OSMI: IN context of Audio Analysis

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Introduction

Problem Statement

In today's online market there are not enough research on how online marketing in context to audio sensory is being done. Also, not much analysis is done on audio to understand its usage in OSMI.

Research Question

What are the features in audio files and how they are incorporated in E-Commerce audio advertisements that influence the customers likeliness towards a product?

Expected Outcome

Analysing the existing repository of audio and identifying the key factors or features embedded in them that make the advertisements stand out from the rest.

Literature analysis

Title	Publisher	Literature review
Managing sensory expectations concerning products and brands: Capitalizing on the potential of sound and shape symbolism.	Charles Spence * Crossmodal Research Laboratory, Department of Experimental Psychology, University of Oxford, South Parks Road, Oxford, OX1 3UD, UK	Research on the topic of symbolism of sound and form has a long history in the fields of experimental psychology and linguistics, but it is only in the last decade or so that researchers really begin to recognize the potential relevance of this field of study. It is suitable for product naming, branding, and packaging design fields. The latest findings in this newly activated field of research show that the sounds present in brands, abstract images of product packages, and even shapes of labels or packaging themselves can be used. Setting subconscious expectations in the consumer's mind.
Internet Radio: An Analysis of Pandora and Spotify	Corinne Loiacono	This article analyses Pandora and Spotify to find out why they are popular media for users and how effective each site is to meet the needs of personalized radio. And in this paper, user highlight the most important characteristics here in Pandora and Spotify. Two experiments will be conducted. One is objective (self-conductive) and the other is subjective (with a group of college students).
Sensory marketing: the multi-sensory brand-experience concept	Bertil Hulte´n Kalmar University, Kalmar, Sweden	This article provides an exploratory overview of the brand's empirical concepts of all senses within the SM model that raises questions about traditional marketing models. An important theoretical implication is that the multi-sensory brand experience is the ultimate result of the value creation process between providers and customers.
SENSORY MARKETING FROM THE PERSPECTIVE OF A SUPPORT TOOL FOR BUILDING BRAND VALUE	Margareta Nadanyiova, 1 Jana Kliestikova,2 Juraj Kolencik	The purpose of this article is to provide a review of the literature on the issue of multiple foreign and Korean authors. Discuss the essence of the brand, brand value, and sensory marketing, and analyse the use as a support tool for building brand value using secondary research data. Based on this, the author guarantees the loyalty of existing customers, acquires new customers, builds a successful brand, and builds brand value including brand name and positive awareness of the product.

Sensory Branding and Advertising Campaigns for Brand Success in Mexico	Patricia Ramos Rubio, Agustin Vilchis Vidal, Institute of Social Sciences and Administration, Juarez city University, Juarez, City	In this paper, Author tried to introduce an approach from a sensory branding perspective. Today's advertising and marketing must implement a global strategy to compete in different geographies affecting different cultures. slowdown in new challenges in different situations and in different markets. In other cultures, in addition to replicating this study, advertising campaigns encourage the search and design of methodologies that can measure the impact of each sensation. A conceptual field for researchers and various companies seeking to improve their marketing strategy.
SENSORY MARKETING-INVESTIGATING THE USE OF FIVE SENSES	Dr Rupa Rathee, Assistant Professor, Department of Management Studies, India. Ms Pallavi Rajain Research Scholar, Department of Management Studies, India	In this paper, the authors introduce the concept of sensory marketing and explore the use of the five senses in the marketing of products or services. Previous literature review was conducted to find out the level of influence that sensations have on consumer decisions and whether their presence actually influences buyers' decisions. Finally, questions have been raised about the ethical use of online sensory marketing using audio.
SENSORY MARKETING FROM THE PERSPECTIVE OF A SUPPORT TOOL FOR BUILDING BRAND VALUE	Margareta Nadanyiova, Jana Kliestikova, Juraj Kolencik	This document provides an explanation for sensory marketing, and expectations are the driving force for success. The first impression of the product provides expectations for shape, material and odor. If these expectations are not met, it means that the expectations do not respond to perception, and consumers are surprised by the disagreement of these sensations. Audio advertising is often considered inappropriate and experience is negative. These sensory discrepancies also affect brand valuation. Consumer brand awareness is based on interaction with the brands mentioned.
Sounds Like Chicken :Sensory Marketing and Sound Effects	Professor, Marketing Department, Saint Joseph's University Philadelphia, United States David Allan Associate Professor, Music Department, Faculty of Human Ecology, Universiti Putra Malaysia, Serdang, Malaysia	The results show that sound effects have a greater impact on consumer confidence and purchases than music and silence. This survey fills the gap whether advertisers will use sound effects, music, or silence.

