Data Visualisation Module 8

Group: Music
The website hosting our visualisations:
https://portfolio.cr.utwente.nl/student/paulboersen/datavis

Paul Boersen   s2319942
Anusha Autar   s2391031
Veselin Daskalov   s2150883
Nikolay Pavlov   s2065622
Linde Voskamp   s2167581

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Paul Boersen - Seasonal Music

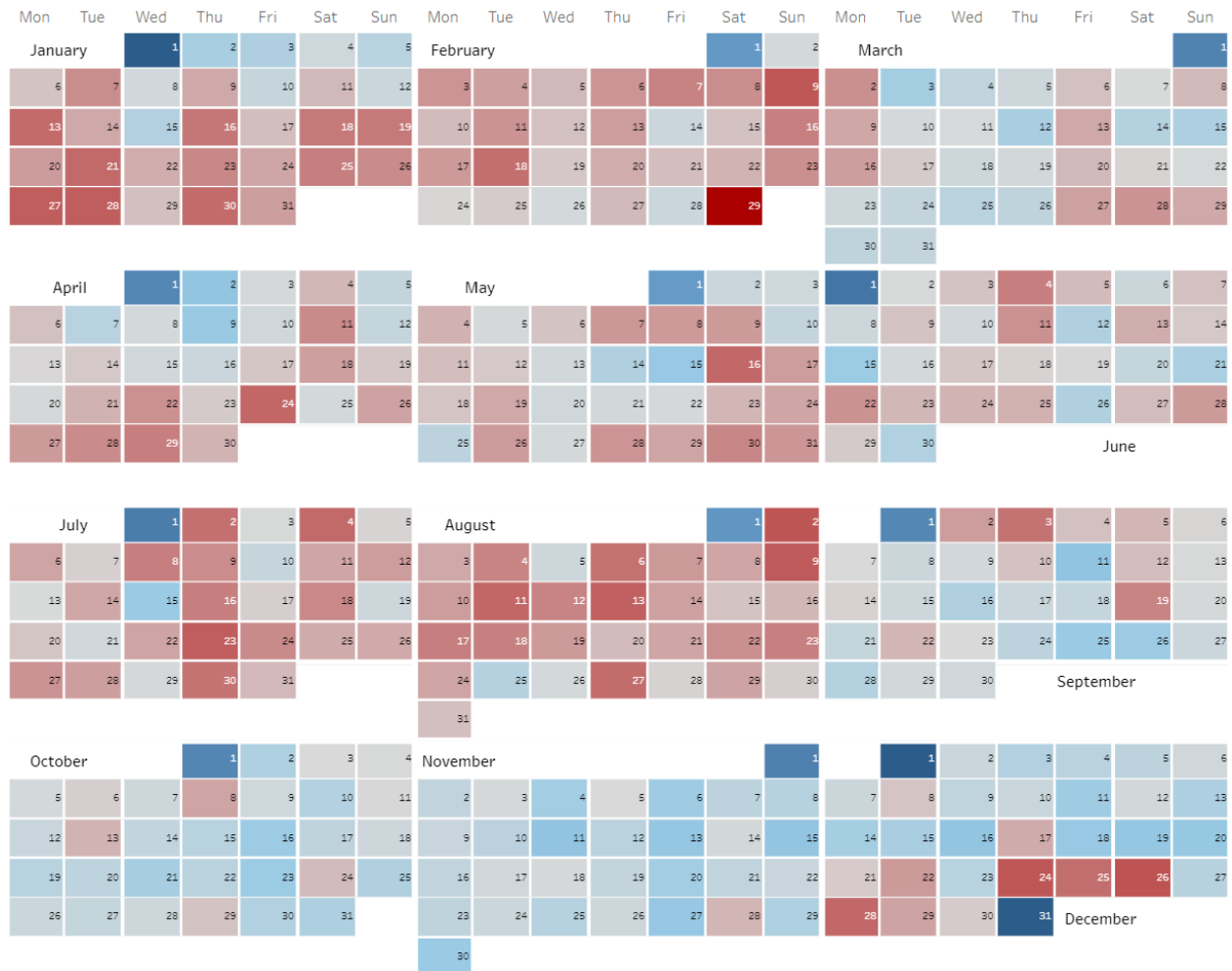## Visualisation 1: Songs about months

Tool: Tableau
Dataset: 1

For this dataset, I looked for 12 different songs about months. I used google trends to find when they were listened to, and appended the 12 data sheets I downloaded. Extra information about each song (Singer, month alias) was added manually. This visualisation only works when it is interactive on Tableau.

