CS5764 Design Sprint Process Book

Team EARS

Leader: Elizabeth Christman (elizabethc99@vt.edu)
Group Member 1: Rebecca DeSipio (rdesipio26@vt.edu)
Group Member 2: Adwait Pradhan (adwaitp@vt.edu)
Group Member 3: Surendrabikram Thapa (surendrabikram@vt.edu)

Week 1: Team Agreement

Your team agreement should answer the following questions:

- How will you communicate?
  Communication will be done through Discord channel for unofficial communication and short discussions. Official communication regarding updates and design decisions will be communicated via email with the team members and the teaching team. Meetings will be held via Discord.

- How and when will you meet?
  On Thursdays, recurring meetings will be held over Discord to keep everyone up to date on the project's progress. After the class, there will be in-person meetings for project updates and discussions.

- How will you collaborate on implementation? [GitHub, process, …]
  There will be a Github set up for the code portions of our project. Documentation will be done over Google Drive.

- What are your team roles? [decider, GitHub czar, …]
  Team Leader: Elizabeth
    - Communicating deadlines, maintaining workflow

  Github maintainer: Adwait
    - Setting up Github, merging code

  Reviewer: Rebecca
    - Checks work for requirements, submits final assignment

  Decider: Surendrabikram
    - Keeps everyone on same page about ideas and design

- How will you deal with non-performing members?

The team leader will reach out to the member to check in and see if there are any challenges. If there is no response, the team leader will see if anyone else on the team can get in touch with the non-performing member. If there is still no response and the deliverable deadline has passed for the week, the team leader will reach out to the professor/TA.

Signatures:
Elizabeth Christman
Renecca DeSipio
Adwait Pradhan
Surendrabikram Thapa

Week 2: Map

Basic Info. The project title, your names, e-mail addresses, and your team name.

- **Title:** Trends in Popular Music Over Time
- **Team Members:**
  - Elizabeth Christman (elizabethc99@vt.edu)
  - Rebecca DeSipio (rdesipio26@vt.edu)
  - Adwait Pradhan (adwaitp@vt.edu)
  - Surendrabikram Thapa (surendrabikram@vt.edu)
- **Team Name:** Team EARS

Abstract: Our project will look at the trends in music over time from the 1960s to 2019. We want to understand what characteristics defined popular music in each decade and measure how the characteristics changed over time. Our planned datasets include albums in the Billboard Top 200 for each year and characteristics of the tracks in that album, such as danceability, energy, instrumentalness, etc. These characteristics are values defined by Spotify EchoNest. This data was found at https://components.one/datasets/billboard-200.

Background and Motivation. Discuss your motivations and reasons for choosing this project, especially any background or research interests that may have influenced your decision.

- All the team members are interested in music, and each of us are interested in a different era of music. We wanted to find out why we like a certain music era and how music has changed over time.

Related Work. Anything that inspired you, such as a paper, a website, visualizations we discussed in class, etc.

- Some of the visualization examples we have seen in class gave us ideas on what kind of data stories we wanted to tell.

Audience and Questions. Provide a description of your audience and the primary questions you are trying to answer with your data story. Do you have any overarching goals and objectives that you want to accomplish?

- Our audience is people who are interested in music and want to understand how music has changed over time. This might include music historians, music students, and music researchers.
- Questions:
  - How has popular music changed over time?
  - What characteristics of music were popular in certain decades?
  - How have certain characteristics changed over time?

- The overarching goal is to identify key changes and trends in the data and to make possible connections to other changes in society over time.

Data. From where and how are you collecting your data? If appropriate, provide a link to your data sources.

- Data is from this source: https://components.one/datasets/billboard-200

Data Cleanup. Do you expect to do substantial data cleanup? What quantities do you plan to derive from your data? How will data processing be implemented? Try to minimize the amount of cleanup you have to do by finding cleaned and ready-to-go data sources whenever possible.

- We will need to remove all the data points that have dummy or incorrect values. This is about 63,000 lines.
- We will aggregate all the data by its year instead of the week it was on the Billboard charts.
- Depending on the size of the data, we may minimize the amount of data by reducing the number of years we look at or taking top 100 albums instead of top 200.

Week 3: Storyboard/Sketch/Decide

Storyboard

Hook:

- How has popular music changed over time?
- What are the defining characteristics and trends of music of each decade?

Rising Insights:

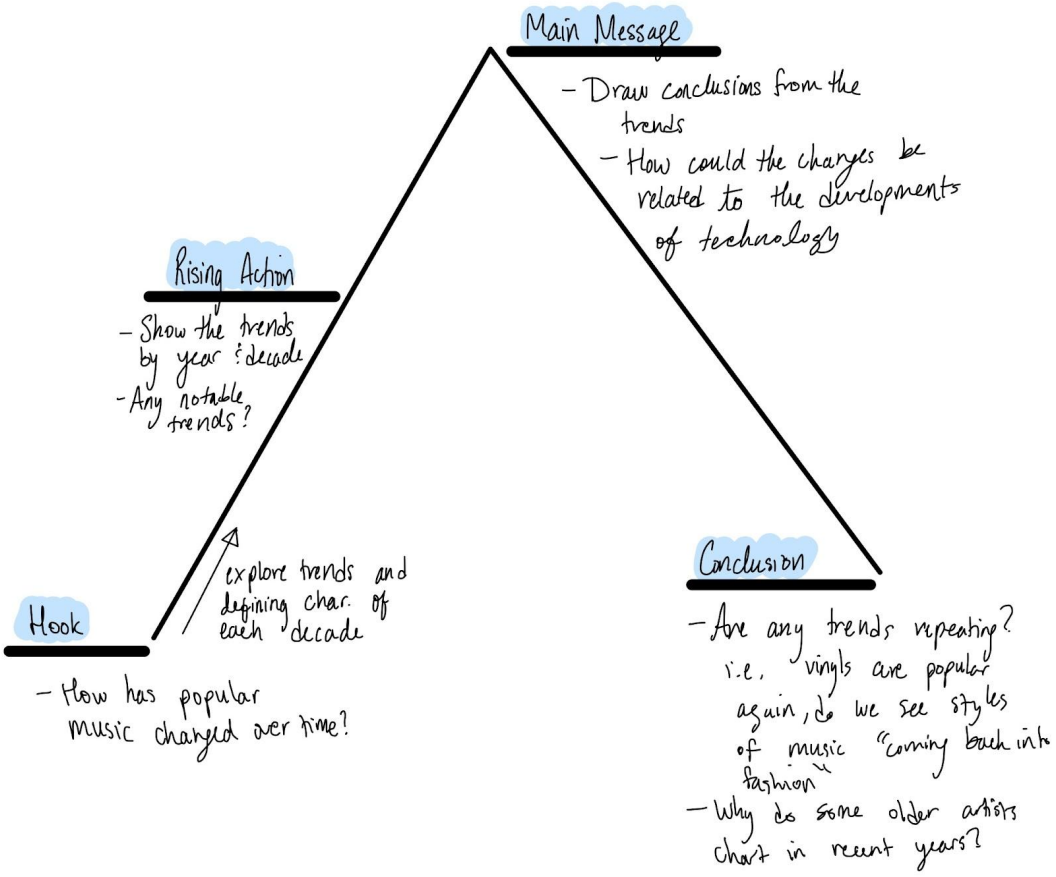
- What are the changes/trends by year and by decade?
    - Averages vs ranges?
- What are some notable trends/changes over time?

