Voice to Database Queries Application

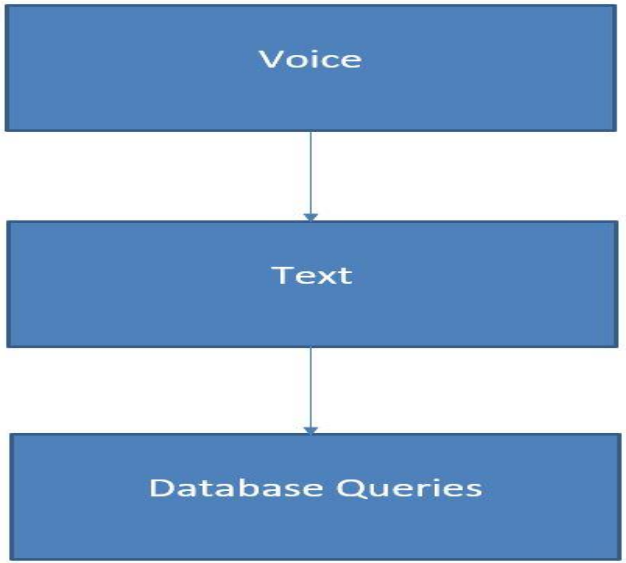
Team 10:
Aakreeti Khakurel
Vivek V. Shetye
Wei Shi

Github Repository

https://github.com/shetyevivek/CSE6324Team10

Abstract

- This project presents an approach to automate the conversion of Voice commands to a database query effectively. The users who are not familiar with database queries or language will not be able to retrieve the data from the database correctly. To overcome this, we have proposed a model in Natural Language Processing to convert the Voice to a text format and then use it to create database queries to retrieve the required data.



Motivation

- The pitched project idea has been taken from one of the previous semester's student's team who worked to develop a framework named **"WriteCode on Website Compiler (LeetCode)"**. Their project was an web application and was developed in python language using Google Speech Recognition System.
- Our project focuses to convert the Voice commands to a text format and then interpret that to create the database queries for fetching the desired results with the help of Speech Recognition.
- Our project will be deployed on the local system.

Introduction

- The users who are not familiar with a query language are not able to retrieve the data accurately. To overcome this problem we will design a model which will help them to ask their questions through a voice command and provide them with accurate results. The emerging NLP technology has provided us with a deep motivation to come up with this idea and solve the problem mentioned above.
- Through this project we want to demonstrate that speech recognition can be used to tackle the problems faced by the non-technical users and it can help increase productivity in various businesses.

Features and potential benefits

- Our application have two major features, 1 Voice-to-Text

  2 Text-to-database queries (SQL or SPARQL)

- With those features, database application developers can only provide one uniform user query interface which allow user to speak to the application. So that they can develop the application efficiently.
- The features also allows the users of the database application easily complete their job in one UI, while they need to fill in the value into multiple form to complete the job in the traditional way.
- Base on risks, if we cannot access voice-to-text Libraries, we may not implement the first feature.

->What is John’s salary?
->Select salary
->From employees
->Where Fname = ‘John’

Customers & Users

Possible Customers:

Ordinary people who using database application daily.

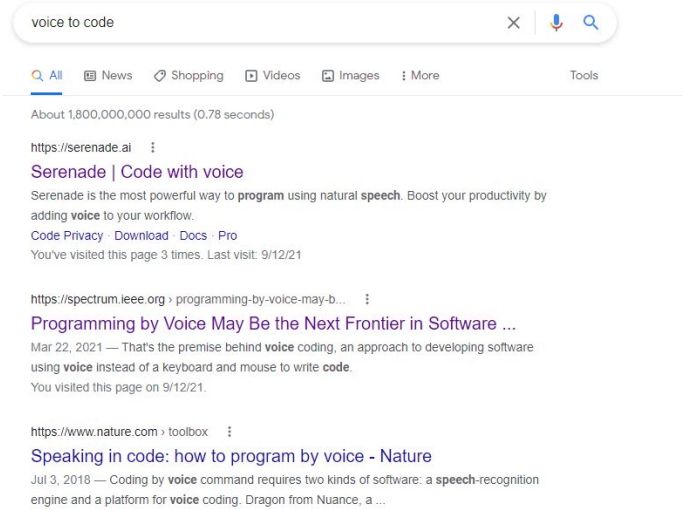
Database application developers.

Feedback Users:

We do not have any representative of user groups to give us feedback yet, but we are looking for 1 or 2 PHD students who are in database field so they can give us some feedback once the application can run.

Competitors

1. Serenade.ai. A free tool that using your natural speech to control your IDE during the coding. However, it is more close to a voice controlled IDE instead a software can understand your idea and automatically create code for you.
2. Voicecode.io. very similar with serenade.ai.
3. Different from our competitors, our solution focus on understanding users and automatically create database queries for them.



Risks

1. Not familiar with the technology in details.
2. Libraries for integrating with the project are not easily available.
3. Natural language is ambiguous hence there can be multiple interpretation and meaning of a sentence.

Risks Prevention and Management

Risk Number	1	2	3
Risk Level	Low	Medium	High
Probability	18%	16%	10%
Realistic Impact	120 hours	25 hours	25 hours
Response plan	Learning and being familiar with the technology.	Exploring more libraries and getting registered in the available ones.	Create datasets to interpret the NLP accordingly.

Q&A