Visualisation 2: Song release dates

Tool: Tableau
Dataset: 2

For this dataset, a huge file from Kaggle with info about 600k songs on spotify was used. I used Openrefine to remove all the songs that only had a release year defined. The only attribute of the data that was used was the release date. The year shown on the calendar is 2020, because that was the last year with a 29th of february. Of course the weekdays were different in other years, so data about weekends cannot be derived. This dataset can also be found on Tableau.

Linde Voskamp - Cover songs
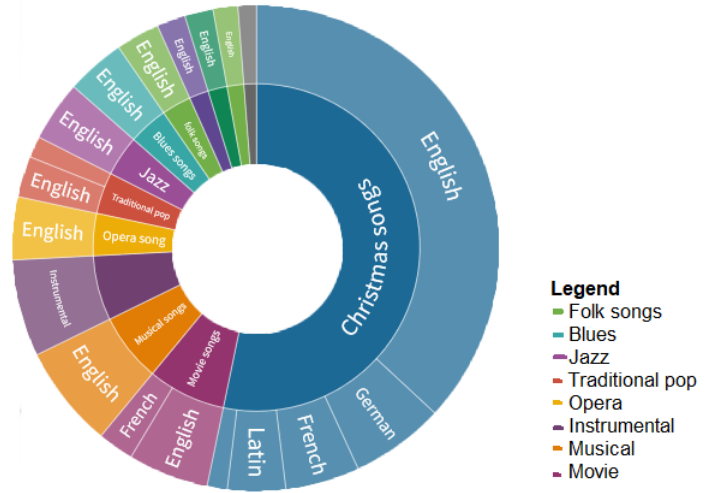
Visualisation 3: Cover types

