

AUDIO CONVERSION AND MANIPULATION

(AKA PROJECT AARDVARK)



Group members:

-Mike

-Chris

-Brendan

SUMMARY

- Group Introduction
- Repository review
- The Project
- Problems we ran into
- Final Product
- Conclusion

GROUP INTRODUCTION

- Brendan Nestor: International Trade and Finance Major
- Chris Irwin: Computer Science Major
- Mike Zielewski: Computer Science Major
- **Group Name:** Aardvarks Anonymous
- **Project Name:** Project Aardvark

REPOSITORY / WEBSITE

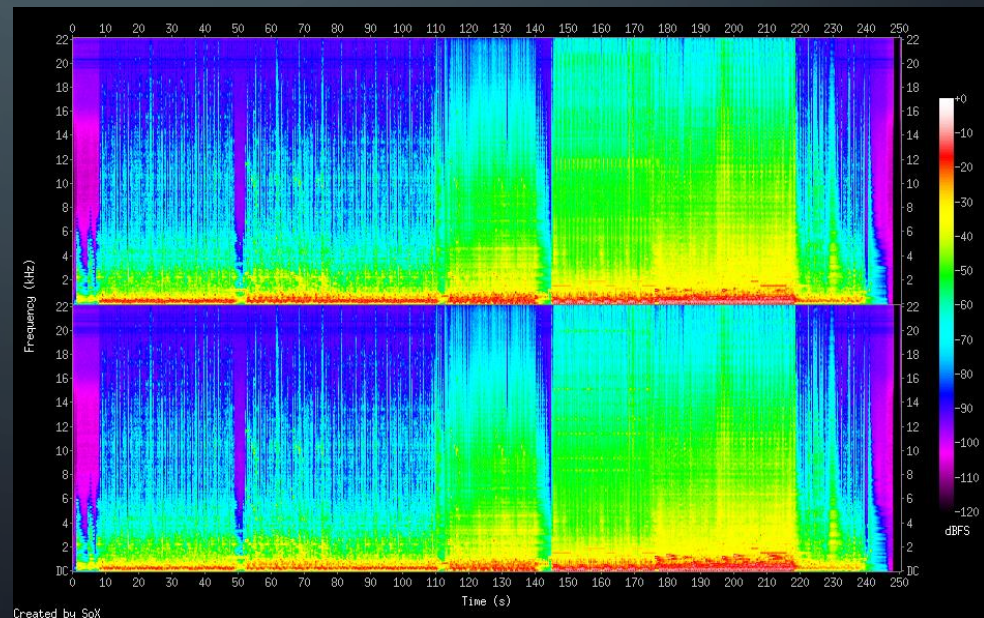
- [GitHub](#)

- [Website](#)



THE PROJECT

- The Original Idea
 - Develop audio program to manipulate audio data
 - Utilize Digital Signal Processing (DSP)
- The code
 - Decoding Wave files
 - FFT (Fast Fourier Transform) Algorithm
- Bash commands
 - Use of Bash script to execute commands in Linux



WAVE FILES

- Waveform Audio File Format
- Chunks of data

The Canonical WAVE file format

endian	File offset (bytes)	field name	Field Size (bytes)	
big	0	ChunkID	4	The "RIFF" chunk descriptor
little	4	ChunkSize	4	
big	8	Format	4	
big	12	Subchunk1 ID	4	The Format of concern here is "WAVE", which requires two sub-chunks: "fmt " and "data"
little	16	Subchunk1 Size	4	
little	20	AudioFormat	2	
little	22	NumChannels	2	The "fmt " sub-chunk
little	24	SampleRate	4	
little	28	ByteRate	4	
little	32	BlockAlign	2	
little	34	BitsPerSample	2	
big	38	Subchunk2 ID	4	The "data" sub-chunk
little	40	Subchunk2 Size	4	
little	44	data	Subchunk2Size	

Indicates the size of the sound information and contains the raw sound data

PROBLEMS WE RAN INTO

- Understanding and implementation of researched source code
- Discovering complexity of Java libraries
 - Jtransforms
 - tritonus
- Building a GUI with limited Java experience
 - JavaFX
- Creating website other than GitHub Wiki page
- Bash Scripting
 - Decimals in Bash

SOX



- `$sox [FILENAME] -n stat`
- `$sox normalize-audio -a [INSERT AMPLITUDE] [FILENAME]`
- `$sox [FILENAME] -n spectrogram`

CONCLUSION

- What we learned
 - Team work
 - Researching
 - Utilization of Linux and repositories

THE END!

- We love you and thanks for all the cheese.
- <http://www.reocities.com/TimesSquare/Dungeon/1561/core.htm>