Understanding the senses and their expressions

Sensors	Sensations	Sensory Expressions
Smell Sensor	Atmospheric	Product congruence, intensity in the atmosphere, advertency and theme Scent brand and signature scent
Sound Sensor	Auditory	Jingle, voice and music Atmosphere, attentiveness and theme Signature sound and sound brand
Sight Sensor	Visual	Design, packaging, and style Colour, light and theme Graphic, exterior and interior
Taste Sensor	Gastronomic	Interplay, symbiosis and synergies Name, presentation and environment Knowledge, lifestyle and delight
Touch Sensor	Tactile	Material and surface Temperature and weight Form and steadiness

Software and Coding Modules

Amazon AWS

AWS Transcribe: Amazon Transcribe provides high-quality and affordable speech-to-text transcription for a wide range of use cases.

Google Colaboratory or Colab: An online platform based on Jupyter Notebook that is used to write and execute Python code. It requires no additional set-up as it is cloud based and provides free access to computing resources including GPU's.

Programming Language and Libraries

Python : An open-source language which is powerful and easy for reading.

Libraries

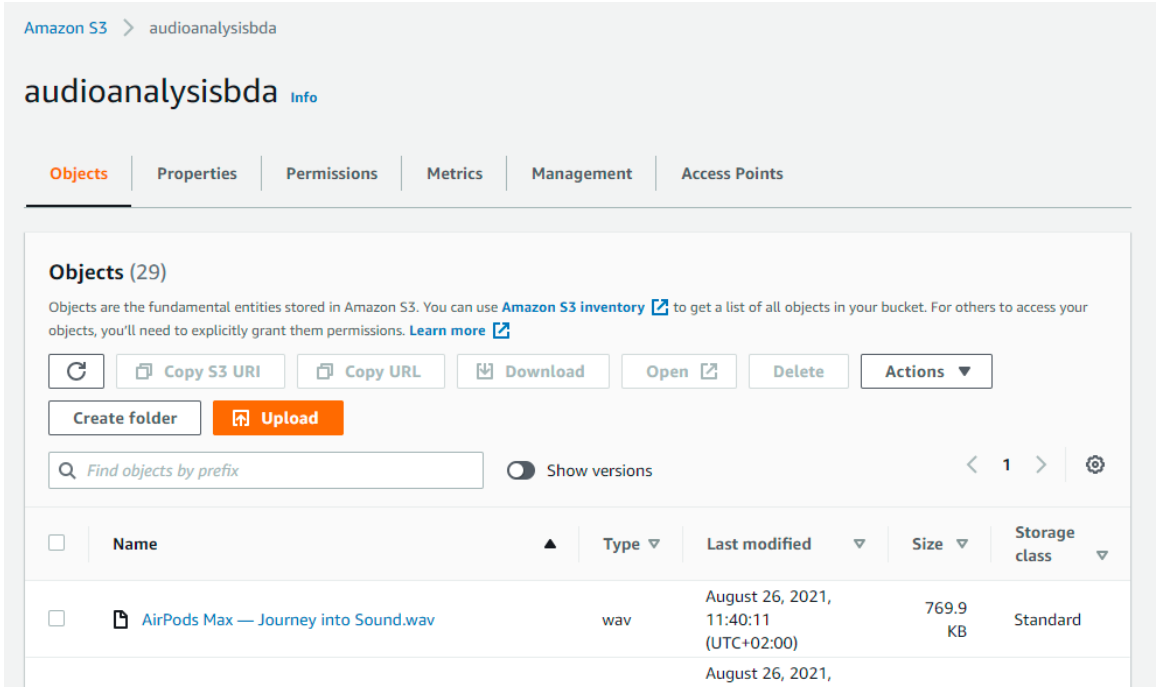
Pandas and NumPy:

