Question 4

Sahil Bhugwan[a]

[a] *Github- https://github.com/SBhugwan*

Abstract

The two longest Bands of all time Coldplay and Metallica. Comparing these two bands on longevity and musical progression

Keywords: Multivariate GARCH, Kalman Filter, Copula

JEL classification L250, L100

1. Introduction

In this report i will be looking at the two most famous bands of all time that being coldplay and Metallica. i will be looking at a variety of analysis to come the two bands. First i will be looking at Coldplay then Metallica.

Coldplay

The first thing is i will be looking at when coldplay become popular.

---
*Corresponding author: Sahil Bhugwan
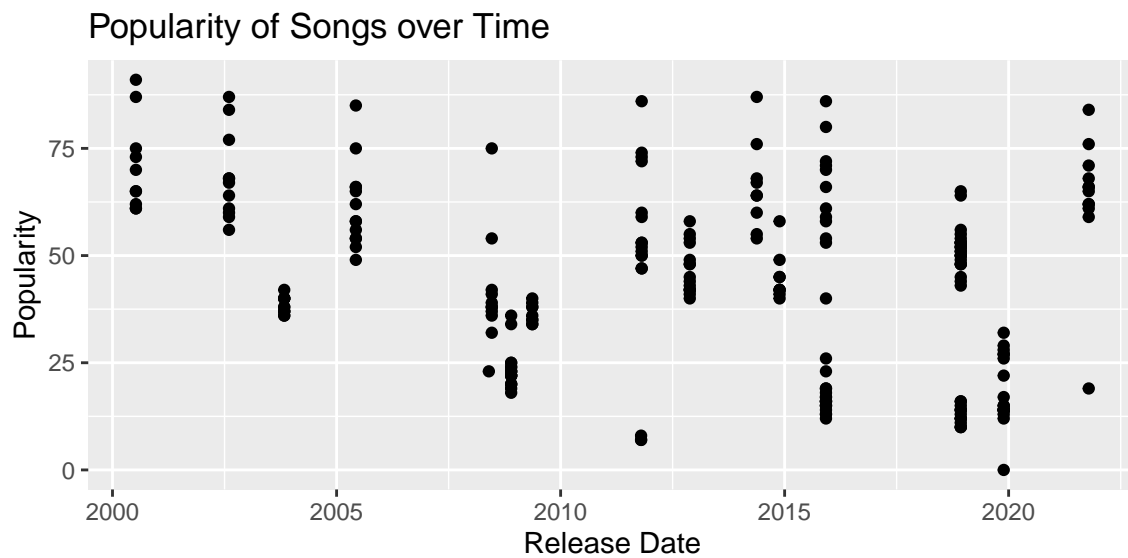*Email address:* `21075492@sun.ac.za` (Sahil Bhugwan)

Figure 1.1: Popularity of Songs

It is clear from this that from the time coldplay came into the scene they where popular already, however during the early 2010s that is when there popularity became prominant this could be because of certain songs they released.

