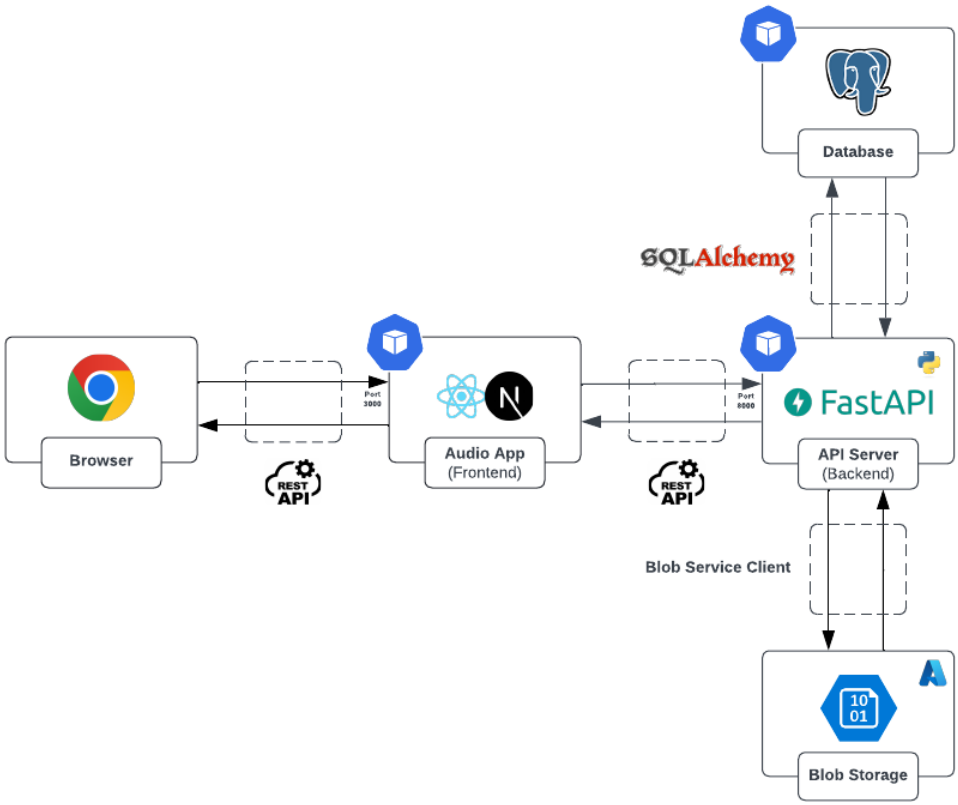
Deliverables

1. Documentation (System Architecture & API definition)

1.1 System Architecture



Component	Purpose
Audio App (Frontend)	Next.js application that provides UI for users to: • Login/Register • Manage accounts (Create, Update, Delete) • Upload new audio files • Playback uploaded audio files
API Server (Backend)	FastAPI server that processes requests such as: • Authentication & Session Management of users using JSON Web Tokens (JWT) • CRUD for user accounts into Postgres DB • Create audio file record in Postgres DB & upload audio files to Azure Blob Storage

	• Generating Shared Access Signature (SAS) tokens for users to stream audio files from Azure.
Database	Stores the following data: • Users (username, email, full name, hashed password) • Audio Files (user id, description, category, blob id, file extension) Database Schema is defined on API Server, using SQLAlchemy's mapping.
Azure Blob Storage	Stores audio files uploaded by user

1.2 API Definition

Backend APIs (User)

Method	Route	Description	Auth Required
POST	/token	Authenticates user and returns a session token	No
POST	/users	Register/Creates a new user	No
GET	/users	Retrieves all user's data (except password)	Yes
GET	/users/{id}	Retrieve a user data by ID (except password)	Yes
PUT	/users/{id}	Updates a user data by ID (password cannot be updated)	Yes
DELETE	/users/{id}	Delete a user data by ID	Yes

Backend APIs (Audio Files)

Method	Route	Description	Auth Required

POST	/audio_files	Creates new audio file record & uploads audio file to Azure Blob Storage	Yes
GET	/audio_files	Retrieves all audio file record	Yes
POST	/audio_files/token/{id}	Generates a SAS token from Azure & returns URL to user	Yes

Frontend Routes

Route	Description	Auth Required
/	Homepage with login/signup buttons	No
/login	User login page	No
/register	User registration page	No
/dashboard	Post-login page	Yes
/dashboard/users	User management page	Yes
/dashboard/users/create	Create user form (same logic as /register)	Yes
/dashboard/users/{id}/edit	Edit user form	Yes
/dashboard/audio_files	Audio Files management page	Yes
/dashboard/audio_files/create	Upload new audio file form	Yes