Question:

Replace the input data and code in Speech Recognition example of CSCE 5200 course Chapter 5 (Part 2). For this purpose, use own original names to mark variables, size and meanings of input data. Execute the code in any programming language. Describe the problem statement, input data, used methods , code and results obtained. Upload the file consisting of the code and related report to the UNT Canvas environment.

Description of me thods and example: The methods and code description and re lated simulation results are presented in the Chapter 5 (Part 2) of CSCE 5200 course.

```
In [9]: pip install SpeechRecognition
```

```
Requirement already satisfied: SpeechRecognition in /Users/roja/opt/anaconda3/lib/python3.9/site-packages (3.8.1)
WARNING: You are using pip version 21.2.3; however, version 22.3 is available.
You should consider upgrading via the '/Users/roja/opt/anaconda3/bin/python -m pip install --upgrade pip' command.
Note: you may need to restart the kernel to use updated packages.
```

```
In [11]: pip install monotonic
```

```
Requirement already satisfied: monotonic in /Users/roja/opt/anaconda3/lib/python3.9/site-packages (1.6)
WARNING: You are using pip version 21.2.3; however, version 22.3 is available.
You should consider upgrading via the '/Users/roja/opt/anaconda3/bin/python -m pip install --upgrade pip' command.
Note: you may need to restart the kernel to use updated packages.
```

```python
In [4]: import speech_recognition as sr

        # get audio from microphone
        r = sr.Recognizer()
        with sr.Microphone() as source:
            print("Speak:")
            audio = r.listen(source)

        try:
            print("You said:" + r.recognize_google(audio))
        except sr.UnknownValueError:
            print("Could not understand audio")
        except sr.RequestError as e:
            print("Could not request results; {0}" .format(e))
```

```
Speak:
You said:hello this is information retrieval course
```

```
In [25]: conda install numpy scipy pyqtgraph
```

```
tom11                    pkgs/main/osx-64::tom11-2.0.1-py39hecd8cb5_0
wheel                    pkgs/main/noarch::wheel-0.37.1-pyhd3eb1b0_0

The following packages will be UPDATED:

  ca-certificates          2022.3.29-hecd8cb5_1 --> 2022.10.11-hecd8cb5_0
  certifi                  2021.10.8-py39hecd8cb5_2 --> 2022.9.24-py39hecd8cb5_0
  openssl                  1.1.1n-hca72f7f_0 --> 1.1.1s-hca72f7f_0
  scipy                    1.7.1-py39h88652d9_2 --> 1.7.3-py39h8c7af03_0


Preparing transaction: done
Verifying transaction: failed

RemoveError: 'setuptools' is a dependency of conda and cannot be removed from
conda's operating environment.


Note: you may need to restart the kernel to use updated packages.
```

```
In [26]: pip install pyaudio
```

```
Requirement already satisfied: pyaudio in /Users/roja/opt/anaconda3/lib/python3.9/site-packages (0.2.12)
Note: you may need to restart the kernel to use updated packages.
```

Another variation of code:

```
In [2]: def hear():
            import speech_recognition as sr
            ear = sr.Recognizer()
            with sr.Microphone() as sourse:
                print("listening...")
                audio = ear.listen(sourse)
                try:
                    text = ear.recognize_google(audio)
                    print(text)
                except:
                    print("i didn't get that...")

        hear()
```

```
listening...
hello I'm student
```

Report:

Background: Speech recognition is the process of recognizing a speaker's series of words from an audio source. It is now among the widely used applications of AI.

As an illustration, millions of users use speech recognition software every day to use voice mail, mobile websites, and other apps.

Speech recognition is challenging and may not be completely accurate because a speaker's noises are ambiguous and, well, noisy.

Problem Statement: Under any programming language, compute speech recognize and print the spoken words into text.

Input Data: Audio clip is provided as input.

Method: Pre-requisites are installing packages, the following worked for mac, there are few other options for windows

1. pip install SpeechRecognition
2. conda install numpy scipy pyqtgraph
3. pip install pyaudio
4. pip install monotonic

Once packages are installed, code the speech recognition program taking audio clip as input and printing the output as text. Run the program.

Code: As mentioned above.

Results Obtained: Got the text printed which is spoken by user or human.