Main Message:

- What are the conclusions drawn from these trends/changes in music over time?
- How could these changes be related to the development of technology (i.e. electronic instruments)?

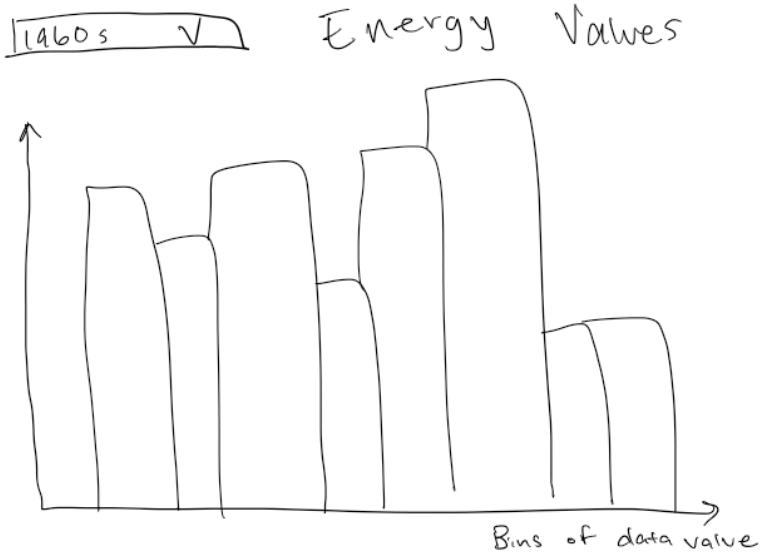
Conclusion:

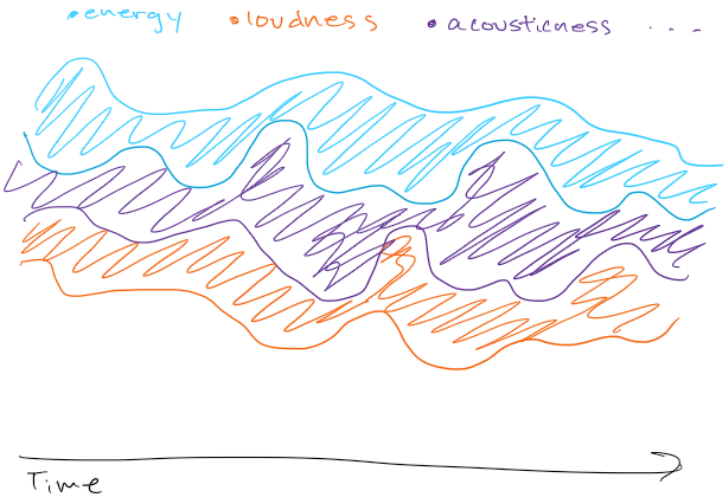
- Are trends in older music showing up again in modern music? For example, vinyls were popular in the 60s and 70s and are coming back now, will the style of music see similar trends of coming “back into fashion”?
- Why are older artists charting in recent years?