Tool: Flourish + Procreate
Dataset: 3

It was hard to find good datasets about music covers that had the data I was looking for. After much searching however, I was able to find a site with a very large list of original songs (and the amount of times the song was covered) whose data I was able to put into the excel sheet used for this visualisation. Since there were a lot of Christmas songs I decided to look up a comparable genre/type of the other songs. If the song is categorised under multiple genres I chose the first one mentioned to better filter each song for the visualisation.
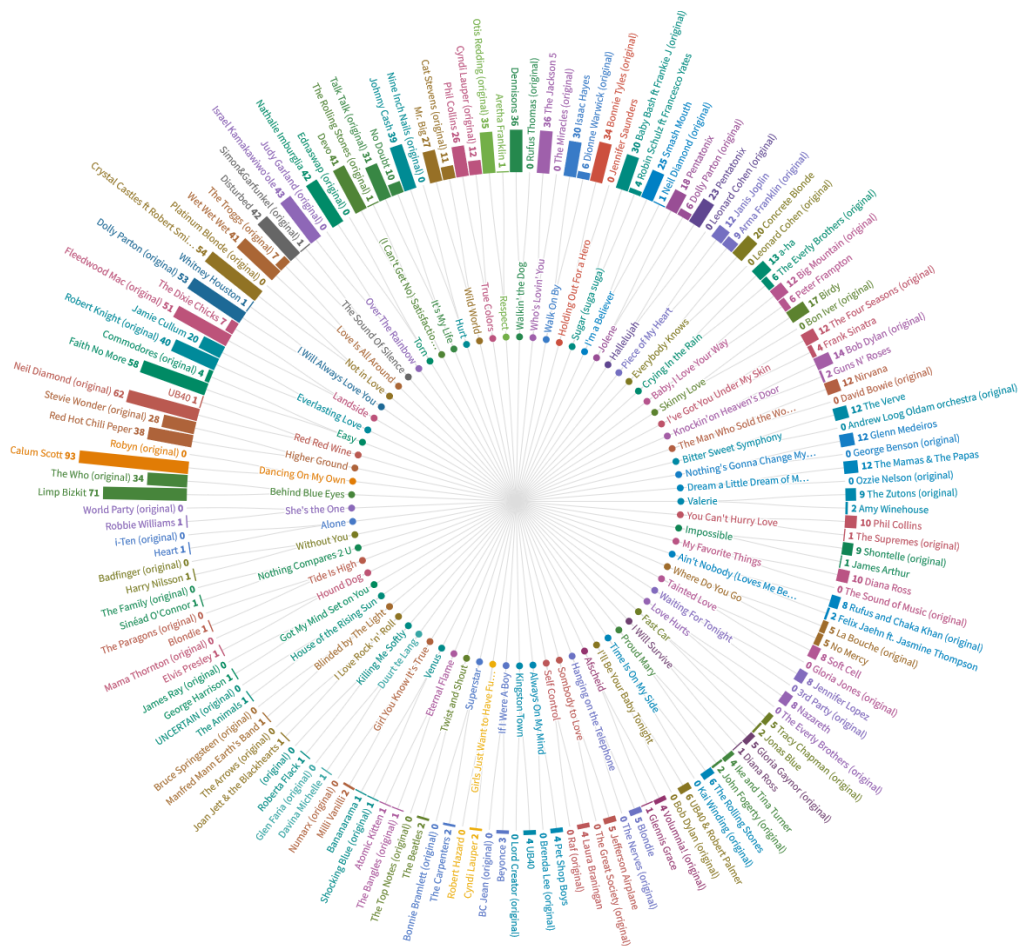
Visualisation 4: Cover-Original ranking

Tool: Flourish
Dataset: 4

Since I had trouble finding a good dataset for the last visualisation, for this one I decided to create my own. The cover-songs and original-songs I didn't know from the top of my head were gathered from two websites and one youtube video. For their ranking I went to the wikipedia page of each song and looked at the highest position in the US Billboard Hot 100. If neither of the songs were in there then I compared their UK OCC or their Dutch top 100 position, of course comparing the same source. This was only done for songs that were a hit in a country, so famous songs such as "All Along the Watchtower" (Bob Dylan/Jimi Hendix) that did not have (clear) chart positions were excluded. The 0 ranking means they were unable to chart in the top 100. Furthermore the reason why some artists have "(original)" behind it is due to the fact that while Flourish allows you to filter on this category, this cannot be seen in a png and to display it on the website you would need a premium account.