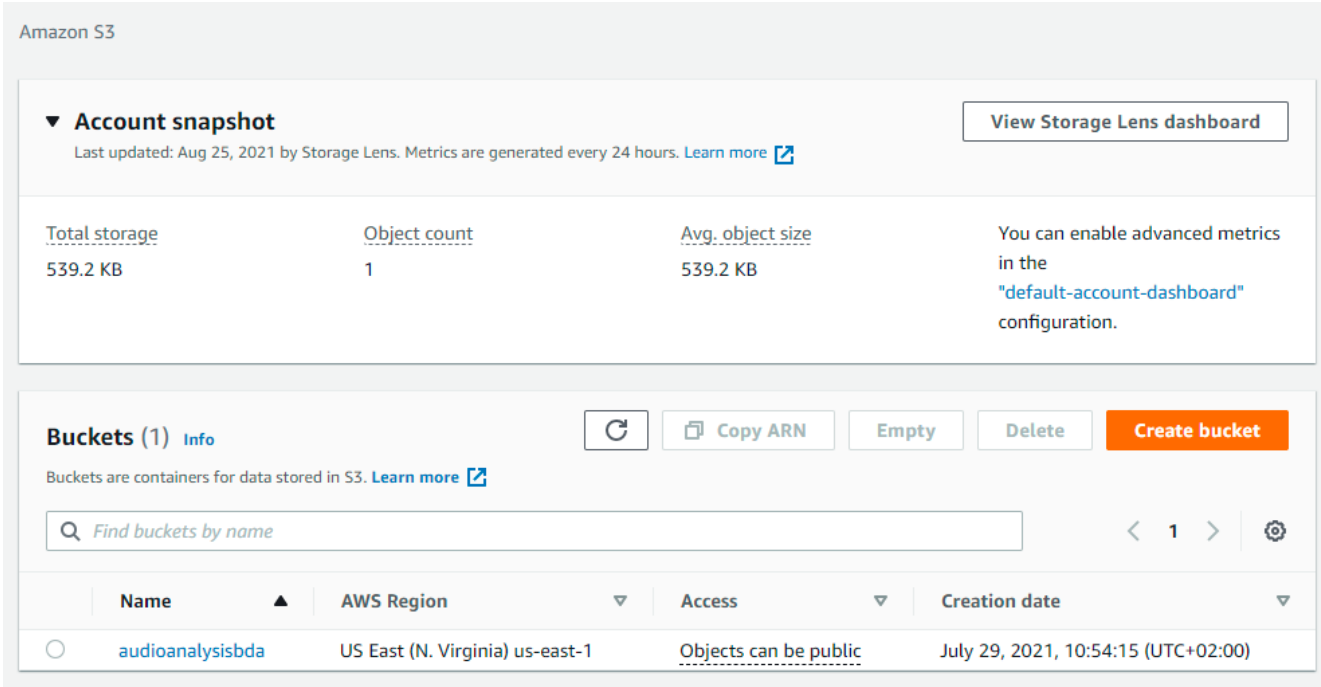
- NumPy is a part of a set of Python libraries that are used for scientific computing due to its efficient data analysis capabilities.
- Pandas is a library with data manipulation tools that are built on top of and add to those of the established NumPy library.

LIBROSA: Librosa is a python library with almost every utility we might need while working with audio data.