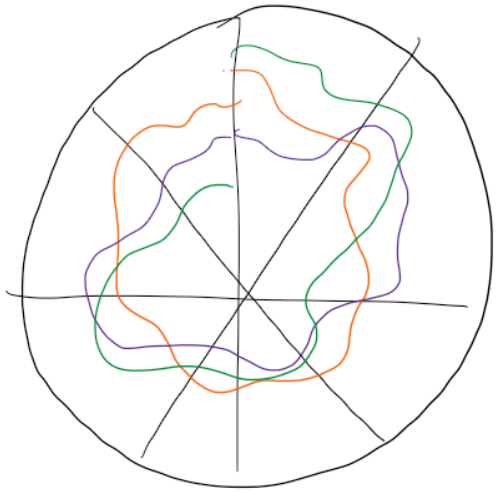


Sketch

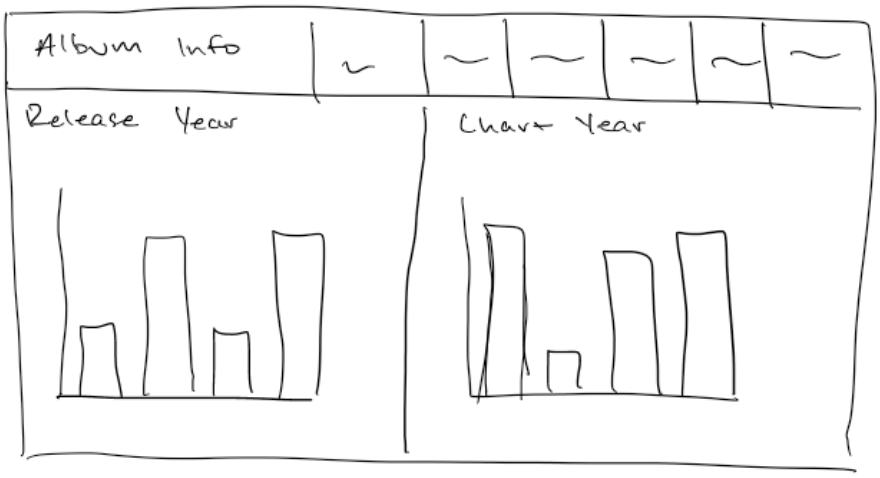
Elizabeth's Sketches

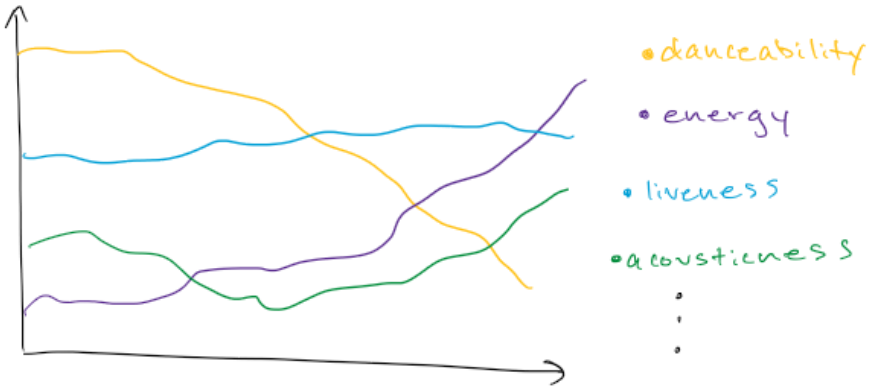




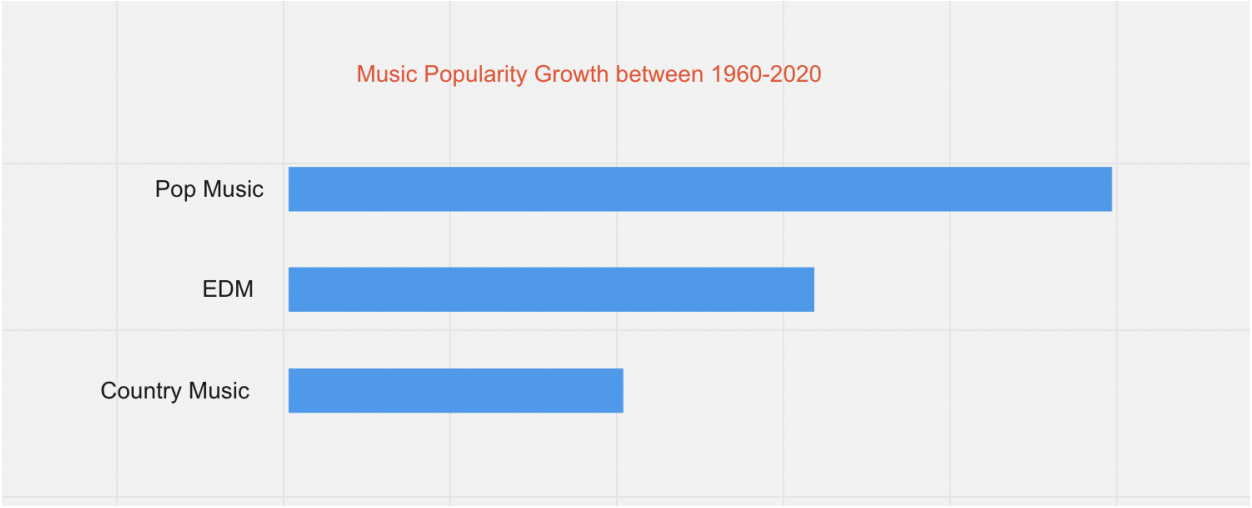


- acousticness
- energy
- liveness
- ⋮