Top Songs Popularity Over Time

Figure 1.2: Songs over time
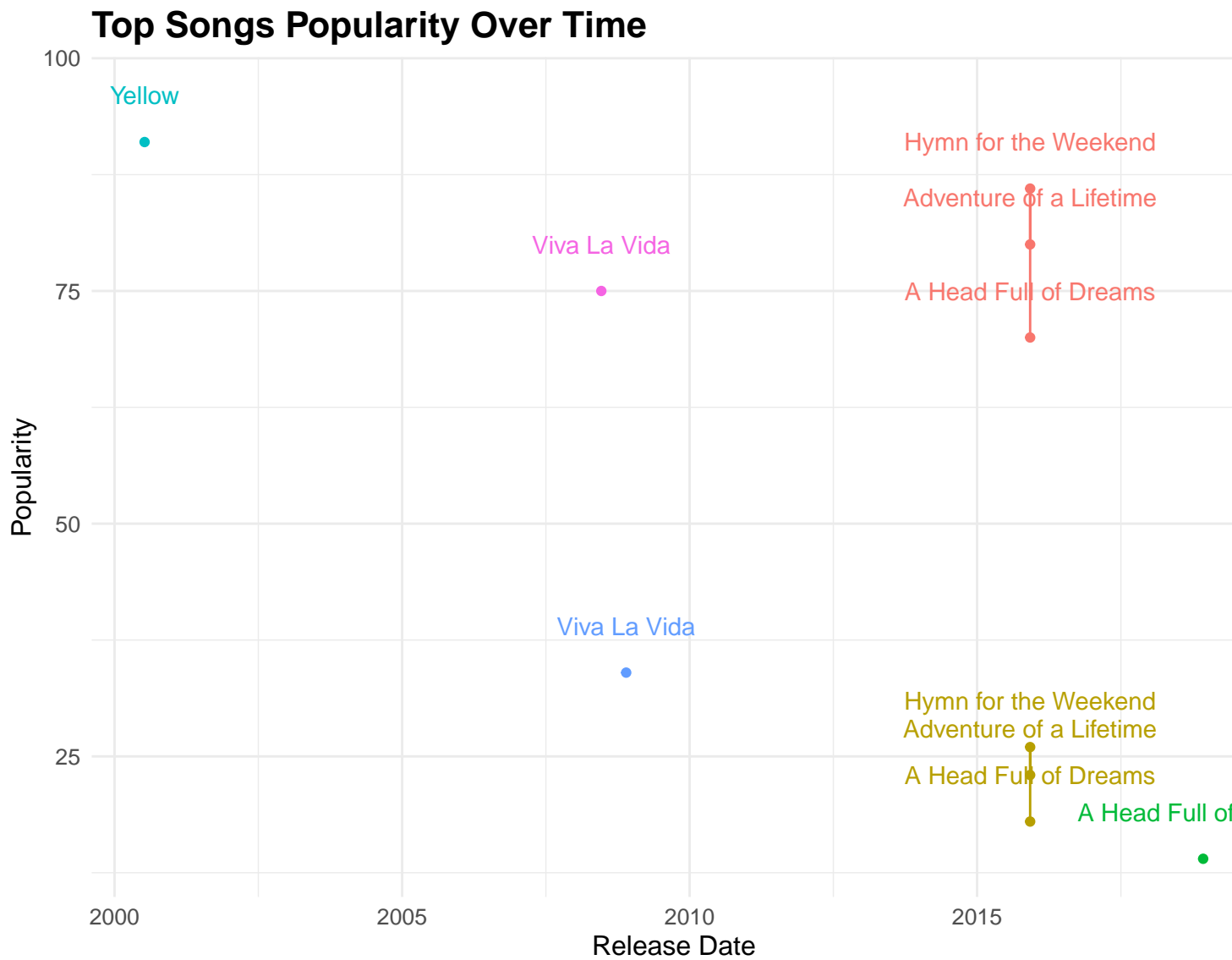
```
## $cold_pop
## # A tibble: 10 x 16
##    name        durat~1 release_~2 album~3 expli~4 popul~5 acous~6 dance~7 energy
##    <chr>         <dbl> <date>     <chr>   <lgl>     <dbl>   <dbl>   <dbl>  <dbl>
## 1 A Head Ful~    294. 2018-12-07 Love i~ FALSE        14 0.0948   0.307   0.92
## 2 A Head Ful~    224. 2015-12-04 A Head~ FALSE        70 0.0021   0.449   0.92
## 3 Hymn for t~    258. 2015-12-04 A Head~ FALSE        86 0.211    0.491   0.693
```

```
##  4 Adventure ~      264. 2015-12-04 A Head~ FALSE       80 0.00205   0.638  0.924
##  5 A Head Ful~      224. 2015-12-04 A Head~ FALSE       18 0.0021    0.449  0.92
##  6 Hymn for t~      258. 2015-12-04 A Head~ FALSE       26 0.211     0.491  0.693
##  7 Adventure ~      264. 2015-12-04 A Head~ FALSE       23 0.00205   0.638  0.924
##  8 Viva La Vi~      242. 2008-11-24 Viva L~ FALSE       34 0.0954    0.486  0.617
##  9 Viva La Vi~      242. 2008-06-19 Viva L~ FALSE       75 0.0954    0.486  0.617
## 10 Yellow           267. 2000-07-10 Parach~ FALSE       91 0.00239   0.429  0.661
## # ... with 7 more variables: instrumentalness <dbl>, liveness <dbl>,
## #   loudness <dbl>, speechiness <dbl>, tempo <dbl>, valence <dbl>,
## #   album_release <date>, and abbreviated variable names 1: duration,
## #   2: release_date, 3: album_name, 4: explicit, 5: popularity,
## #   6: acousticness, 7: danceability
##
## $order
##  [1] "Parachutes"
##  [2] "A Rush of Blood to the Head"
##  [3] "A Head Full of Dreams"
##  [4] "Ghost Stories"
##  [5] "Music Of The Spheres"
##  [6] "X&Y"
##  [7] "Live in Buenos Aires"
##  [8] "Mylo Xyloto"
##  [9] "Live 2012"
## [10] "Ghost Stories Live 2014"
## [11] "Viva La Vida or Death and All His Friends"
## [12] "Live 2003"
## [13] "LeftRightLeftRightLeft (Live)"
## [14] "Viva La Vida (Prospekts March Edition)"
## [15] "Everyday Life"
```

```
## [16] "A Head Full of Dreams Tour Edition"
## [17] "Love in Tokyo"
```

