1. In Lab 3, you wrangled data from Essentia, Essentia models and LIWC. Rework your solution to Lab 3 using `tidyverse` (Wickham et al., 2019) instead of base `R`. Specifically, rewrite your code for steps 1-4 of task 2 using `tidyverse` (Wickham et al., 2019). Make sure to address any issues I noted in your code file, and ensure that your code runs in the directory as it is set up.

```
#load all necessary libraries

library(tidyverse)
library(jsonlite)

#load the csv files provided
essentia.csv = read_csv(paste("EssentiaOutput", "EssentiaModelOutput.csv",
                              sep = "/"))
LIWC.csv = read_csv(paste("LIWCOutput", "LIWCOutput.csv",
                          sep = "/"))

#gets all the indices of JSON files
essentia.files <- list.files(path = "EssentiaOutput")
check.json <- str_count(essentia.files, pattern=".json")
songnames <- essentia.files[which(check.json == 1)]

#make an empty tibble
song.info <- tibble(
  artist = character(),
  album = character(),
  track = character(),
  overall.loudness = numeric(),
  spectral.energy = numeric(),
  dissonance = numeric(),
  pitch.salience = numeric(),
  bpm = numeric(),
  beats.loudness = numeric(),
  danceability = numeric(),
  tuning.frequency = numeric()
)

#load all the files in the directory
essentia.files <- list.files(path = "EssentiaOutput")

#gather all the data from the files in the directory
for(i in 1:length(songnames)){
  current.filename <- songnames[i]
  track.info <- str_split_1(current.filename, "-")
  load.song.json <- fromJSON(paste("EssentiaOutput", current.filename,
                                   sep = "/"))

  #add to the tibble by row
  song.info <- bind_rows(song.info, tibble(
    artist = track.info[1],
    album = track.info[2],
    track = str_sub(track.info[3], start = 0, end = -6),
    overall.loudness = load.song.json$lowlevel$loudness_ebu128$integrated,
    spectral.energy = load.song.json$lowlevel$spectral_energy$mean,
    dissonance = load.song.json$lowlevel$dissonance$mean,
    pitch.salience = load.song.json$lowlevel$pitch_salience$mean,
    bpm = load.song.json$rhythm$bpm,
    beats.loudness = load.song.json$rhythm$beats_loudness$mean,
    danceability = load.song.json$rhythm$danceability,
    tuning.frequency = load.song.json$tonal$tuning_frequency
  ))
}

#make a new tibble which has all the mean values
all.data.csv <- essentia.csv|>
  rowwise()|>
  mutate(valence = mean(c(deam_valence,
                          emo_valence,
                          muse_valence)),

         arousal = mean(c(deam_arousal,
                          emo_arousal,
                          muse_arousal)),

         agressive = mean(c(eff_aggressive,
                            nn_aggressive)),

         happy = mean(c(eff_happy,
                        nn_happy)),
```

```
        party = mean(c(eff_party,
                       nn_party)),

        relaxed = mean(c(eff_relax,
                         nn_relax)),

        sad = mean(c(eff_sad,
                     nn_sad)),

        acoustic = mean(c(eff_acoustic,
                          nn_acoustic)),

        electric = mean(c(eff_electronic,
                          nn_electronic)),

        instrumental = mean(c(eff_instrumental,
                              nn_instrumental))
        )|>

  ungroup()|>

  rename(timbreBright = eff_timbre_bright) |>

  #select all the relevant columns for the final tibble
  select("artist",
         "album",
         "track",
         "valence",
         "arousal",
         "agressive",
         "happy",
         "party",
         "relaxed",
         "sad",
         "acoustic",
         "electric",
         "instrumental",
         "timbreBright") %>%

  #join the orignal tibble with the tibble we made
  left_join(as_tibble(song.info), by = c("album", "track")) %>%

  #join the merged tibble with the LIWC csv
  left_join(LIWC.csv, by = c("album", "track")) |>

  #remove the extra artist columns
  select(-artist, -artist.y) |>

  #rename the first artist column to the correct name
  rename(artist = artist.x)



#view all out tibbles
view(song.info)
view(LIWC.csv)
view(all.data.csv)
```

References

Wickham, H., Averick, M., Bryan, J., Chang, W., McGowan, L. D., François, R., Grolemund, G., Hayes, A., Henry, L., Hester, J., Kuhn, M., Pedersen, T. L., Miller, E., Bache, S. M., Müller, K., Ooms, J., Robinson, D., Seidel, D. P., Spinu, V., Takahashi, K., Vaughan, D., Wilke, C., Woo, K., and Yutani, H. (2019). Welcome to the tidyverse. *Journal of Open Source Software*, 4(43):1686.