Nikolay Pavlov - Using music to help you study
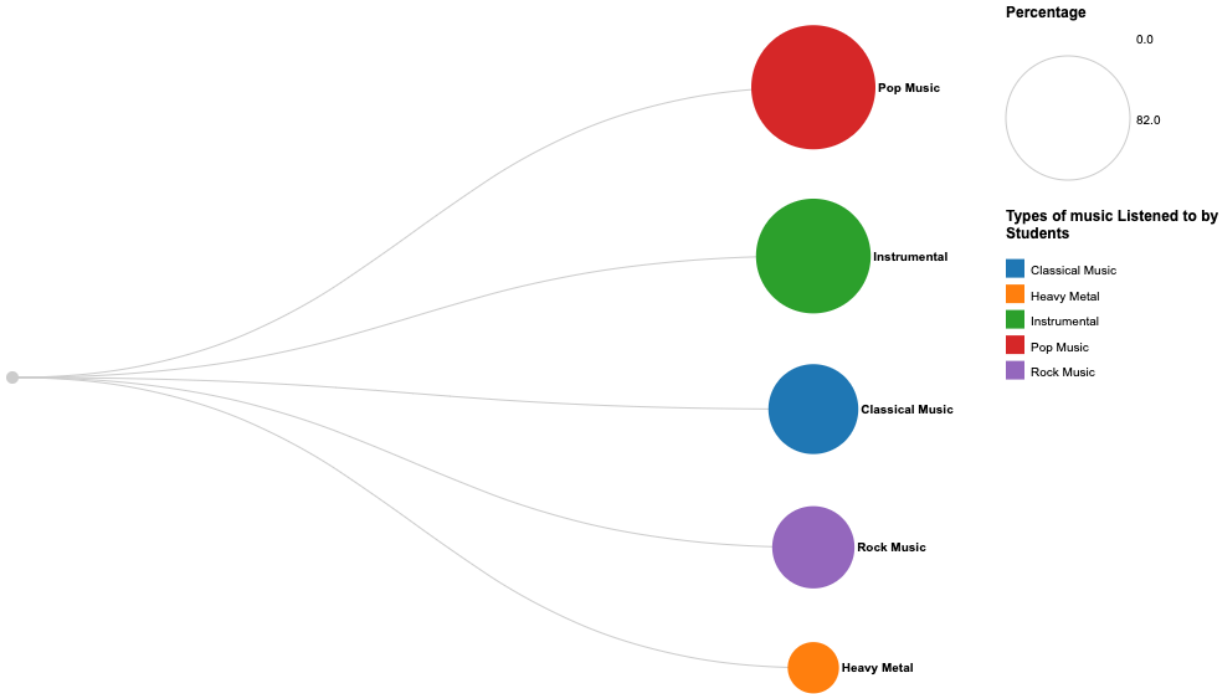
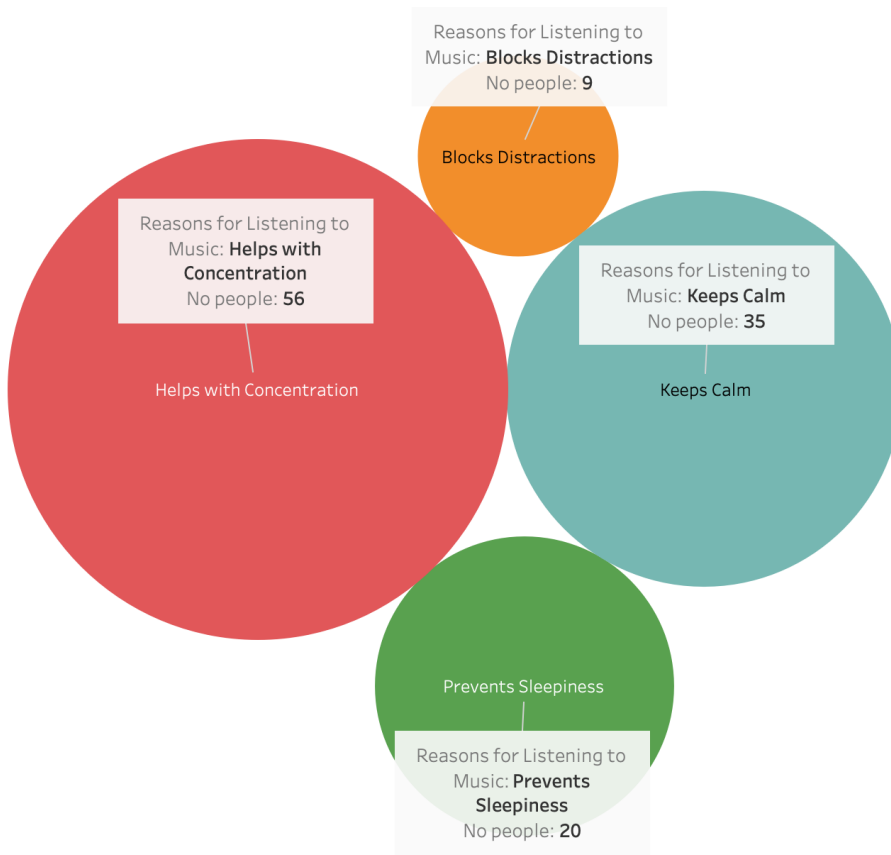## Visualisation 5: Music genre vs percentage of population

Tool: Tableau Desktop
Dataset: 5

Visualisation 5 shows the type of music students listen to while studying. This visualization is to show the types of genre students listen to, with the aim of showing the different genres of music and how they later interact with the student's purpose for listening to music. The data was manually gathered from a research paper on the same subject with the size of the circle being the proportion of students that listen to the type of music. The population is 120 students who listen to music, with the study having 200 students, 80 of which did not listen to music while studying.