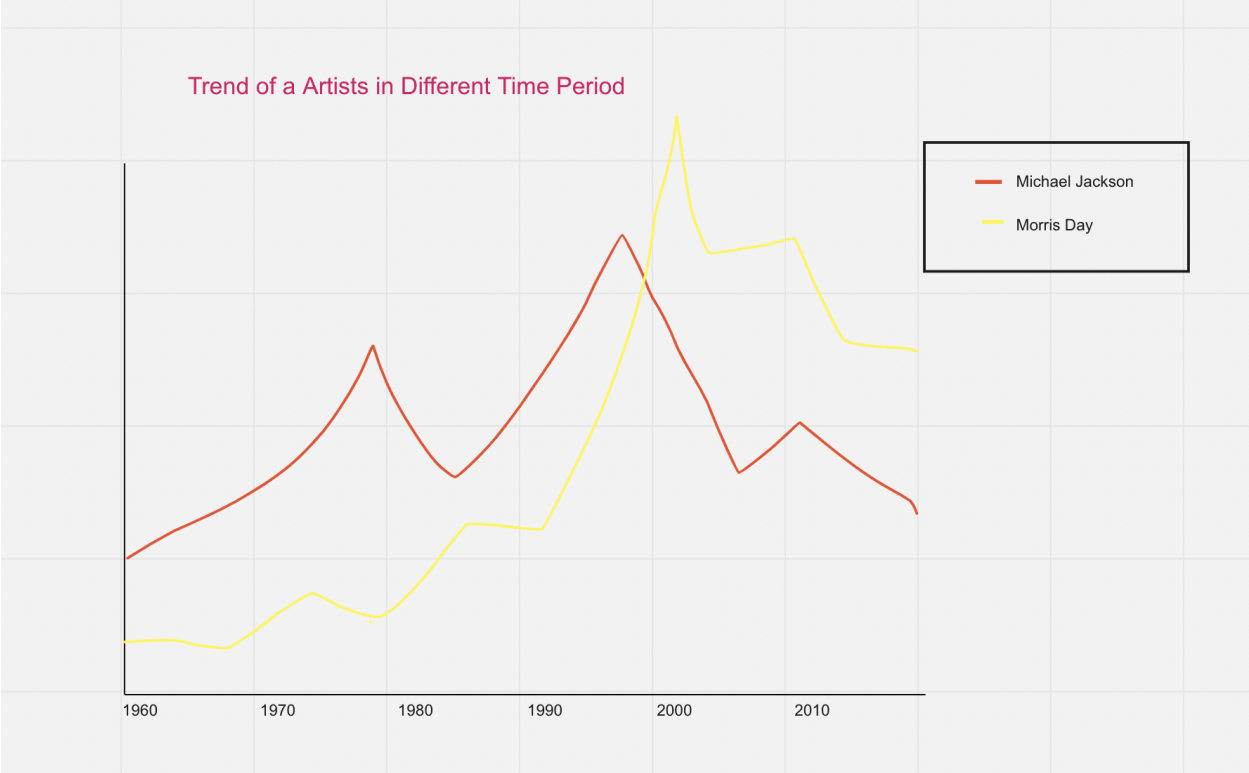


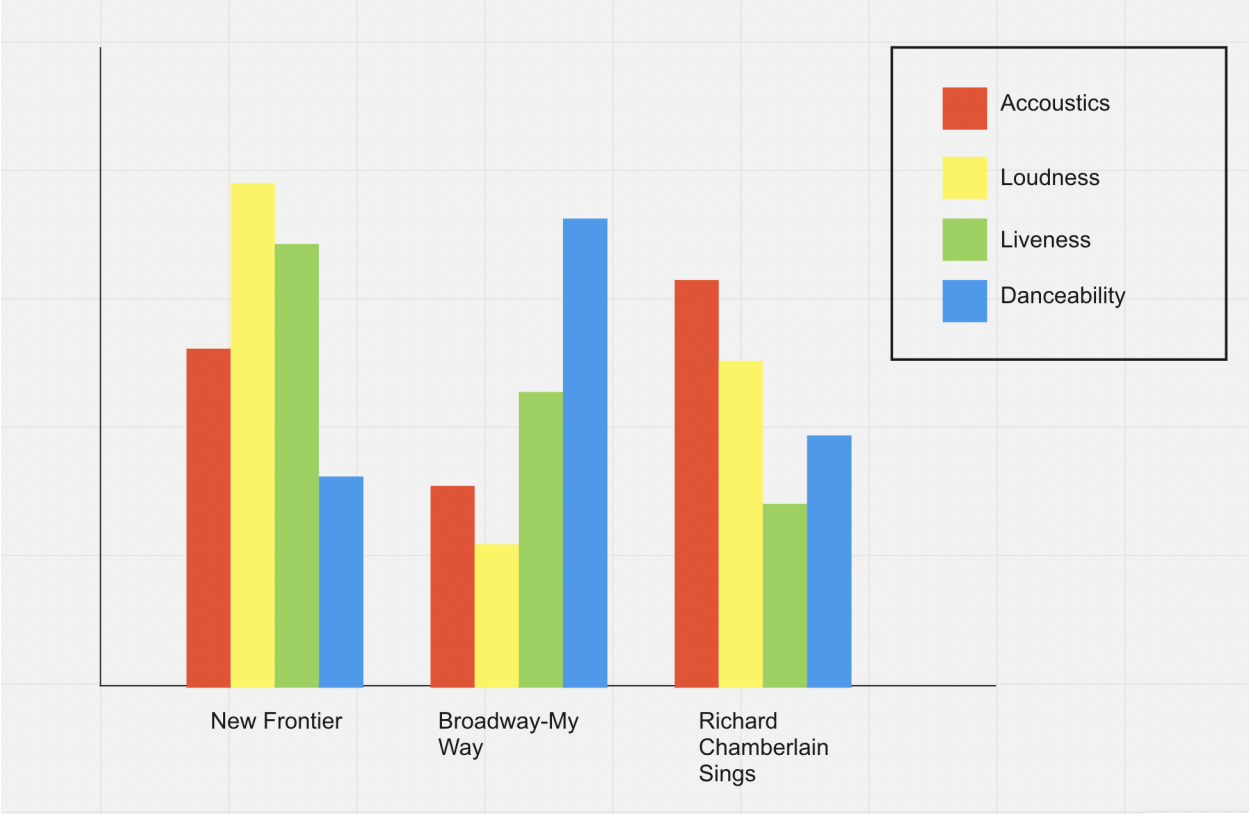


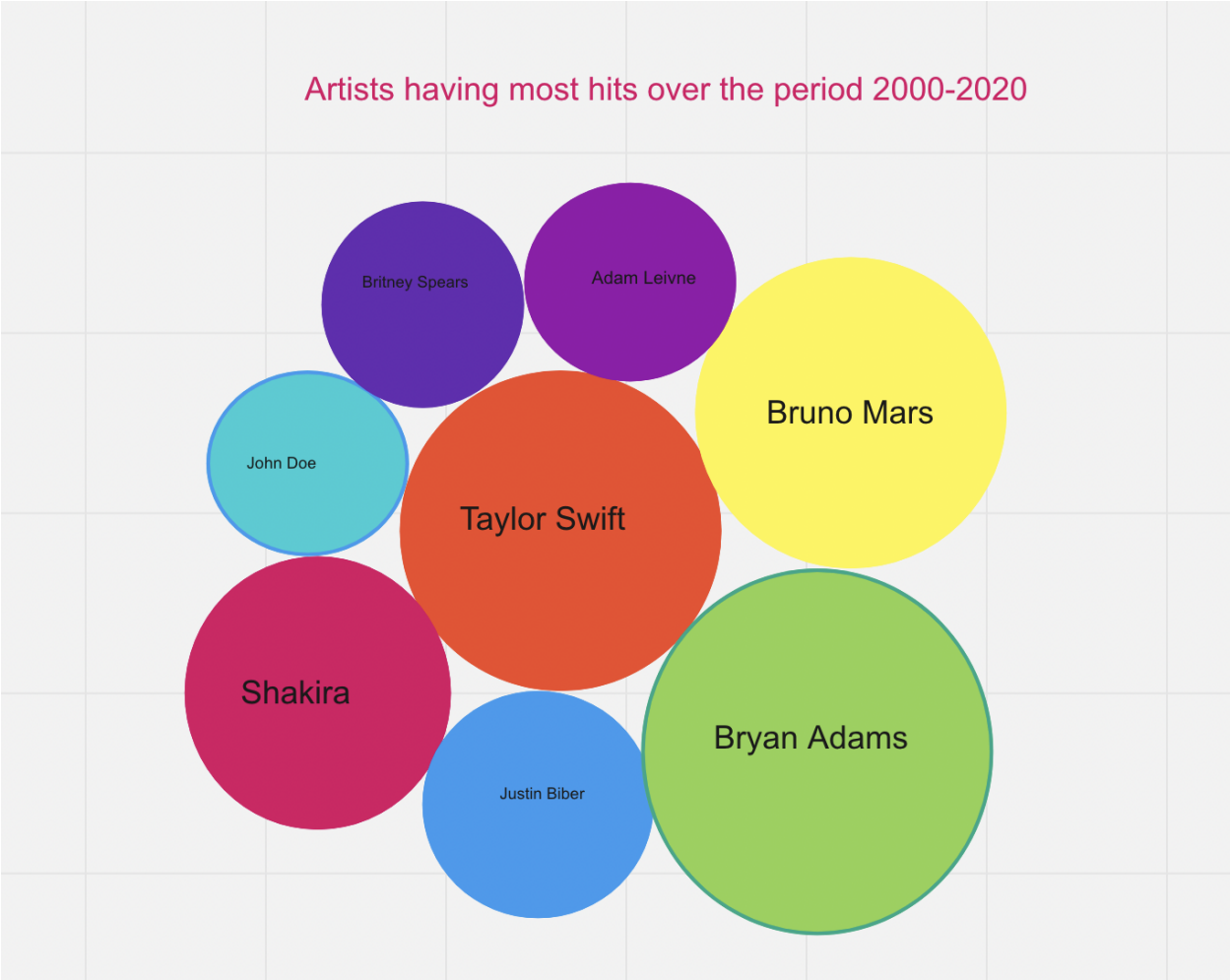
Adwait's Sketches

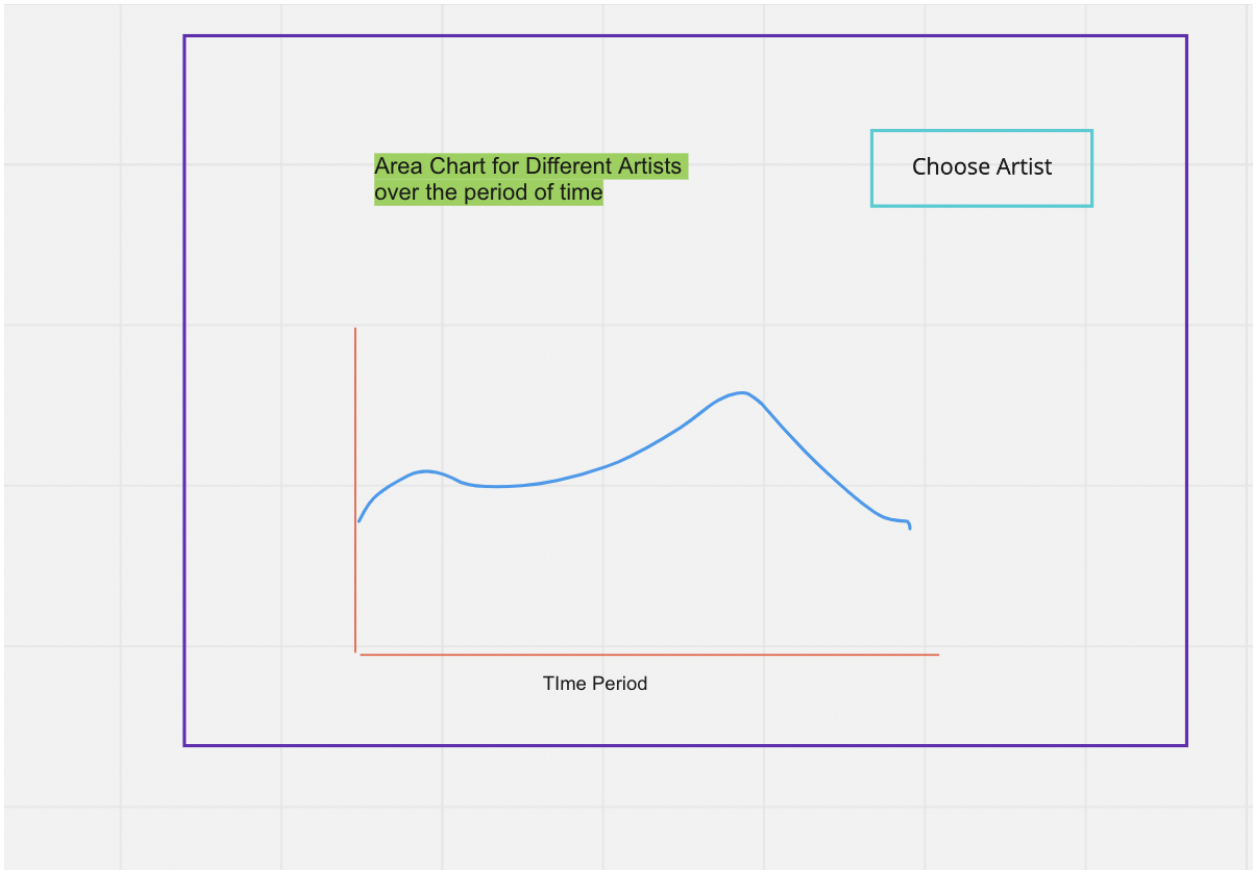


How the popularity of the music has changed over the years.

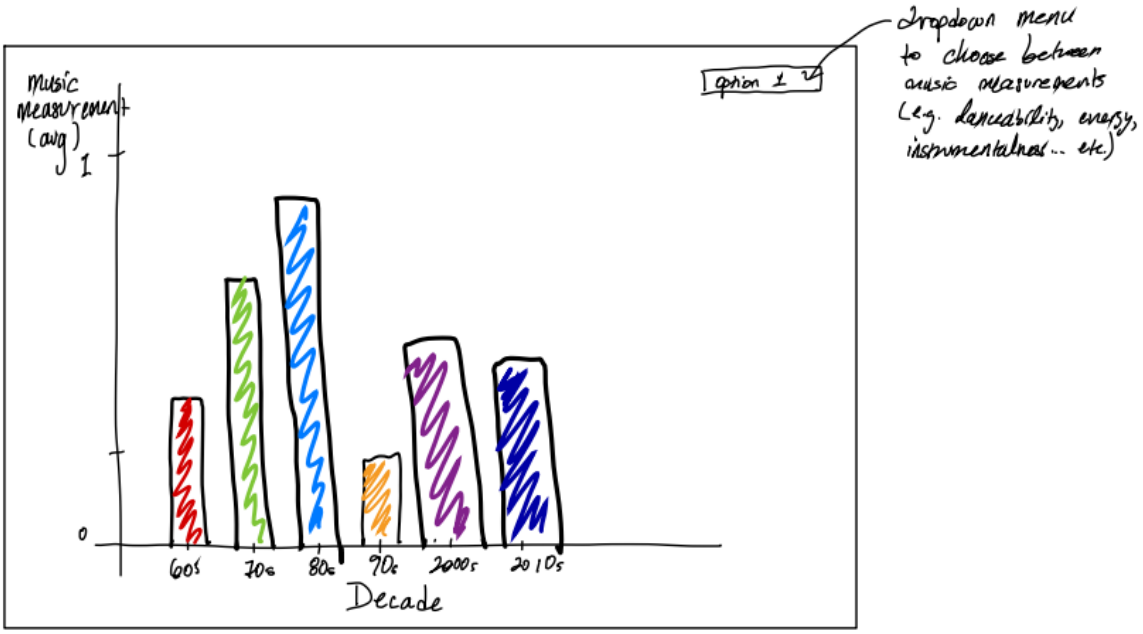