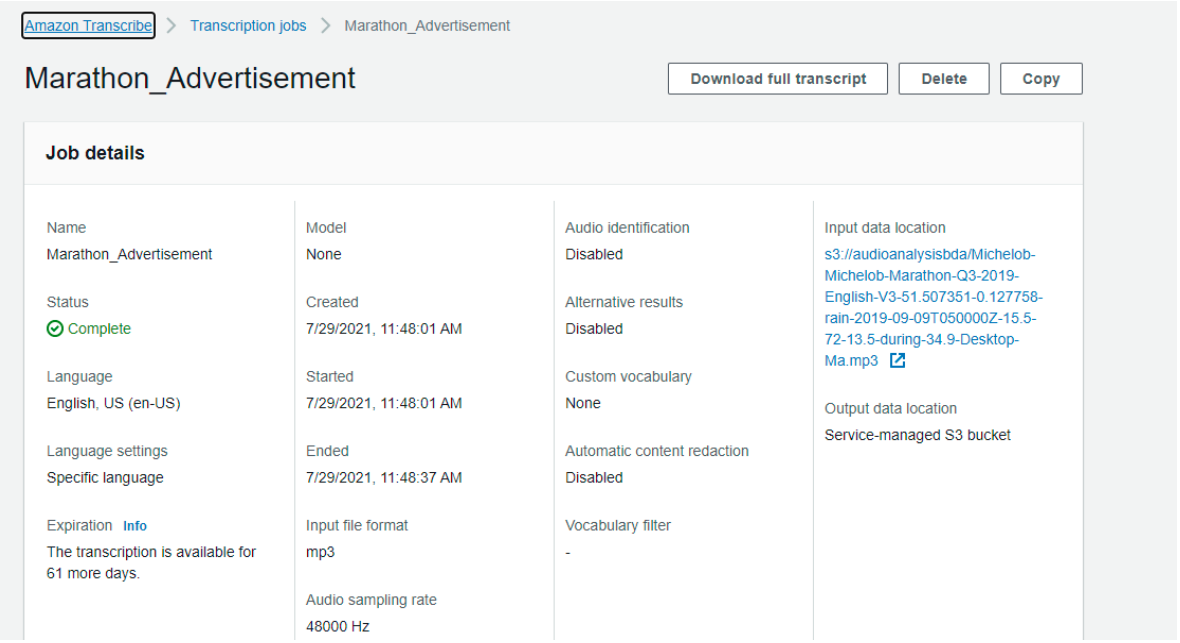
ClearML: ClearML is the only open-source tool to manage all your MLOps in a unified and robust platform providing collaborative experiment management, powerful orchestration, easy-to-build data stores, and one-click model deployment.

