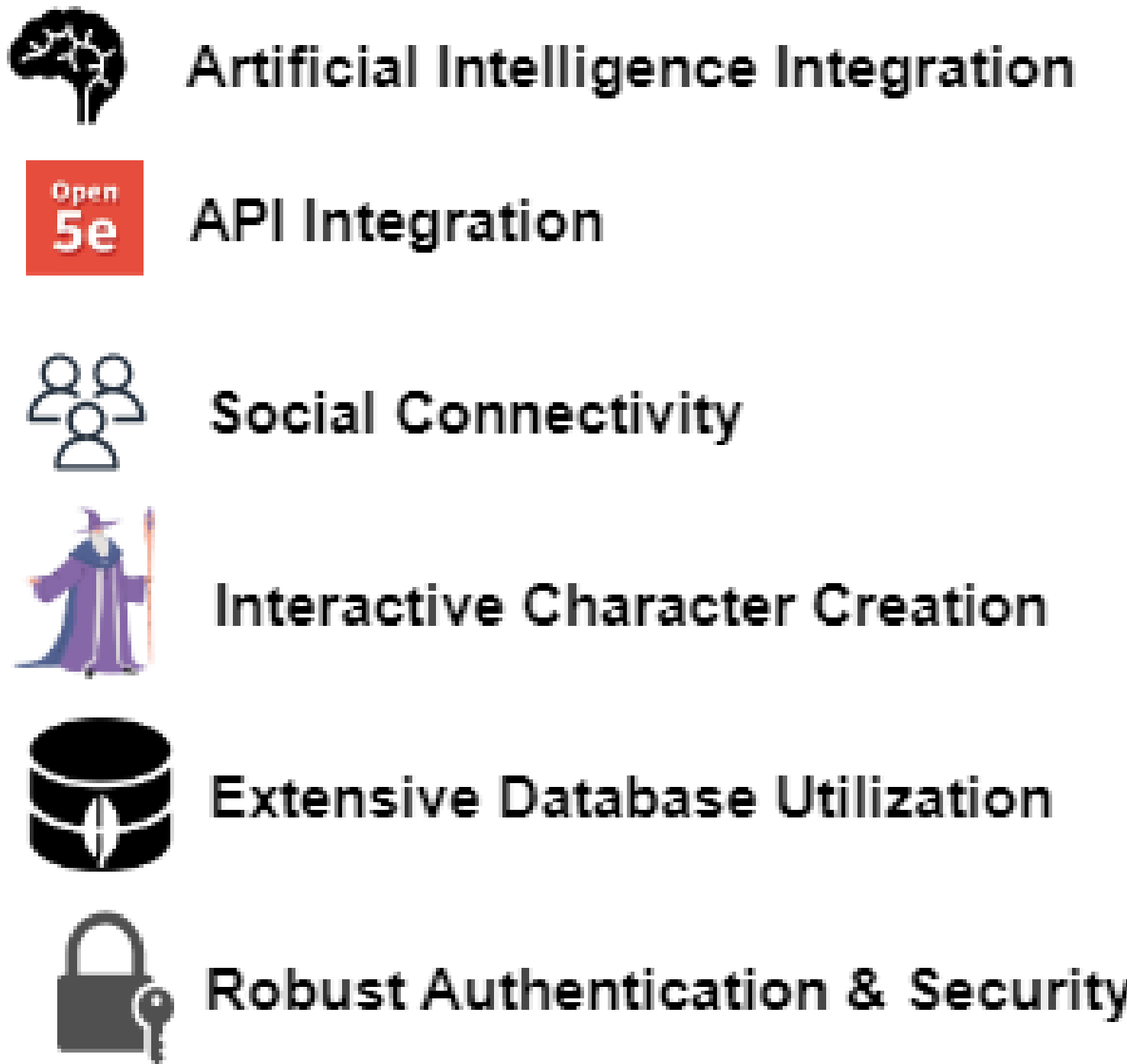
## Application Flow



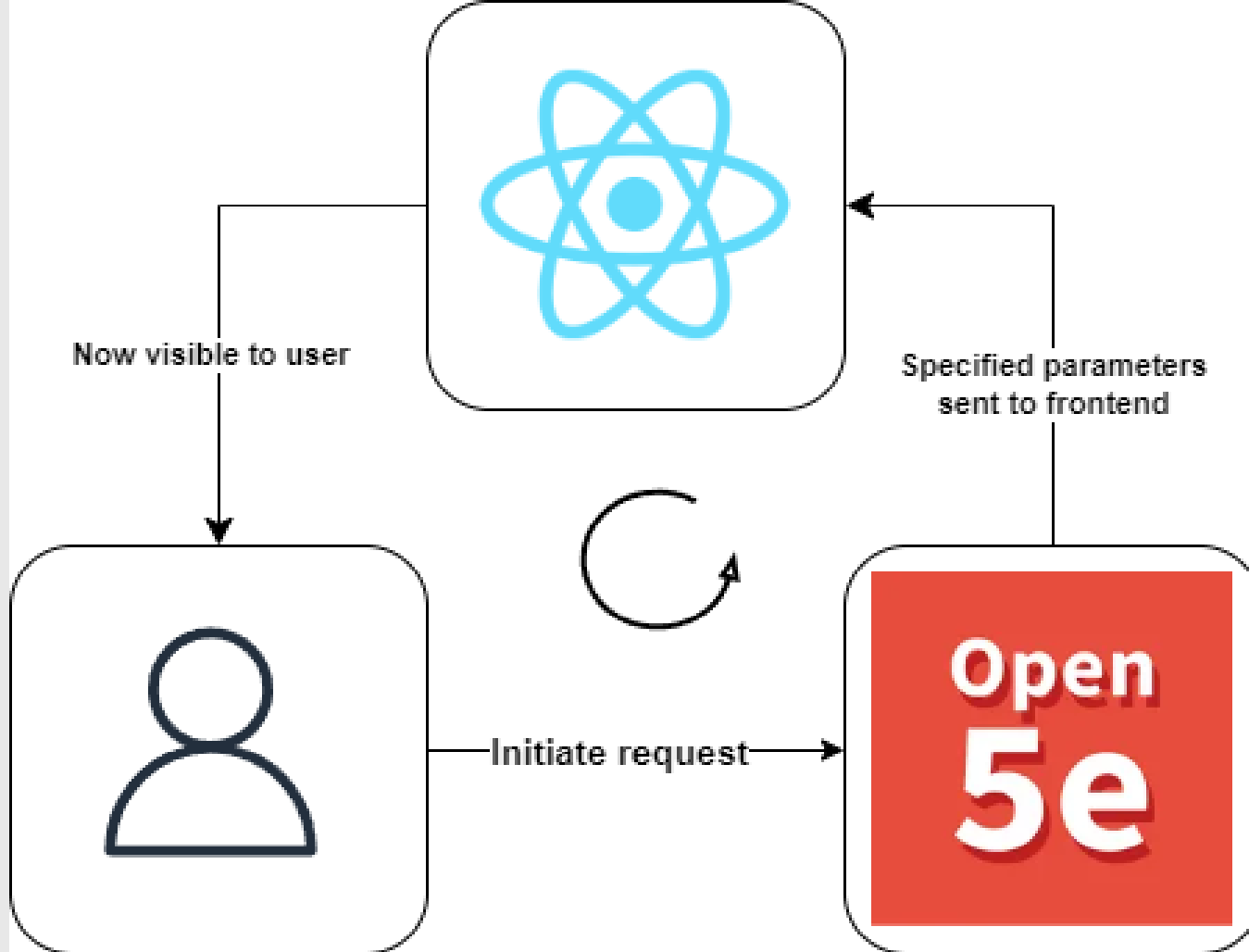
## Overall System Architecture