It is clear from 1.2 that they really hit there stride in the late 2010s as twice in in one album they had 3 top songs

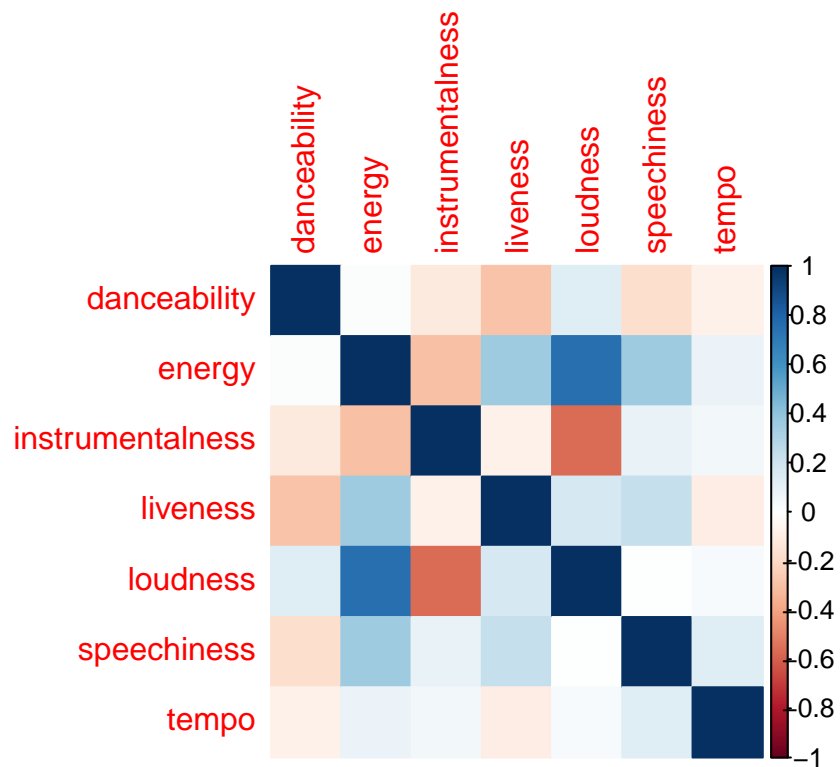Next looking at there correlation matrix to assess certain apsects of there music

Figure 1.3: Correlation matrix

2. Mettallica

Next i will be looking at Mettallica. they also have been a very long perfroming band. Though it must be noted that they do perform different music to that of coldplay.