Trend of a Artists in Different Time Period
Michael Jackson
Morris Day
1960
1970
1980
1990
2000
2010

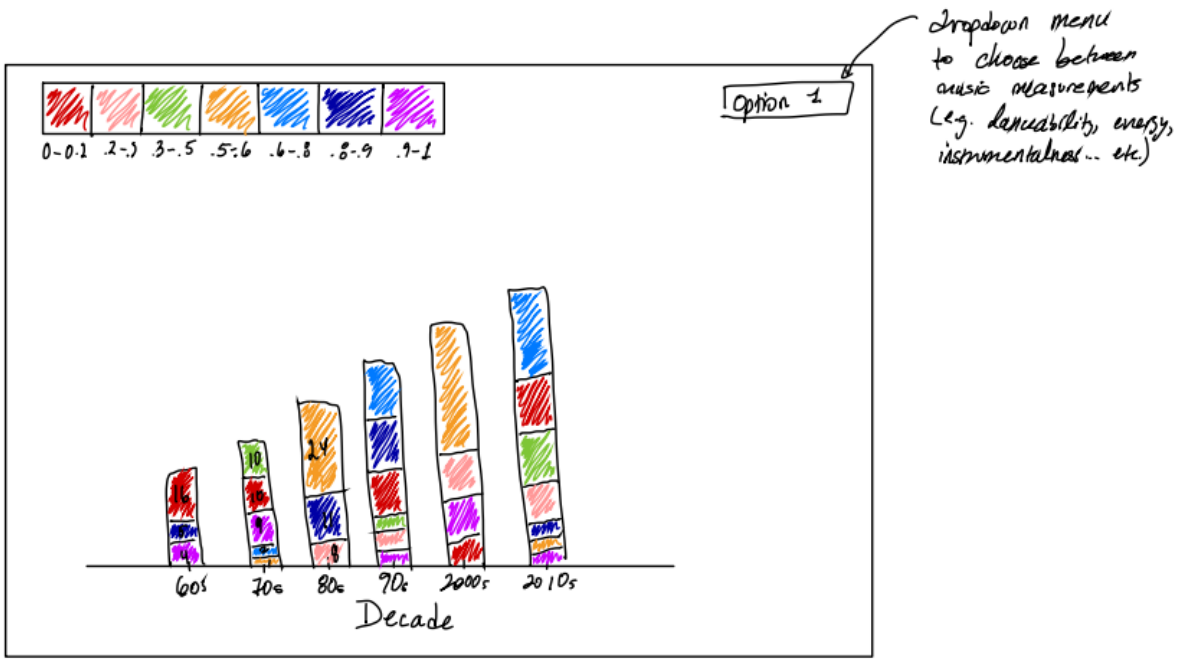

Accoustics
Loudness
Liveness
Danceability
New Frontier
Broadway-My Way
Richard Chamberlain Sings

