Design Document

1. Architecture Overview

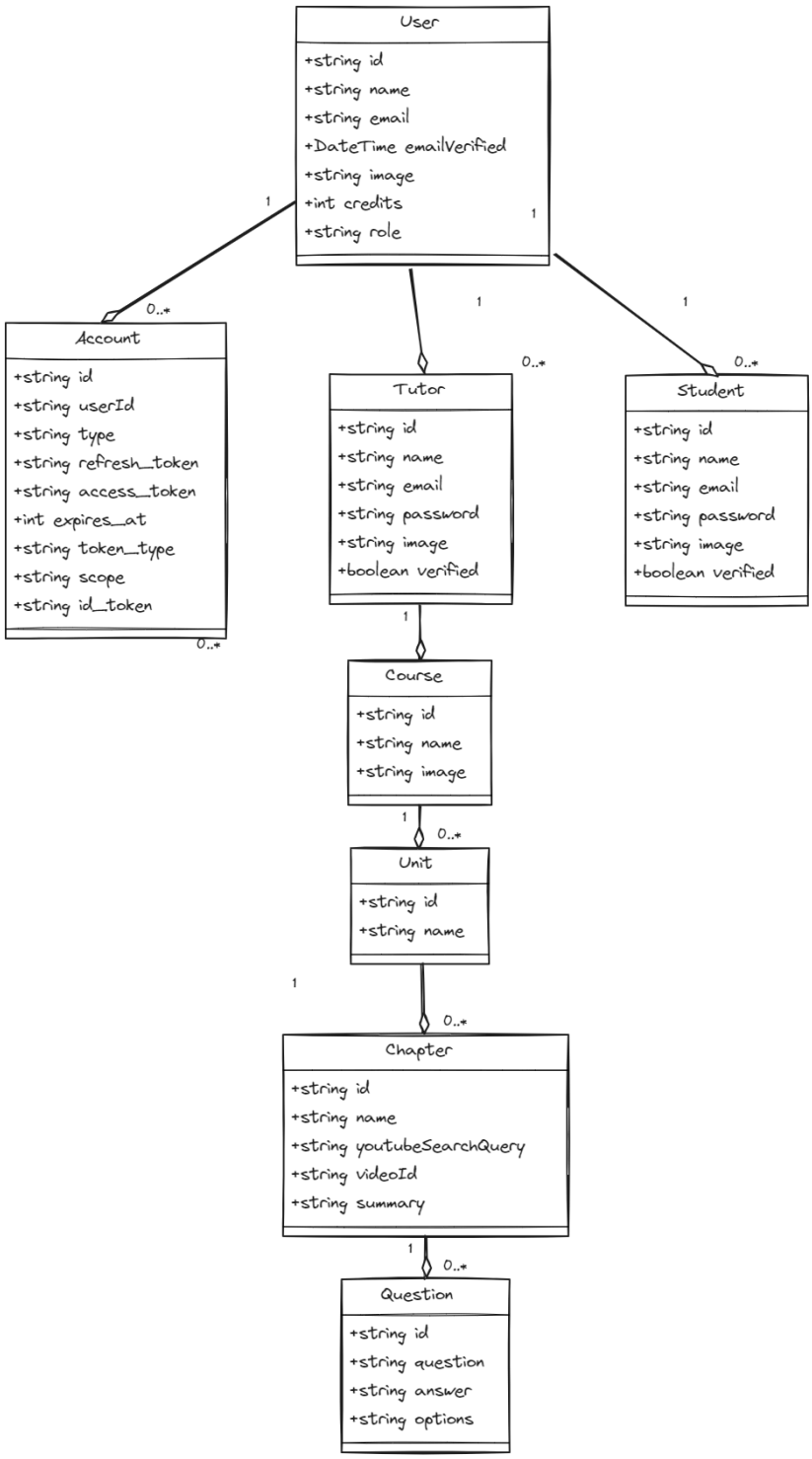
Skill Skulpt follows a modular architecture based on the MERN (MongoDB, Express.js, React.js, Node.js) stack, with Next.js for the frontend:

- Frontend: Developed using Next.js and Shadcn UI for building interactive user interfaces.
- Backend: Built using Node.js, Express.js, and MongoDB for developing the server-side logic.
- Database: MongoDB is used to store user data, course content, and other relevant information.