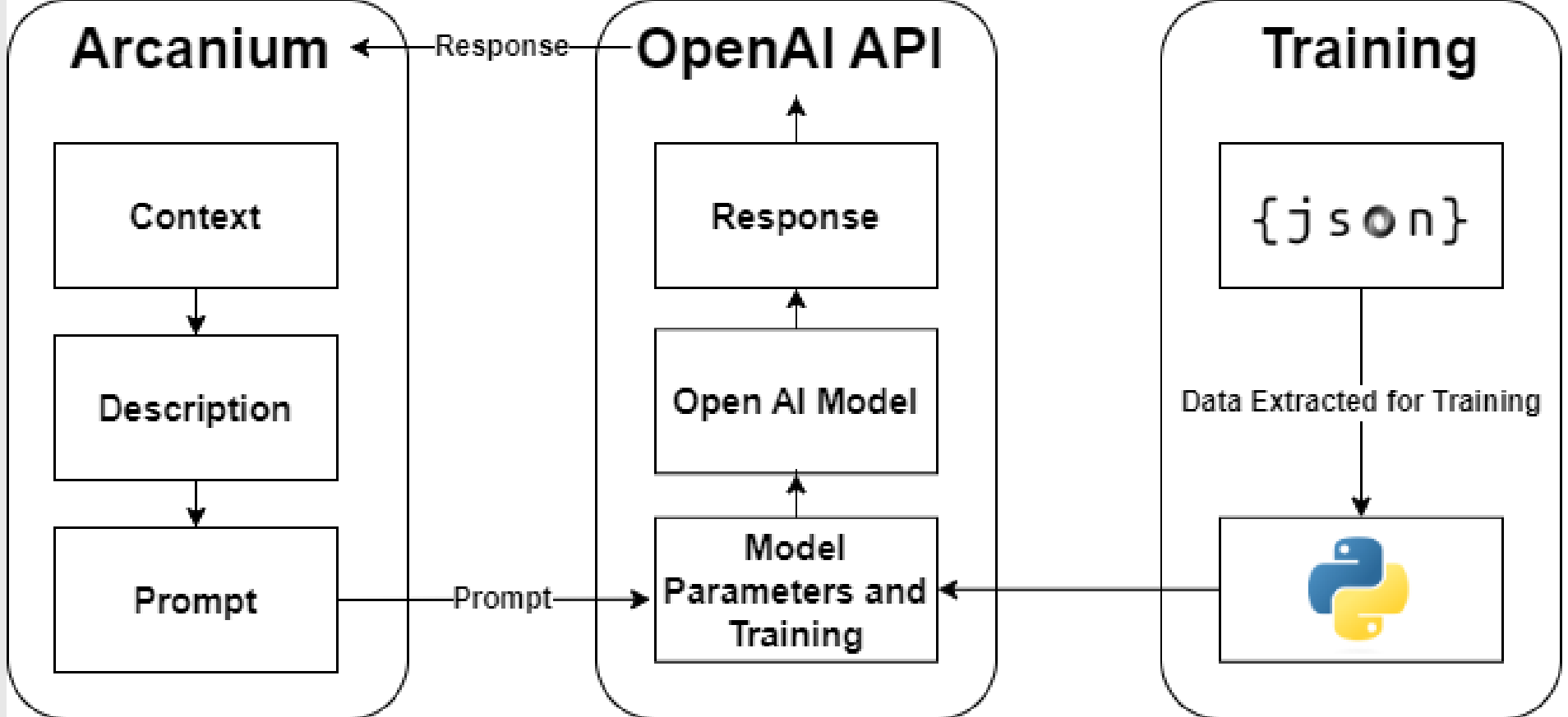
## Features and Functionality



## API Integration

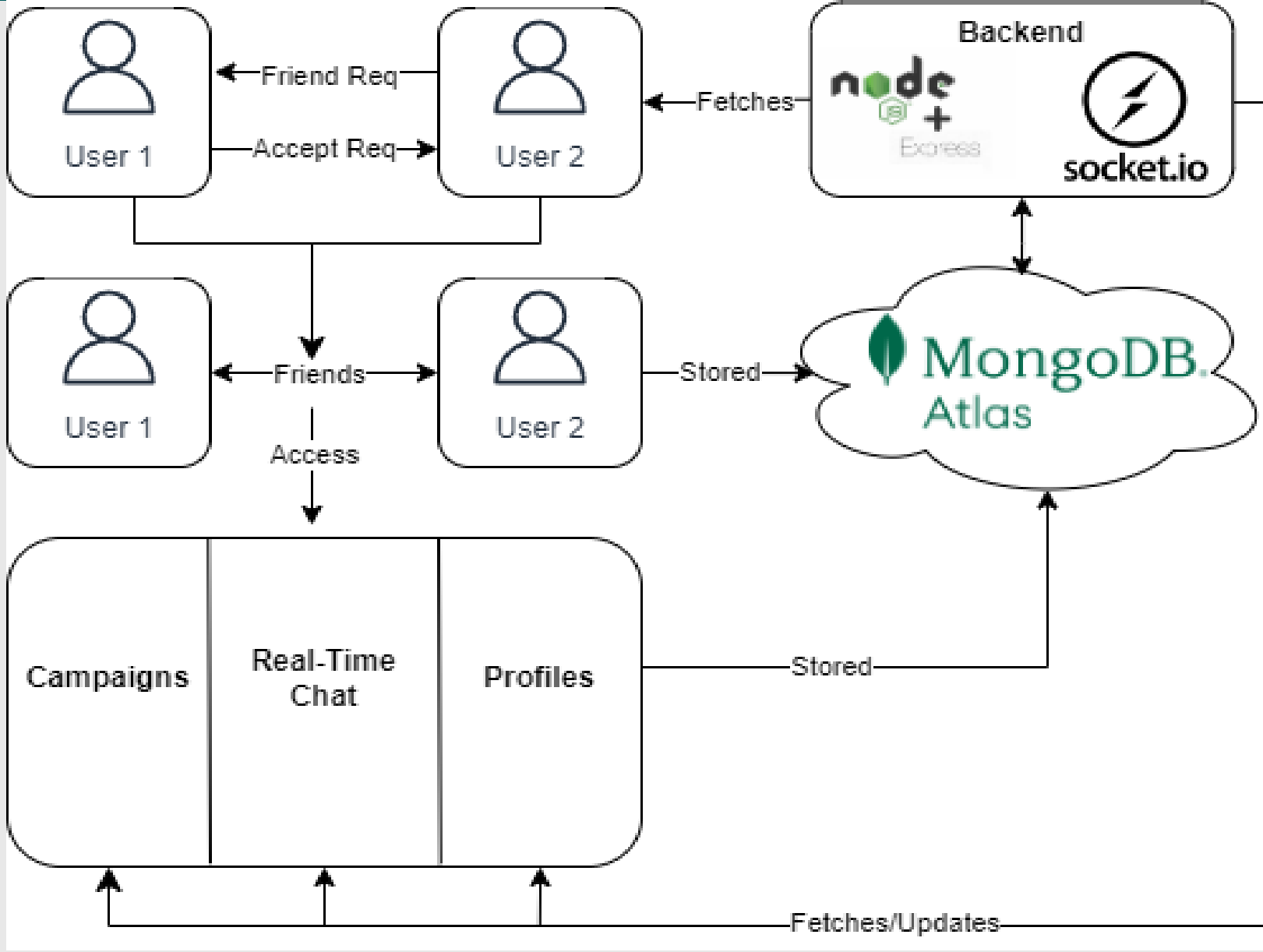


## AI Integration



**Help Chatbot:** Instant, always accessible player assistance, guidance and information.  
**Generative Stories:** Generative storytelling, taking created characters into context, integrated with database architecture.  
**AI Training:** Custom training of models through Python data extraction.

