SmartFlix

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Overview

What is smartflix?

- A simple command line application
- Allows user to search for youtube videos using voice.
- Play videos
- Add them to favourites and remove them from favorites.

Project Motivation

- The fondness of youtube.
- An app for the command line enthusiasts with speech.
- Emulation of how Youtube keeps track of some analytics such as each user’s favorite videos.
- Using cloud features of different vendors(Google Cloud and AWS) together harmoniously. World Peace.

What we planned to do

- Search for videos with different criterias (Viewcount, date, relevance, etc)
- Synchronous voice streaming and real-time conversion
- Be able to save favorite videos
- Play/Pause the video
- Skip to different section of the video

All of this was to be done using voice commands.

Front-end: HTML/CSS/JS

Back-end: JAVA

Bot: AWS LEX

OUTCOME

- Search for videos with different criterias (Viewcount, date, relevance, etc)
- Able to save favorite videos (fav and unfav)
- Voice command is only used when searching for a video
- From HTML/CSS/.. To Command Line.
- Java
- Speech To Text: Google Cloud Speech

I DON'T OFTEN USE COMMAND PROMPT, BUT WHEN I DO
I GO AROUND TELLING EVERYONE I'M A HACKER
imgflip.com

Why we chose Google Cloud Speech over LEX

- Pros
  - Easy-to use
  - Only needed a speech to text functionality.
  - Lex had limited deployment options.(facebook, slack, twilio)
  - Google Cloud has better interface
- Cons
  - Google Cloud functions are still in closed beta.
  - Real-time conversion still quite limited.
  - Installation of Google Cloud SDK is required.

Tools

Here are the tools that were used to build this application.

Programmatic Tools
- Java(JDK 1.8)
- Netbeans
- Maven

Google Cloud
- Google Cloud Speech API

Google API
- Youtube Data API V3
- Youtube Analytics API V1

Databases(AWS)
- MySQL RDS
- DynamoDB

Credentials and Authentication

Google Cloud Speech API

- Credential for a service account linked to a project
- Google Cloud SDK must be installed
- Export credentials on command line

Google Youtube API

- Export credentials to youtube.properties and client_secrets.json
- Youtube Data V3 support DEPENDENCY

Commands

- login, newuser, logout
- search <seconds>
- play <playid>
- playfav <favid>
- fav <favid>
- unfav <favid>
- favs
- current <search/videos>

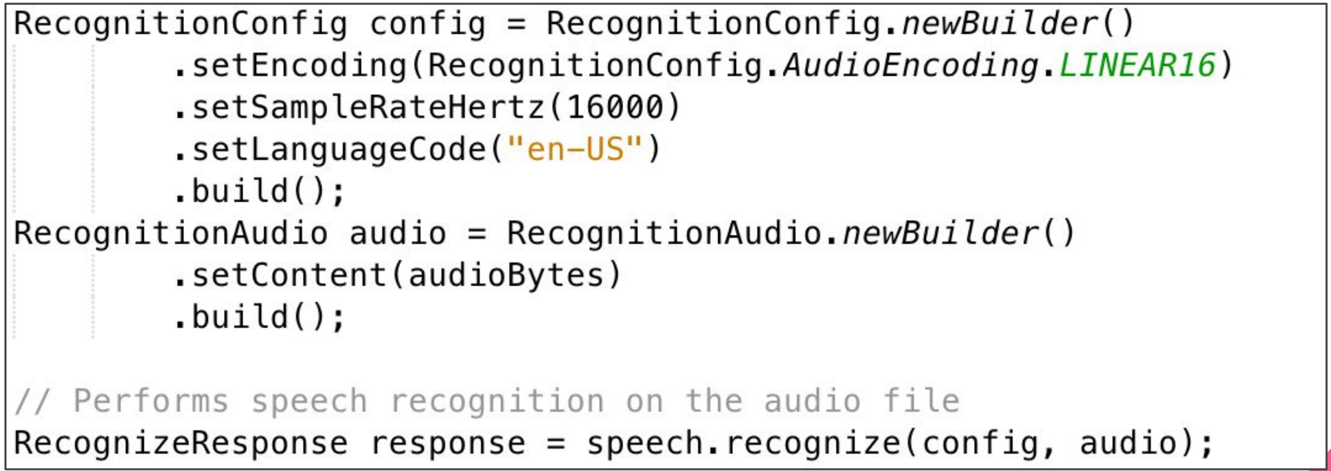
YOU MERELY ADOPTED THE COMMAND LINE
I WAS BORN INTO IT, MOULDED IN IT. I DIDN'T SEE A GUI UNTIL I WAS ALREADY A MAN.
memegenerator.net

Recording

- Creates a folder in the same directory as the executable called audio to store the sound.wav
- TargetDataLine from javax.sound used to record
- Thread is initialized and made to run n seconds. It will invoke line.stop() to stop recording after n seconds.
- Records in mono-channel at a sample rate of 16000 Hz.

Converting

- Gets the sound.wav
- Sends it to the Google Cloud Speech
- Get the transcription as a response



```
RecognitionConfig config = RecognitionConfig.newBuilder()
        .setEncoding(RecognitionConfig.AudioEncoding.LINEAR16)
        .setSampleRateHertz(16000)
        .setLanguageCode("en-US")
        .build();
RecognitionAudio audio = RecognitionAudio.newBuilder()
        .setContent(audioBytes)
        .build();

// Performs speech recognition on the audio file
RecognizeResponse response = speech.recognize(config, audio);
```

DynamoDB (fav and unfav)

- VideoInfo class made to encapsulate information such as video id, title, uploader, views. Used this class with DynamoDB datamodeling for retrieving multiple items.
- table.putItem was used for adding video to fav and table.deleteItem for unfav.
- SortKey: username
- RangeKey: video ID

Video playing mechanism

- When user logs in, a stack is loaded with his favorite videos pulled from DynamoDB.
- When a search is done the current search array is filled with VideoInfo instances.
- When a new video is '*faved*', a new VideoInfo item added to the stack
- When a video is '*unfaved*', it is removed from the stack at where it's located.
- Play command loads up the video in the default browser.

Memes

It doesn't work...... why?
It works.......
why?
MemeBlender.com

THE TWO STATES OF EVERY PROGRAMMER
I AM A GOD.
I HAVE NO IDEA WHAT I'M DOING.

Project Demo

Thank you for listening!