Chapter 8: Additional Project: Voice Intelligence

System incorporates the Alexa interface on the frontend and Java on the backend to create a voice intelligence application. The primary purpose of this system is to engage children aged 7-10 in a quiz-like activity, where Alexa asks questions and maintains their scores based on correct answers shown in Figure 8.3. By utilizing Alexa as the interface, I capitalize on the increasing familiarity and convenience that children have with voice-activated devices, eliminating the need for manual typing and providing a more interactive experience.

To initiate the voice intelligence functionality, users invoke Alexa skills by issuing a specific speech command, such as "call voice intelligence." Subsequently, Alexa retrieves data from the AWS RDS database and prompts users to choose their preferred set of questions and set of modules are shown in Figure 8.2. The integration between AWS RDS and the Alexa skill kit enables seamless communication, as triggering Alexa prompts the lambda function to connect with the AWS database. Process Diagram is shown in Figure 8.1

My implementation involves deploying a jar file containing the necessary code on the lambda function, specifying its primary handler name. Additionally, I have developed an admin panel with login and register pages shown in Figure 8.4, ensuring security measures are in place. Access to the database is restricted to the admin, who can leverage the frontend panel to add more questions and skills. The admin panel is configured using the Spring framework, with Spring Boot as a dependency, ensuring smooth and efficient management of the system.

The underlying motivation for creating this functionality lies in addressing the concern of children being exposed to uncensored and unhealthy content. By providing an engaging and enjoyable voice intelligence experience, I aimed to provide a safe and educational alternative, where children can interact with Alexa and learn through interactive quizzes.