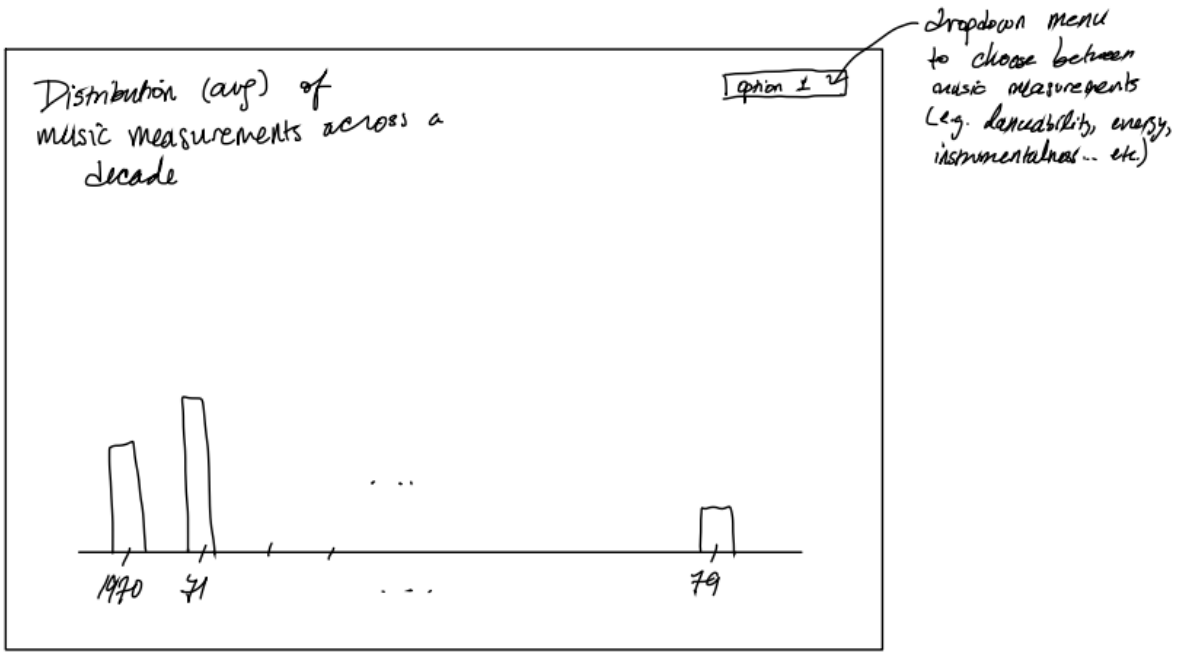

Artists having most hits over the period 2000-2020
Britney Spears
Adam Leivne
Bruno Mars
John Doe
Taylor Swift
Shakira
Bryan Adams
Justin Biber


Area Chart for Different Artists over the period of time
Choose Artist
TIme Period