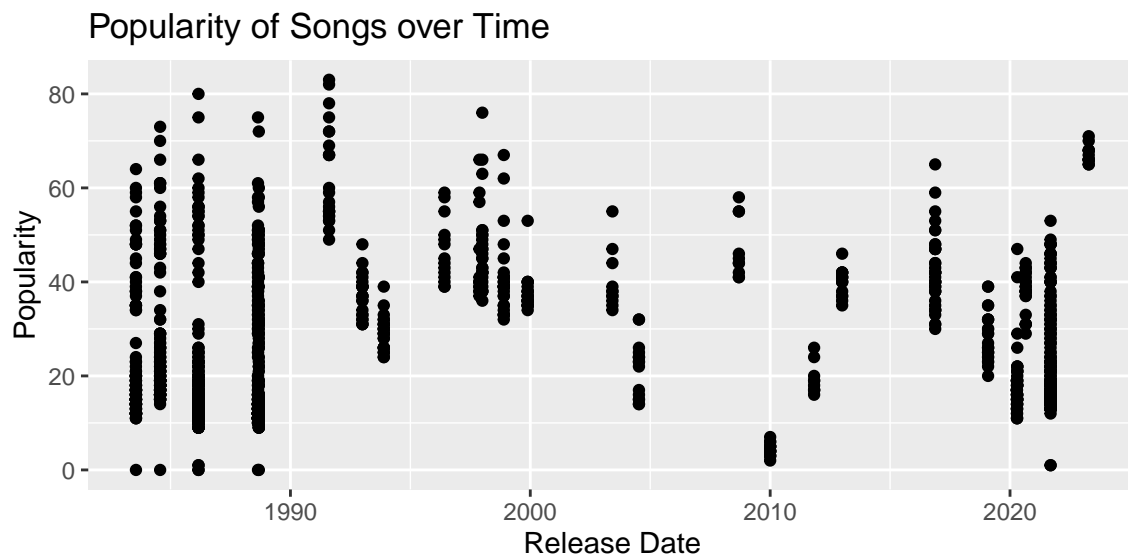I once again will be looking at the scatter plot to see there popularity

Figure 2.1: Popularity of Songs

It is clear that mettalica where he most popular during the late 1980s. However they appeared to be less popular between 2000 and 2010 however they started gaining moment in early 2020s.

Next i will also be looking at the most popular songs

It can be seen they they clearly peaked in the late 1990s
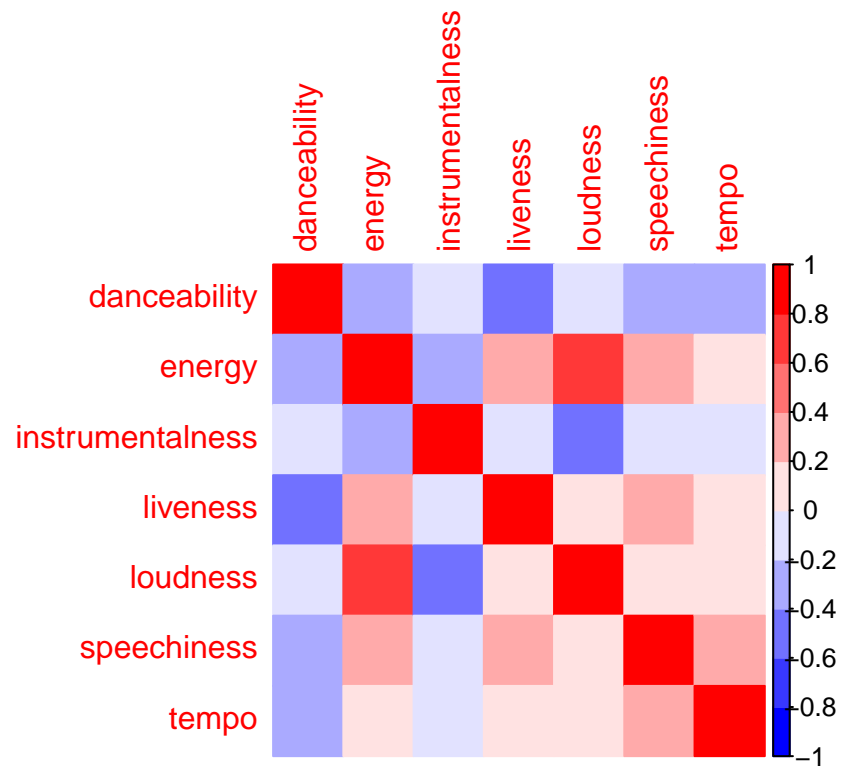
lastly i will be looking at the correlation matrix for metallica

Figure 2.2: Correlation matrix