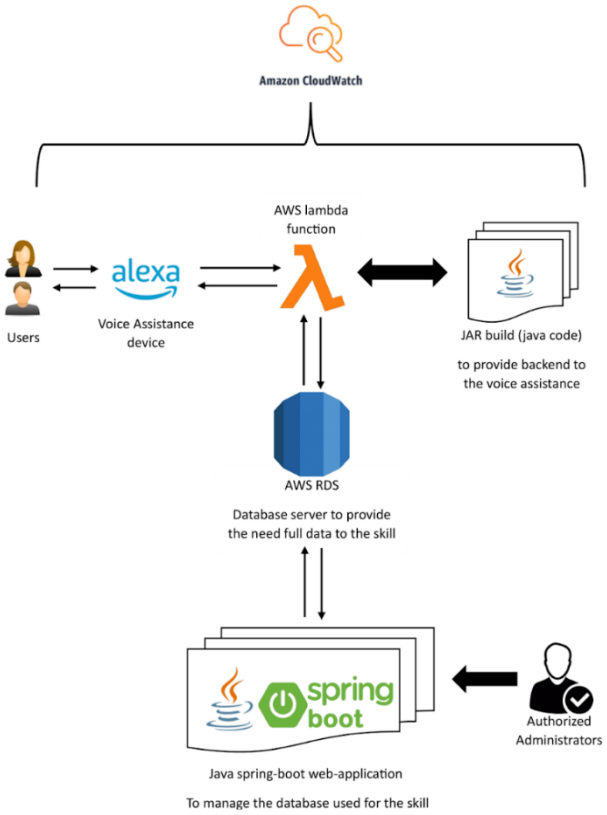

Figure 8.1: Process Diagram

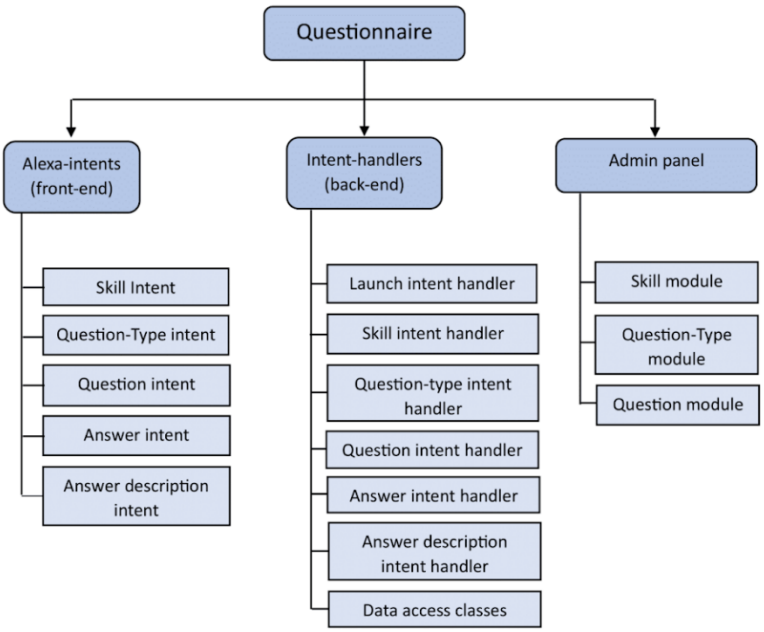

Figure 8.2: Questionnaire Modules

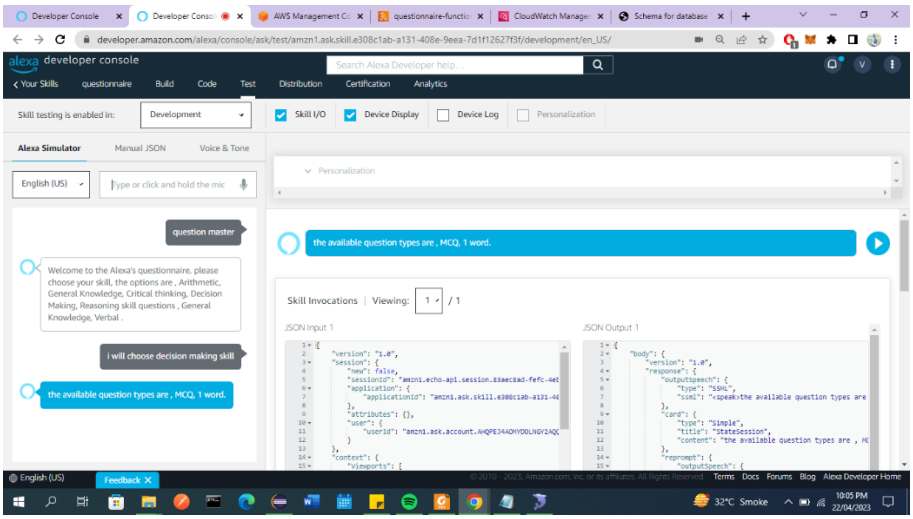

Figure 8.3: Snapshot of Alexa (Frontend)

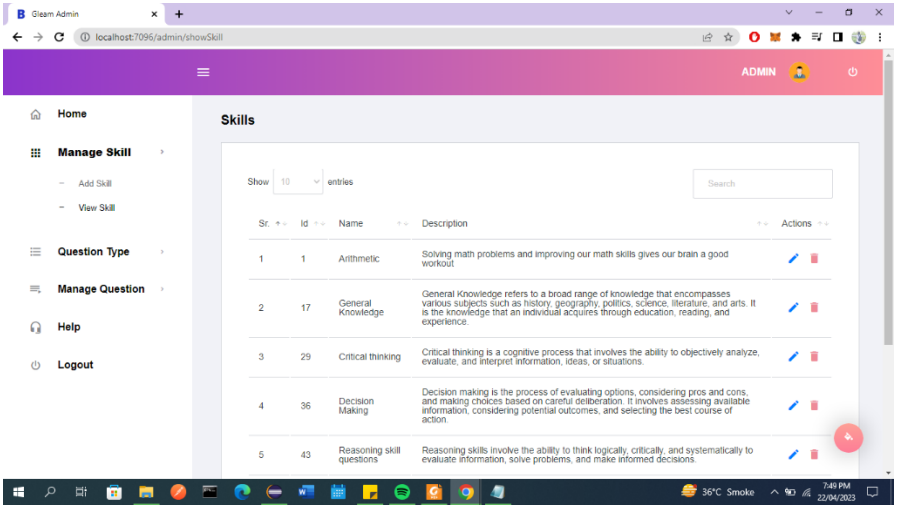

Figure 8.4: Admin Panel

In the development of our Voice Intelligence system using Alexa, we have employed a design pattern that utilizes POJO classes and Java objects as the main components of our logic code. This design pattern enhances the structure and modularity of the code, allowing for easier maintenance and future feature enhancements. While the current version of the project is fully functional, there are plans to further enhance its capabilities through the implementation of Natural Language Processing (NLP) configuration.

