In this project, we're going to create a system capable of recording live speech through a microphone and transcribing it using speech recognition technology. This tool is ideal for automatically documenting meetings, lectures, and other verbal events.

We'll leverage Jupyter notebooks for writing our code and crafting interactive widgets that facilitate the start and stop of recordings. Upon completion, you'll be equipped with a user-friendly interface that allows for the seamless recording and transcription of speech.

### **Project Steps:**

* Develop Jupyter Widgets: We'll begin by creating interactive widgets that enable users to start and stop audio recordings.
* Integrate PyAudio for Audio Recording: PyAudio will be employed to capture audio from the microphone.
* Implement Speech Recognition with Vosk: The core of our system, speech recognition, will be powered by Vosk, converting speech to text.
* Incorporate Punctuation with Recasepunc: To enhance readability, we'll integrate punctuation into our transcriptions using Recasepunc.

### **Code and Resources:**

You'll find the entire codebase for this project in a Jupyter notebook

### **Setting Up Locally:**

#### Prerequisites:

Ensure you have Python version 3.8 or later installed on your system. Additionally, the following Python packages are required:

* Vosk: pip install vosk for speech recognition.
* Pydub: pip install pydub for handling audio files.
* Transformers and Torch: pip install transformers torch -f https://download.pytorch.org/whl/torch\_stable.html for working with deep learning models.
* PyAudio: pip install pyaudio for audio recording functionality.
* IPyWidgets: pip install ipywidgets for creating interactive Jupyter widgets.

#### Enhancing Transcriptions with Punctuation:

* Vosk's default output lacks punctuation. For punctuated transcriptions, a separate model is needed. This can be acquired from the specified link, but be aware of its size (over 1GB).

#### PyAudio Installation:

* Installing PyAudio might require system-specific steps due to its dependencies. Consult the official homepage for detailed instructions.

Data Collection:

* The data for this project will be sourced directly from your microphone, eliminating the need for external downloads.