The visualizations shows that the lighter genres of music like Pop, Instrumental and Classical are more popular than the harsh and loud music like Metal and Rock.

Reasons for listening to music by students

Reasons for Listening to
Music: **Blocks Distractions**
No people: **9**

Blocks Distractions

Reasons for Listening to
Music: **Helps with
Concentration**
No people: **56**

Helps with Concentration

Reasons for Listening to
Music: **Keeps Calm**
No people: **35**

Keeps Calm

Prevents Sleepiness

Reasons for Listening to
Music: **Prevents
Sleepiness**
No people: **20**

Visualisation 6: Listening reasons

Tool: RawGraphs.io
Dataset: 6

Visualization 6 focuses on identifying the reasons students listen to music. Since the sub-topic focuses on how music helps with studying, this visualization aims to show if and or how this is backed up. The data for this visualization was gathered from a survey of 200 students, where 120 of them listened to music while studying. The data was manually collected from the charts and figures of the papers, which can be seen here [6].

The data shows that music is used mainly for concentration and calmness the most, which both back up the sub-topics hypothesis and also explain the genre selection since heavy music like metal and rock were lower as opposed to classical and pop music.

Anusha Autar - Success of rock
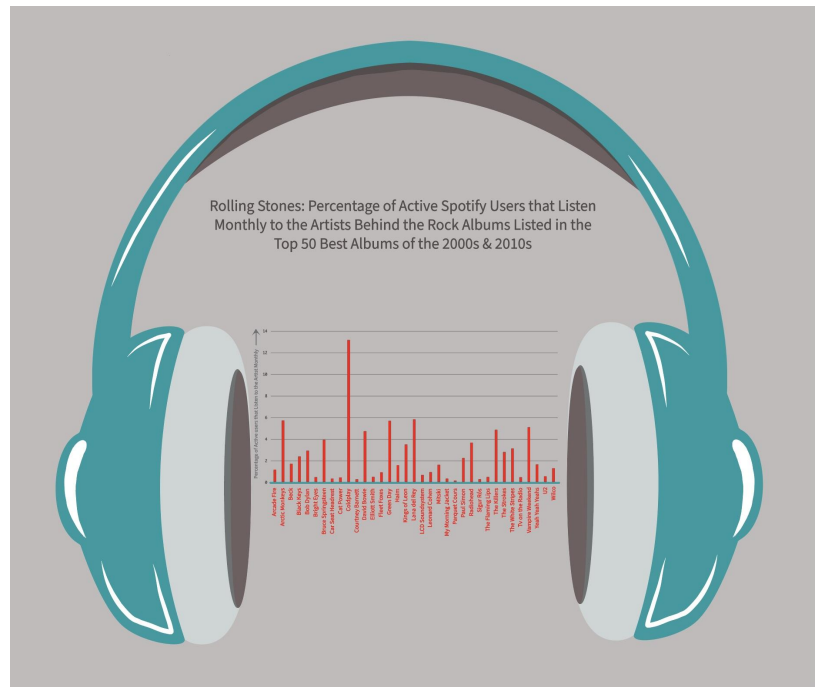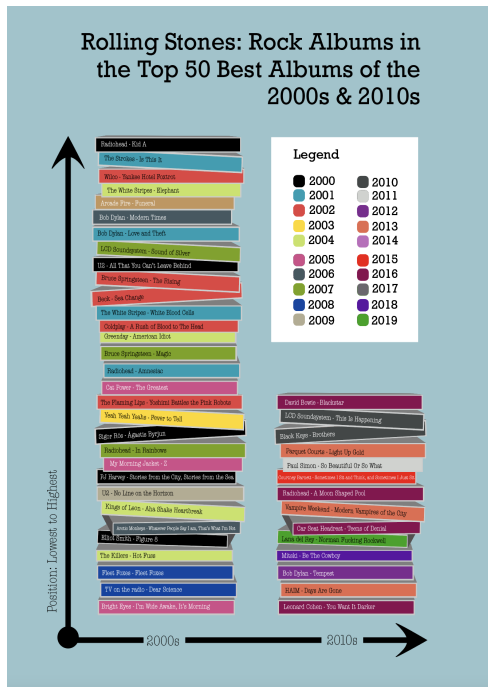
Visualisation 7: Rock Albums in Rolling Stones Top 50