Rebecca's Sketches

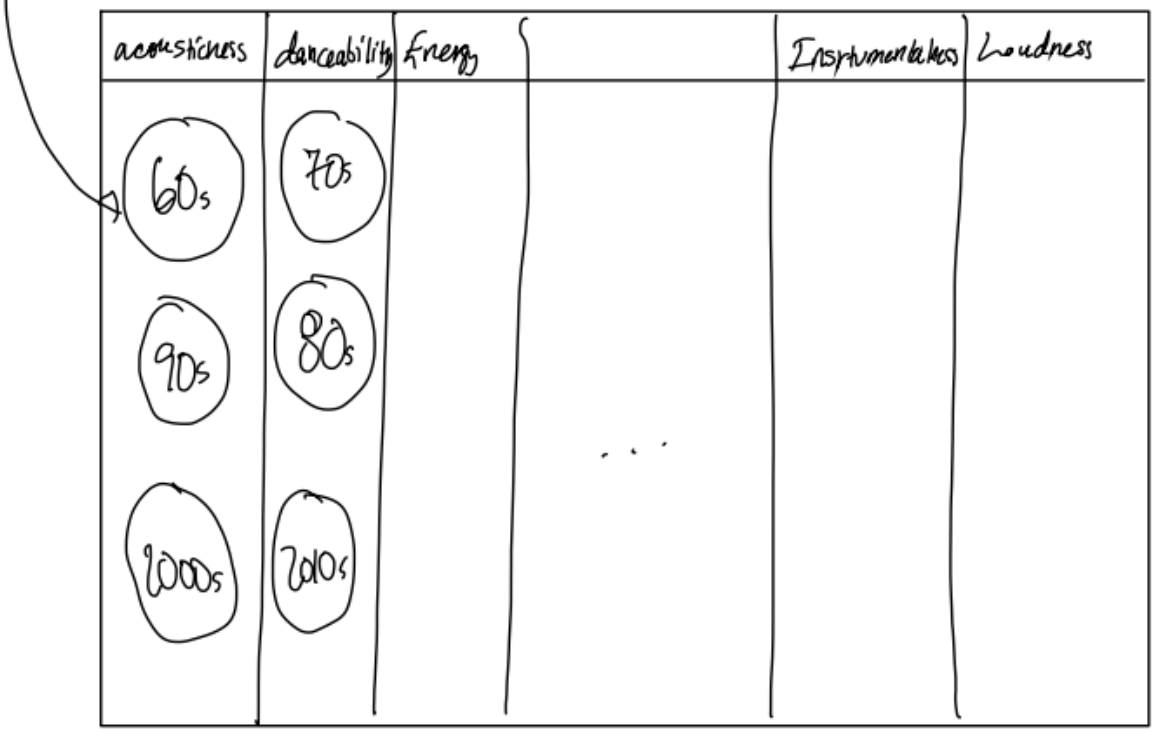


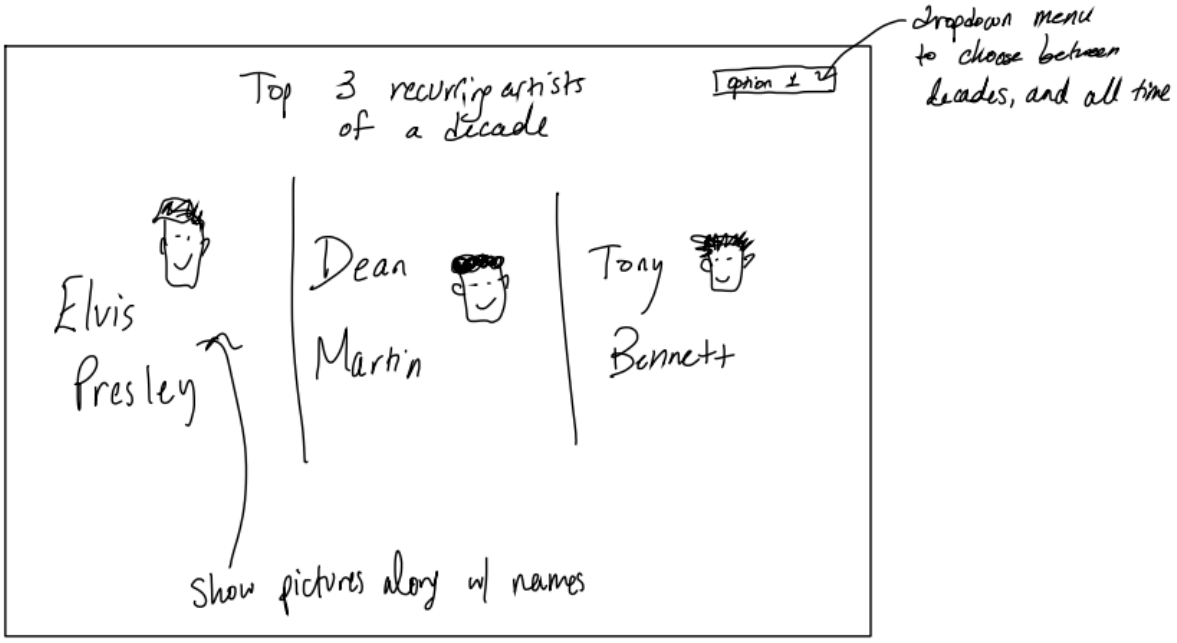




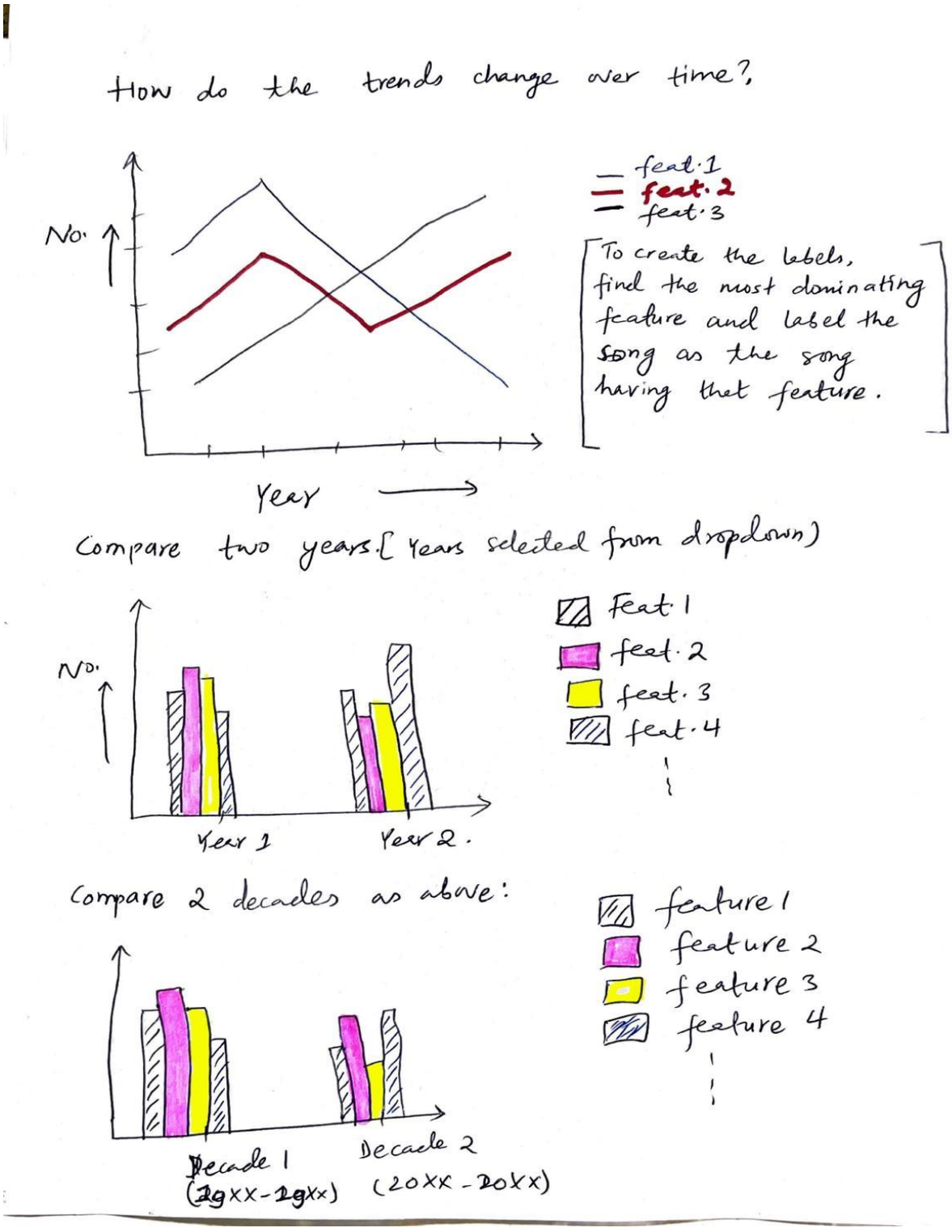
Dropdown menu to choose between music measurements (e.g. danceability, energy, instrumentalness... etc.)

show the top 3 decades w/ the highest scores per category

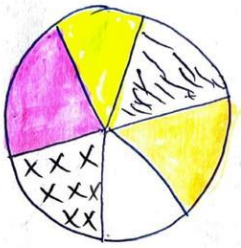


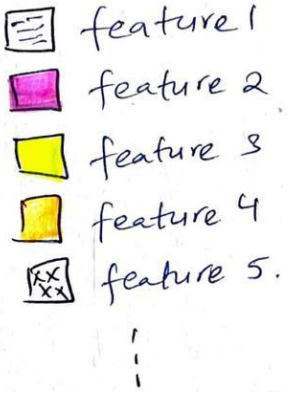

Top 3 recurring artists of a decade
Option 1
dropdown menu to choose between decades, and all time
Elvis Presley
Dean Martin
Tony Bennett
Show pictures along w/ names

Surendrabikram's Sketches



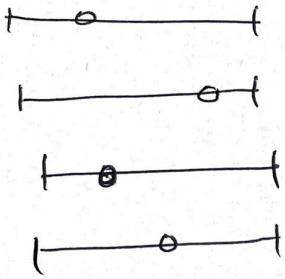
④ Pie chart for features





Given the input, which year would the song with user's preference would have charted?

Preferences:

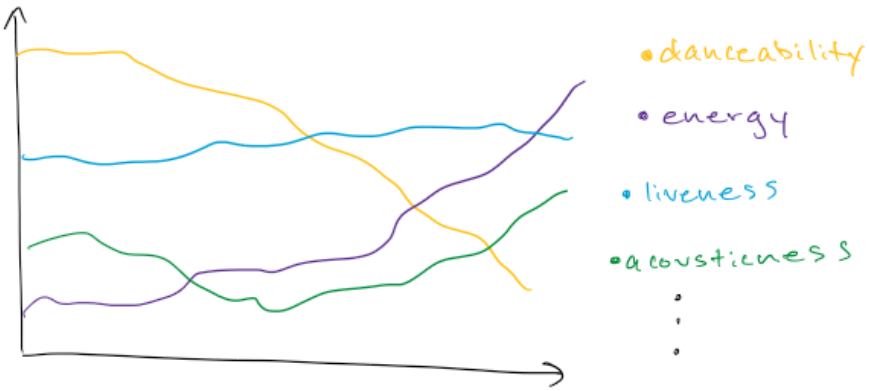


output:
It would have charted in year xxxx.

