Speech-Based Code Editor Project

By Bill Ma, Nickolas Eisele, Pragadeesh Chandiran, Rashi Dhar, Soma, Weituo Kong, Yihao Zhou

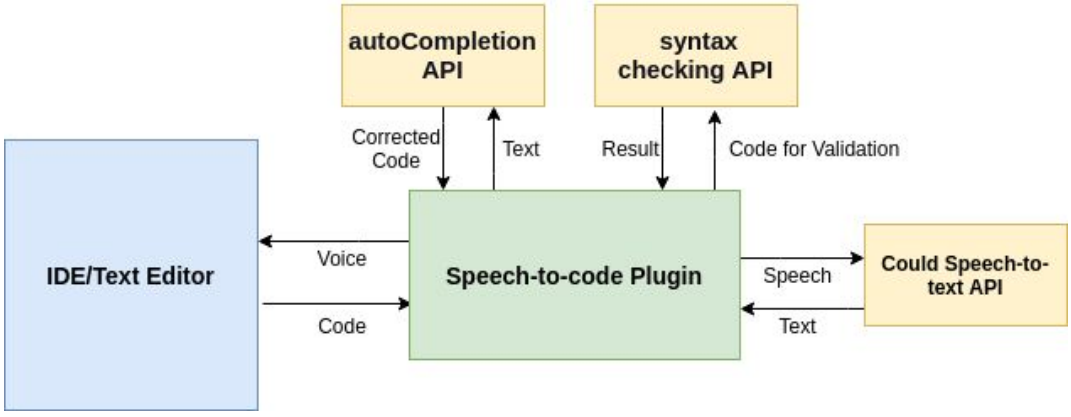
Motivation

Speech-based Code Editor is an application for the physically handicapped individuals and helps them to develop their own Java programs. The user can dictate the words and programming commands, and with the help of speech recognizer, the application converts spoken words to code. This application can improve the ability of the intelligent disabled people who wish to code.

Roles

Manager - Soma Hota, Weituo Kong
Assistant - Nickolas Eisele
QA - Bill Ma
UI / Security - Pragadeesh Chandiran
Documentation - Rashi Dhar
Performance: Yihao Zhou

High Level Design



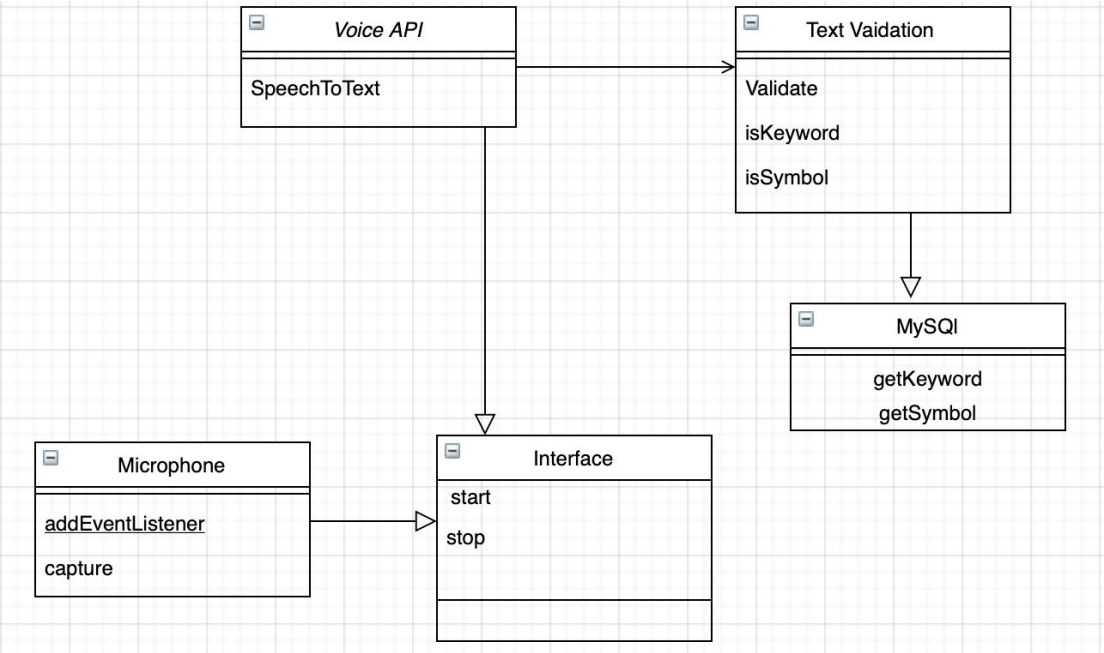
The architecture will be broken into a backend for validating the text from Voice API and a Single Page Application frontend to call the Voice API. The main design features include five major parts: the architecture above, the user interface, platform, the database and the voice API.

1. Platform:
    a. We will be building a plugin for Eclipse platform.
2. Database :
    a. For the database we are using JDBC driver with MySQL database.
3. Voice API:
    a. We will be using the Google Cloud Speech-to-text API (https://cloud.google.com/speech-to-text)
4. User Interface:
    a. For the GUI we will have buttons to start and stop speaking.

Goals

1. Frontend
    a. Button to start and stop speaking
2. Backend
    a. Voice API: Google Cloud Speech-to-text API
    b. Find the closest match of the word in the database
    c. Implement keyword class
    d. Implement symbol class
    e. Type out the processed text into the Eclipse editor
3. Database
    a. Connecting JDBC to external database
    b. Creating database schema
    c. Adding data into the database

UML Diagram



Technology

It might be nice to write both the frontend and backend in Java.

Resources

Below is a list of additional resources that may be helpful

- https://cloud.google.com/speech-to-text
- https://docs.oracle.com/javase/tutorial/jdbc/basics/gettingstarted.html#step2
- https://www.eclipse.org/articles/Article-Your%20First%20Plug-in/YourFirstPlugin.html