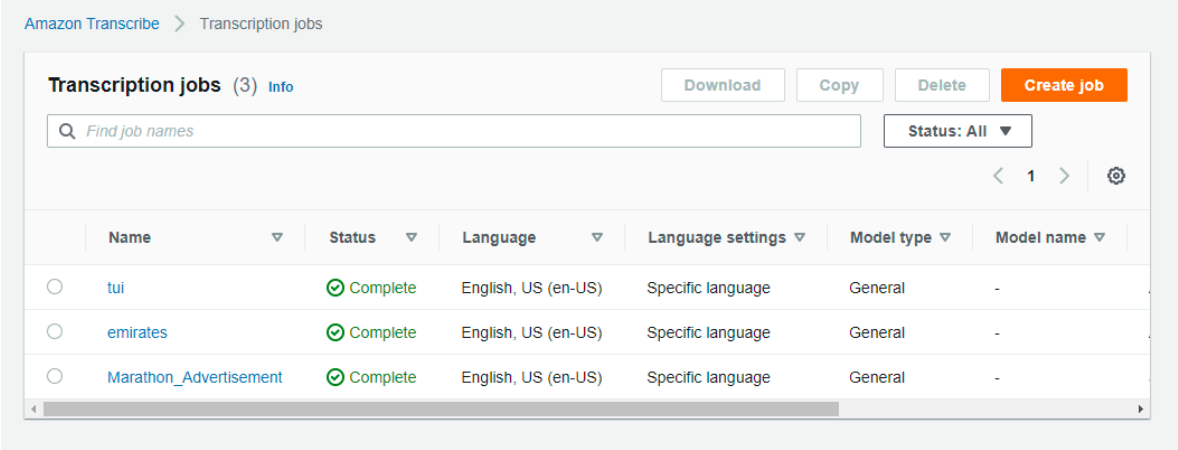
Amazon S3 Bucket Snapshot





Transcript Jobs updated in AWS Transcribe





Extracting text from audio using AWS Transcribe

Figure: 1

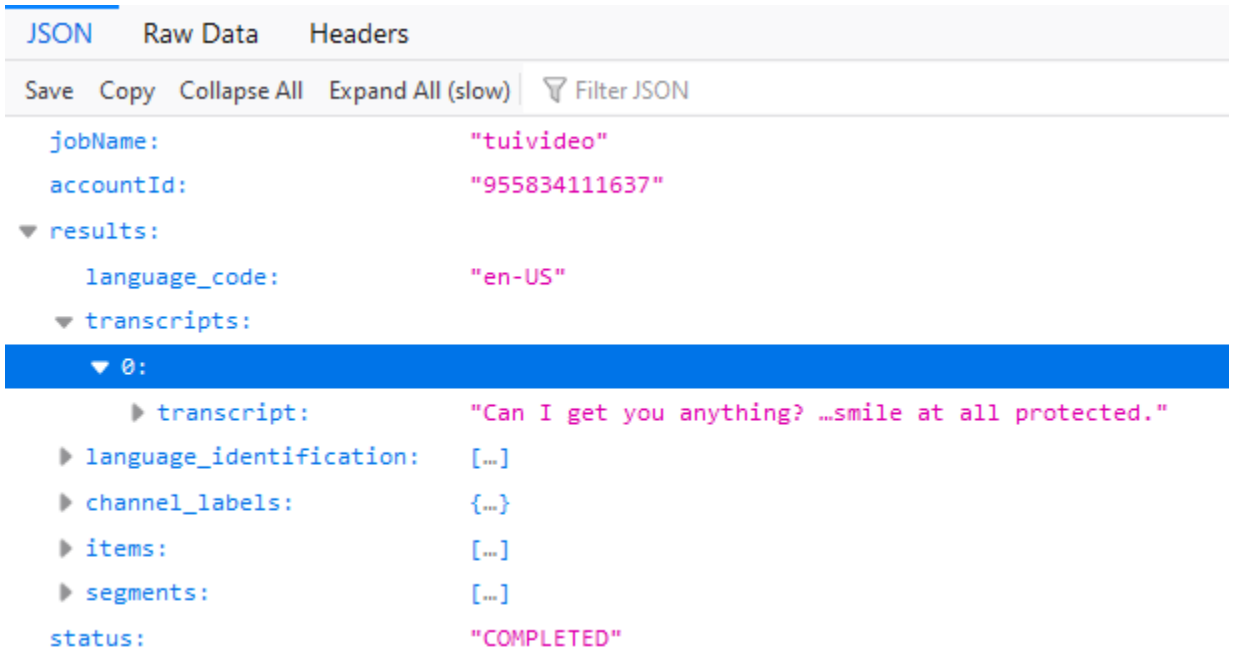


Figure: 2

Fig 1 & 2: The above images show the Json file exported from AWS Transcribe where each word has an accuracy meter that determines the accuracy of the transcription.