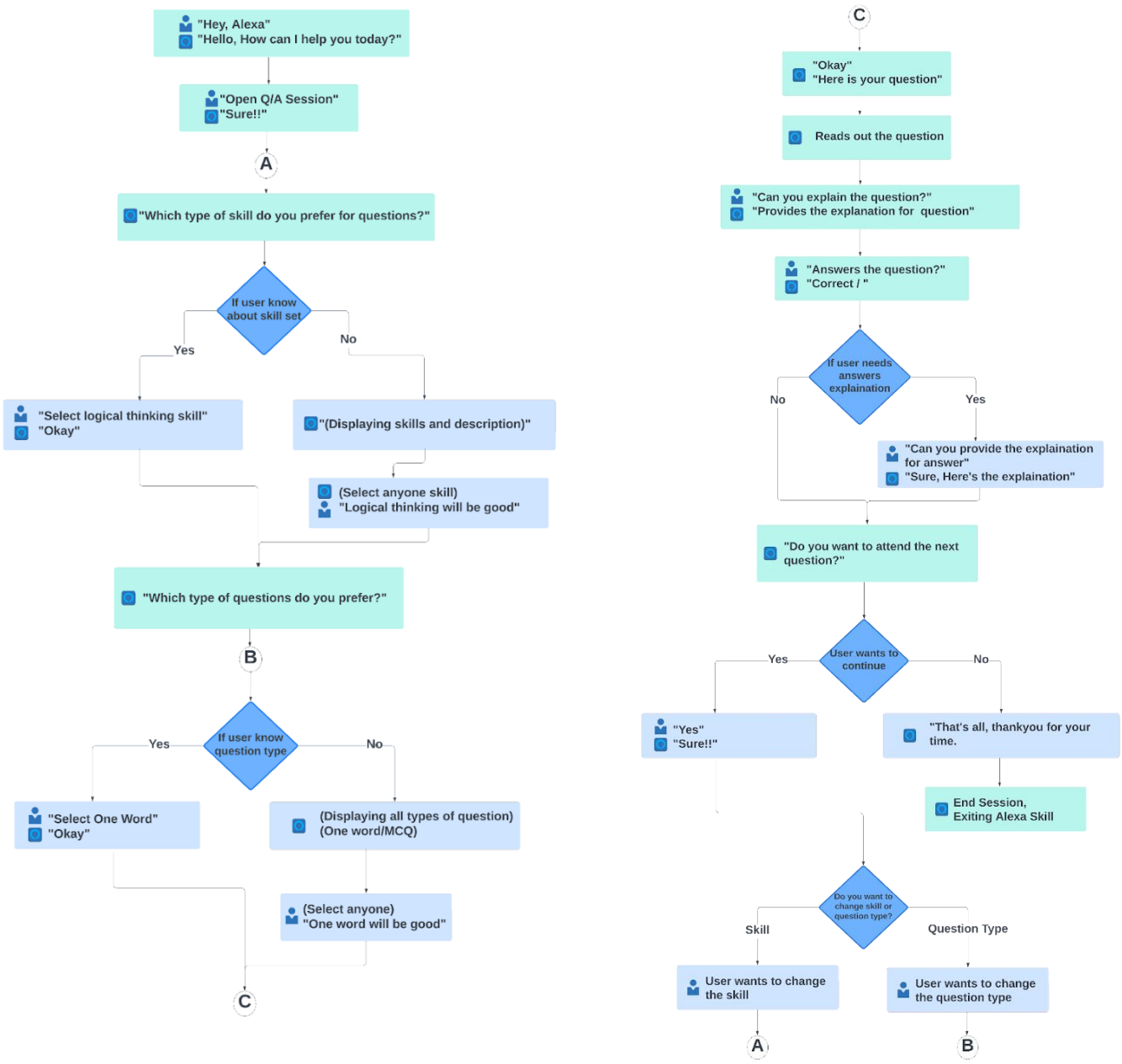

Figure 8.5: Work Flow of System

By collaborating with educators and understanding the specific needs of school-going children, I will tailor the system accordingly. Recognizing its potential as an invaluable educational tool, I aim to deploy our Voice Intelligence system as a product for schools, aligning with the curriculum and addressing the needs of teachers and students. Through continuous refinement and consultation, our goal is to deliver an impactful solution that supports students' educational journey.