2. Database Design

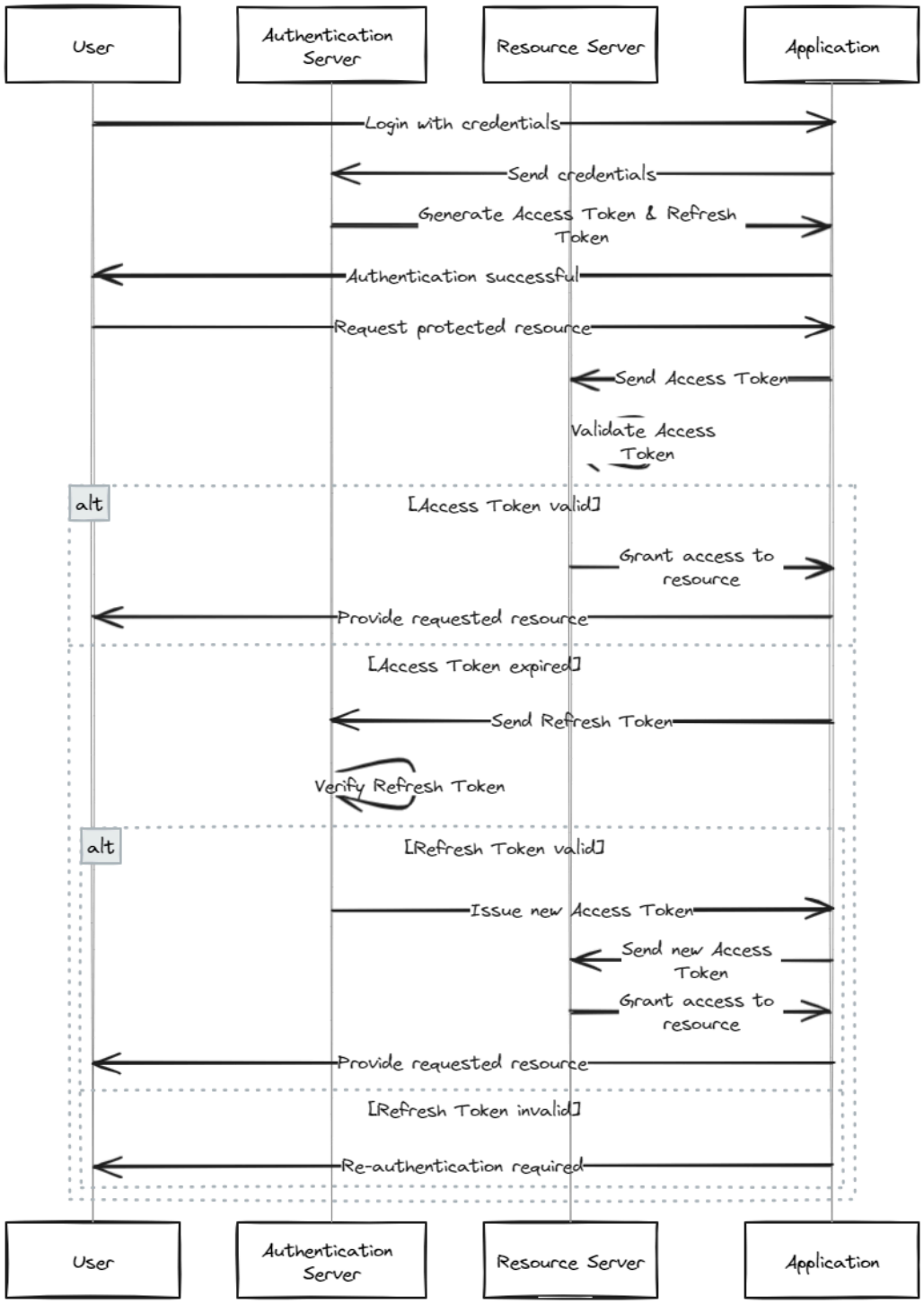
The MongoDB database consists of the following collections:

- Users: Stores user information including name, email, password hash, role, and profile details.
- Courses: Contains course metadata, including title, description, creator, enrollment status, and analytics data.
- Course Content: Stores the content modules of each course, including title, content type (e.g., blog, video), and source URL.



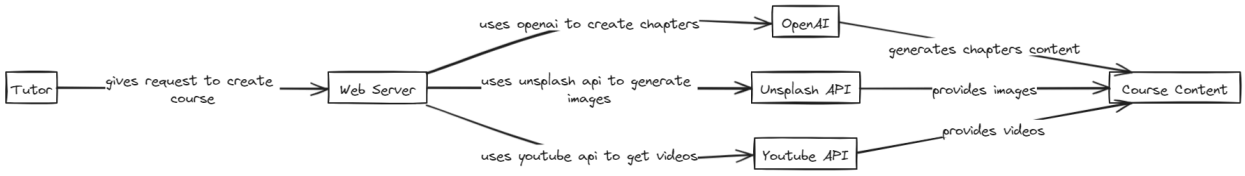
3. Authentication Logic

Authentication in Skill Skulpt is handled using JWT tokens. Upon successful registration or login, a JWT token is generated and provided to the user, which is used to authenticate subsequent requests to protected endpoints.



4. Skill Skulpteration Logic

The Skill Skulpteration logic in Skill Skulpt utilizes AI algorithms to search and aggregate relevant content from the web, including blogs and YouTube videos, based on keywords or topics provided by the user. The generated courses can be further customized by the user before being published or shared with others.



5. Frontend Design

The frontend is designed using Next.js and Shadcn UI for styling. It consists of the following main components:

- Navigation Bar: Provides navigation links to different sections of the platform, including course browsing, user profile, and course creation.
- Course Catalog: Displays a list of available courses with search and filtering options.
- Course Viewer: Allows learners to view course content modules and track their progress.

6. Deployment

Skill Skulpt can be deployed on cloud platforms such as AWS, Google Cloud Platform, or Microsoft Azure. The frontend can be hosted using services like Vercel (for Next.js applications), while the backend can be deployed on platforms supporting Node.js applications like Vercel Serverless or Heroku. MongoDB Atlas can be used for database hosting.

7. Security

Skill Skulpt implements security best practices including encryption of sensitive data, input validation, protection against common web vulnerabilities such as cross-site scripting (XSS) and SQL injection, and secure authentication mechanisms using JWT tokens.

8. Conclusion

Skill Skulpt aims to revolutionize online learning by empowering users to create and share customized courses tailored to their learning needs. By following the outlined design principles and implementing the suggested features, Skill Skulpt seeks to foster a collaborative learning community where knowledge is accessible and democratized for all users.