Analysis of Sound and its frequency's

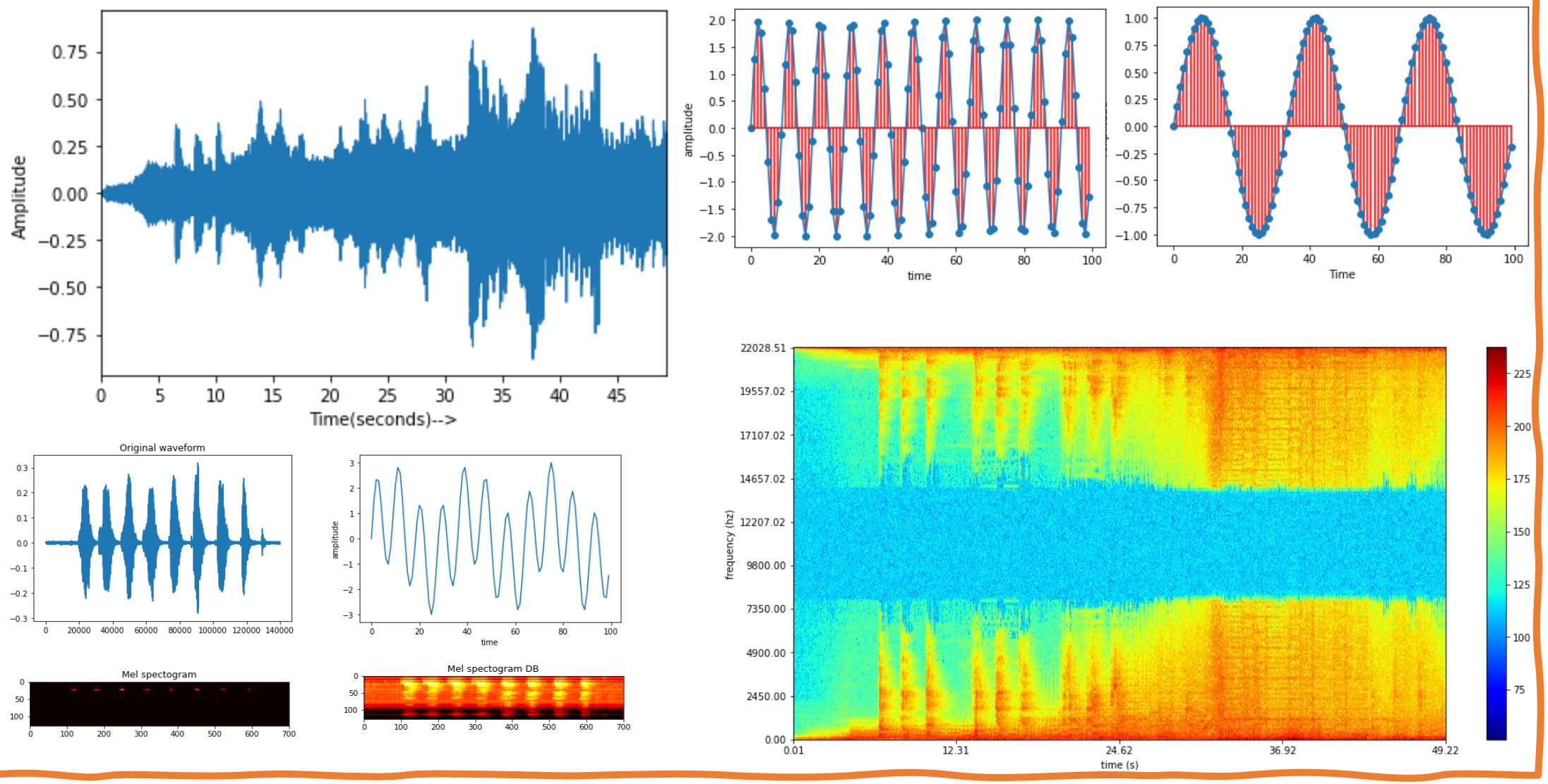


Figure 3: The above set of figures provide a detailed visual representation of the Amplitude , Pitch, Voice modulation and Waveforms of sound files analyzed

Limitations

- No free software available in cloud as well as standalone product for sound classification.
- System infrastructure for audio analysis is expensive in cloud as well as in local system
- Setup Local coding environment is challenging.
- No functional workaround is available to extract background or ambient sounds to analyze the audio clip.

Conclusion and outlook

- According to the present research we found that there are lots of frequency which represent an audio signal. We can understand and modify those signal using the sampling rate or Nyquist theorem. (more to explore)
- After analyzing different audios signals integrated into a signal audio stream which directly hit user's senses and make them to rethink and change their decision towards brands.
- In future we want to dig deeper and explore these audio signals used by different organizations and how it help them in terms of popularity and market growth.

THANK YOU