Tool: Adobe Illustrator
Dataset: 7

The music genre that was chosen for visualisation 7 and 8 is rock. Initially the plan was to visualise the evolution over time (e.g. the popularity, the changes in sound and lyrics, the influences, etc.) of all albums of the Strokes. Unfortunately, there was not sufficient (reliable) data available. Therefore, it was decided to look at the top 100 best albums of the 2000s and the 2010s according to the Rolling Stones. There did not exist a dataset that included this data. For this assignment the dataset was manually generated using the list provided by the Rolling Stones. For visualisation 7 only the top 50 of both decades were included. The visualisation would be too extensive otherwise. The top 50 already gave enough of an insight.

Visualisation 8: Spotify Listeners Artists Rolling Stones Top 50

Tools: Microsoft Excel & Adobe Illustrator
Dataset: 8

For visualisation 8 the percentages of active Spotify users that listen to all the artists behind the rock albums that are listed in the top 50 best albums of the 2000s and the 2010s, were

compared. The total number of active Spotify users is approximately 345 million. The number of monthly listeners per artist were found on the artists' pages on Spotify. According to Spotify, monthly listeners are unique listeners who play the music of the artist concerned during a 28-day period. Since there was no dataset available that contained this specific information, a dataset was manually created using the data collected via Spotify.

