Week #1a: Sound/Text manipulation with Python

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Overview

In machine learning, we usually dealt with many type of data like the following:

- tabular data (e.g. sensors, science experiment)
- image data
- sound data
- text data
- video data

Thus, it is important to familiarize with the tools associated with it.

Python

Please use python from here

Task for Week 1a: Audio

Download audio sample from kaggle

1. Convert all the audio file to `spectogram`
2. Read single audio file from (1) and inspect the following:
    - audio shape
    - audio size
    - audio data type
3. Read spectogram images in the folder and explore/observe the following:
    - read audio spectogram image as ***numpy array***
    - read audio spectogram all image as ***numpy array***
    - check the array properties like exercise (2)
4. Read all the spectogram from (3) and make a tensor:
    - inspect the tensor using ***tensorflow***
    - inspect the tensor using ***pytorch***
    - check the array properties like exercise (2)

Task for Week 1a: Text

Download text file from this link

1. Combine all `csv` files into single file using Pandas
2. get all `user` and put into a python dictionary with its `number of likes`.

3. from (3), drop the key-value pairs that have `number of likes = 0`

Note

GitLab / GitHub

1. Create a private repository and organize your folder like the following:

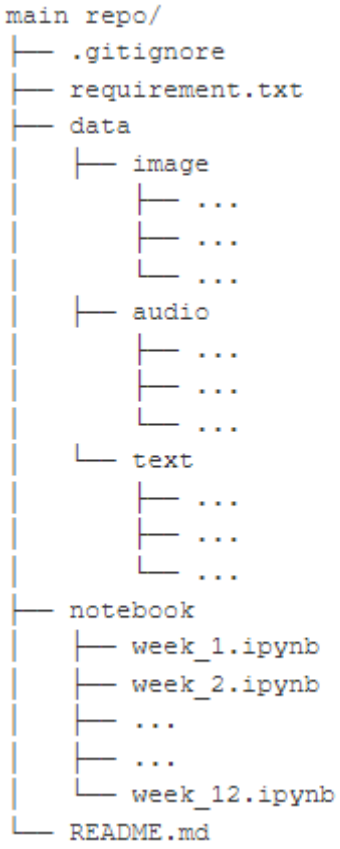

Figure 1: Figure 1: repo organization

2. For `readme.md`, please make sure it has the following:
    - Overview/summary about the repo
    - Installation/Enviroment setup
    - Summary of results (if any)
    - Reference

You may refer here for example: 1, 2

Please use ***jupyter notebook*** for all of the exercise.