**DOCUMENT:**

SpeechRecognition is a library for Speech Recognition (as the name suggests), which can work with many Speech Engines and APIs. The current version supports the following engines and APIs,

* CMU Sphinx
* Google Speech Recognition
* Google Cloud Speech API
* Wit.ai
* Microsoft Bing Voice Recognition
* Houndify API
* IBM Speech to Text

I decided to start out with the Sphinx engine, since it was the only one that worked offline. But keep in mind that Sphinx is ***not as accurate as*** something like Google Speech Recognition.  
  
First, let's setup the SpeechRecognition package.  
  
  
To start, you need to have the **PyAudio** package. SpeechRecognition requires PyAudio in order to interact with the microphone of your computer. If you don't have PyAudio installed already, you can follow the instructions from [my earlier post](http://www.codesofinterest.com/2017/01/audio-classification-pyaudio-getting-started.html) to set it up.  
  
Next, since we will be using the Sphinx engine, we need to install the **pocketsphinx** package,

pip install pocketsphinx

Finally, you can install SpeechRecognition, again from pip,

pip install SpeechRecognition

With everything setup, we are ready to code our speech recognition script.  
  
The basic code is quite simple,

import speech\_recognition as sr

# obtain audio from the microphone

r = sr.Recognizer()

with sr.Microphone() as source:

print("Say something!")

audio = r.listen(source)

# recognize speech using Sphinx

try:

print("Sphinx thinks you said '" + r.recognize\_sphinx(audio) + "'")

except sr.UnknownValueError:

print("Sphinx could not understand audio")

except sr.RequestError as e:

print("Sphinx error; {0}".format(e))

The code will create a Recognizer object, create a Microphone object, listen to the microphone to hear a spoken phrase, and use the appropriate recognizer engine ('recognize\_sphinx' here) to recognize the phrase.