Veselin Daskalov - Chord progression through the ages
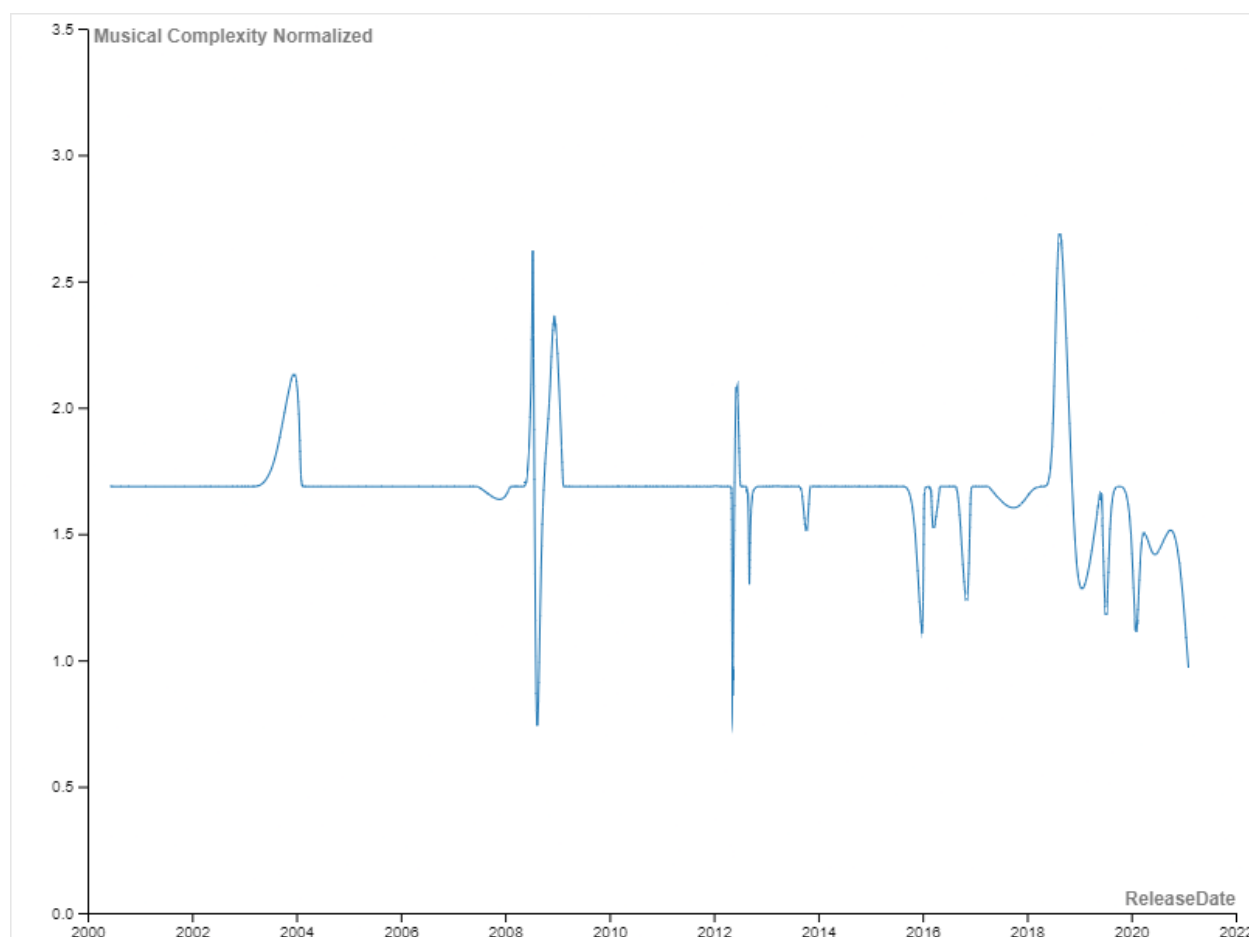
Visualisation 9: Musical complexity

*Tool: RawGraphs.io*

Visualization 9 focuses on plotting musical complexity over time. Musical complexity is defined by the complexity of the chord progression with the use of flat, major and minor tones along with the transitions between them. The purpose of this visualisation is to determine whether the average musical complexity has gone down year over year. The data set was first acquired in

Kaggle [9] with the musical complexity later being normalized respective to zero for easier plotting.

The visualisation shows very interesting deviations around major moments in history like the economic crash of 2008, though the average stays pretty central through the years only deviating from 2017 to 2019 with a downwards trending line.