## Social Connectivity



## Scalable Cloud Architecture

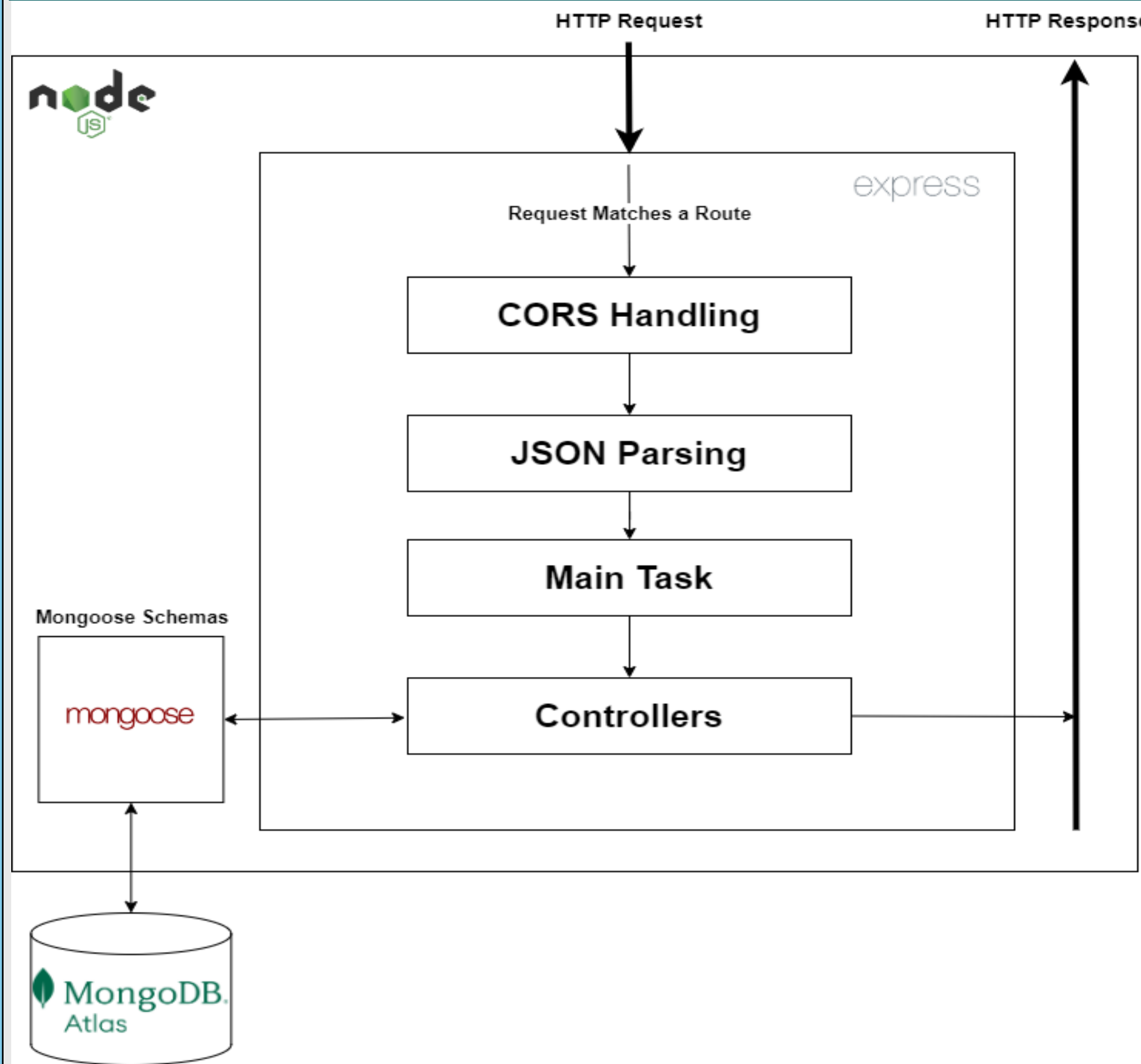


These cloud technologies enable Arcanium to scale infinitely if required and adapt dynamically to future developments and user needs.

## Database Entities

Characters	UserProfiles	Friendships	Messages
<ul style="list-style-type: none"><li>_id</li><li>class</li><li>race</li><li>level</li><li>userid</li><li>background</li><li>speed</li><li>proficiencyBonus</li><li>abilityScores</li><li>spells</li><li>skills</li><li>equipment</li><li>details</li></ul>	<ul style="list-style-type: none"><li>_id</li><li>auth0Id</li><li>email</li><li>name</li><li>nickname</li><li>picture</li></ul>	<ul style="list-style-type: none"><li>_id</li><li>requester</li><li>recipient</li><li>status</li></ul>	<ul style="list-style-type: none"><li>_id</li><li>room</li><li>content</li><li>sender</li><li>timestamp</li></ul>
		<ul style="list-style-type: none"><li>Campaigns</li><li>_id</li><li>name</li><li>description</li><li>creator</li><li>members</li><li>invitations</li></ul>	<ul style="list-style-type: none"><li>Invitations</li><li>_id</li><li>senderUserId</li><li>receiverUserId</li><li>campaignId</li><li>status</li></ul>
	<ul style="list-style-type: none"><li>Stories</li><li>_id</li><li>userid</li><li>messages</li></ul>		

## Backend Overview



## Conclusion

In conclusion, Arcanium achieved the objective to provide a comprehensive hub of resources, tools and information to make Dungeons & Dragons a more unified and accessible experience for new and experienced players alike.  
**Innovation & Integration:** Arcanium provides a wide array of features and functionalities such as API integration, social connectivity, character creation and AI integration.  
**Scalability & Performance:** Arcanium leverages cloud technologies extensively, such as MongoDB Atlas and Auth0, ensuring the application is scalable and efficient.  
**Accessibility:** Arcanium offers both desktop and mobile support, with both platforms being designed in a user friendly to ensure ease of use and universal accessibility.  
**Security:** Arcanium utilizes Auth0 for robust security across the entire application..  
**Continuous Integration & Improvement:** Through the use of the Kanban SDLC methodology and auto-deployment from Render, Arcanium is optimized and ready for future development.

## Acknowledgements

**Open5e API:** Open source, JSON based API for D&D 5e. Heavily used throughout the project.  
**Open-Gaming License:** All content in Arcanium follows the OGL from WOTC