Musical Complexity Normalized
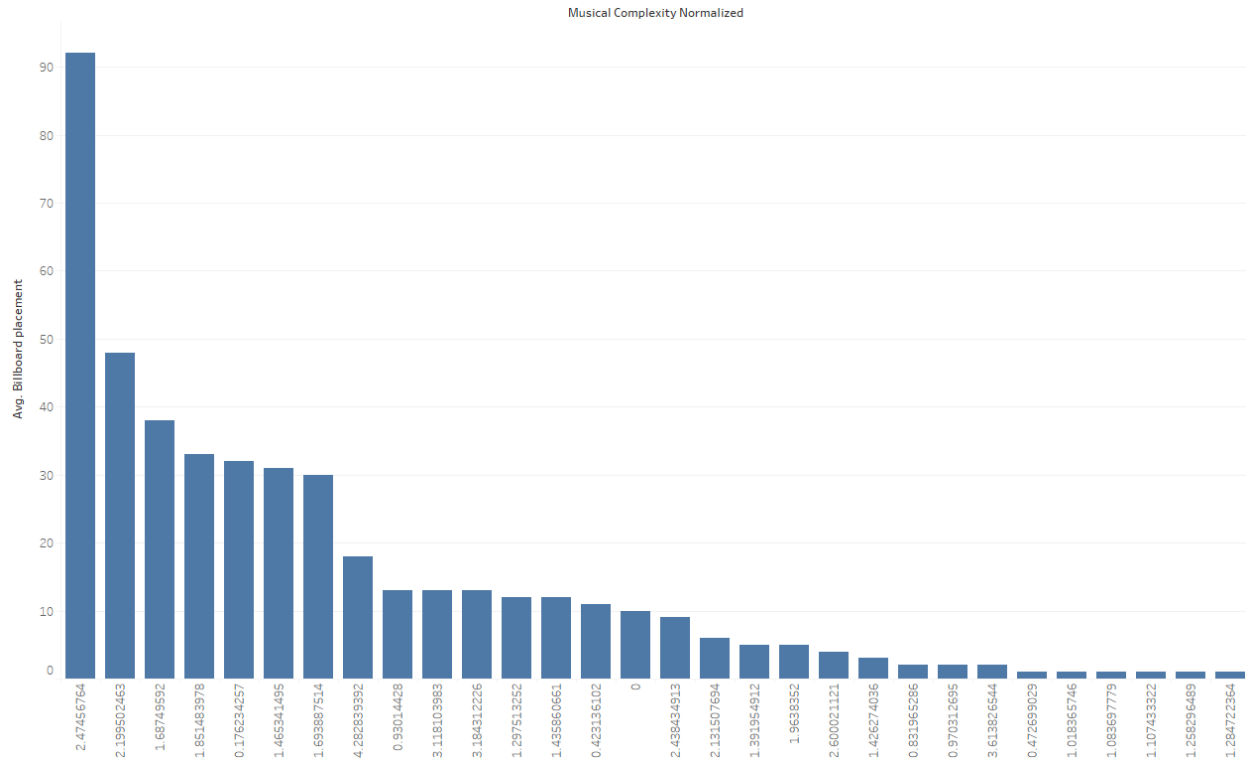
Visualisation 10: Popularity vs complexity

Tool: Tableau Desktop

Visualization 10, the last visualization, focuses on the average positioning on the Billboard Hot 100 versus a track's musical complexity level. The aim is to determine if track popularity has a direct correlation with musical complexity. The data set expands in the previous data set with the position being cross checked with the historic data from the Billboard official website, this was done manually.

The results show an interesting line where outside from the average musical complexity, musically complex tracks consistently score lower on the Hot 100 than any other track. With the highest scorers either being simpler that the mean or around the mean itself.

References

The website hosting our visualisations:
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Datasets

Dataset 1
http://trends.google.com/

Dataset 2
https://www.kaggle.com/yamaerenay/spotify-dataset-19212020-160k-tracks?select=tracks.csv

Dataset 3
https://drive.google.com/file/d/1ZWqPsHX4VogtlF5yiuilKsexa4Nr5309/view?usp=sharing
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- https://www.thecurrent.org/countdown/top-89-covers
- https://www.youtube.com/watch?v=O9G6mVo_AbQ

Dataset 4
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Sources:
- https://secondhandsongs.com/statistics/stats_work_covered

Dataset 5
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drive_web&ouid=114420714722262294427&rtpof=true
Sources:
- https://www.researchgate.net/publication/311435289_The_effect_of_listening_to_music_on_concentration_and_academic_performance_of_the_student_Cross-sectional_study_on_medical_undergraduate_students

Dataset 6
https://docs.google.com/spreadsheets/u/3/d/1AFe3ji8X7HbvkFg_o2n_886ja1Eq9No4/edit?usp=
drive_web&ouid=114420714722262294427&rtpof=true
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Dataset 7
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Sources:
- https://www.kaggle.com/danield2255/contemporary-song-music-data

Dataset 10
https://drive.google.com/file/d/1Pq5hy3YKgU18K5_v-C0BLTBzKBqnIN9C/view?usp=sharing
Sources:
- https://www.kaggle.com/danield2255/contemporary-song-music-data
- https://www.billboard.com/charts/search