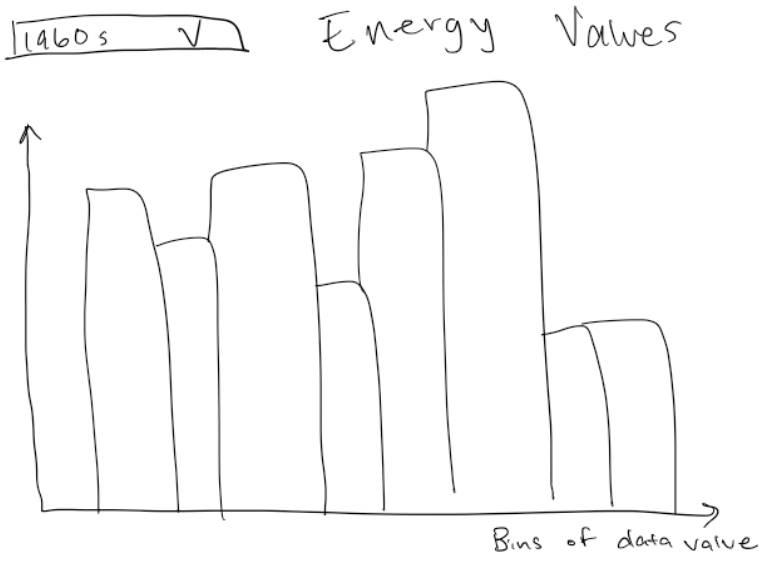
Decide

Hook:

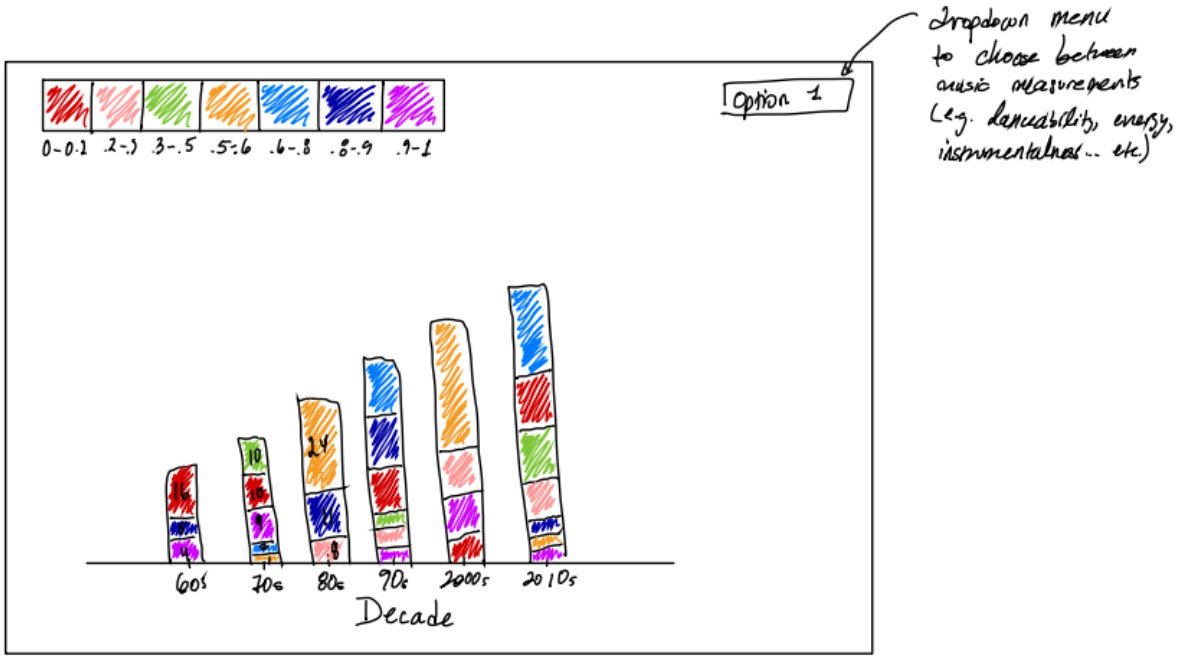
This is a line chart to compare average values over time for each characteristic.



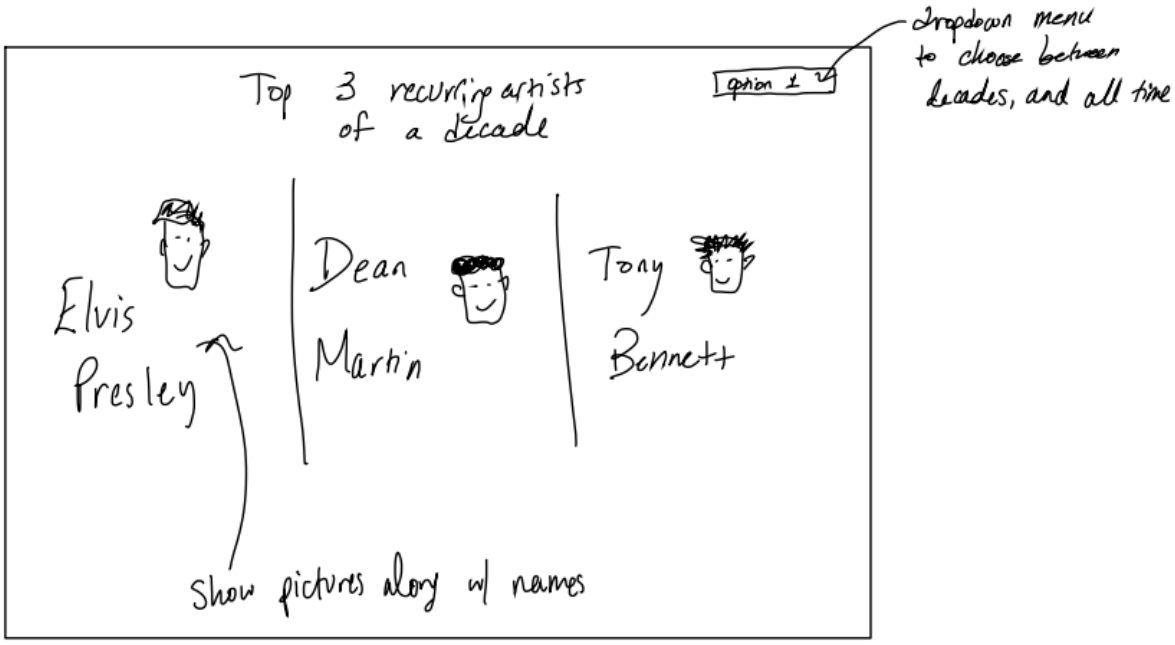
This is a histogram to show the number of albums in a certain range of values (bins) for each decade. The decade and characteristic would be selected from a dropdown menu.



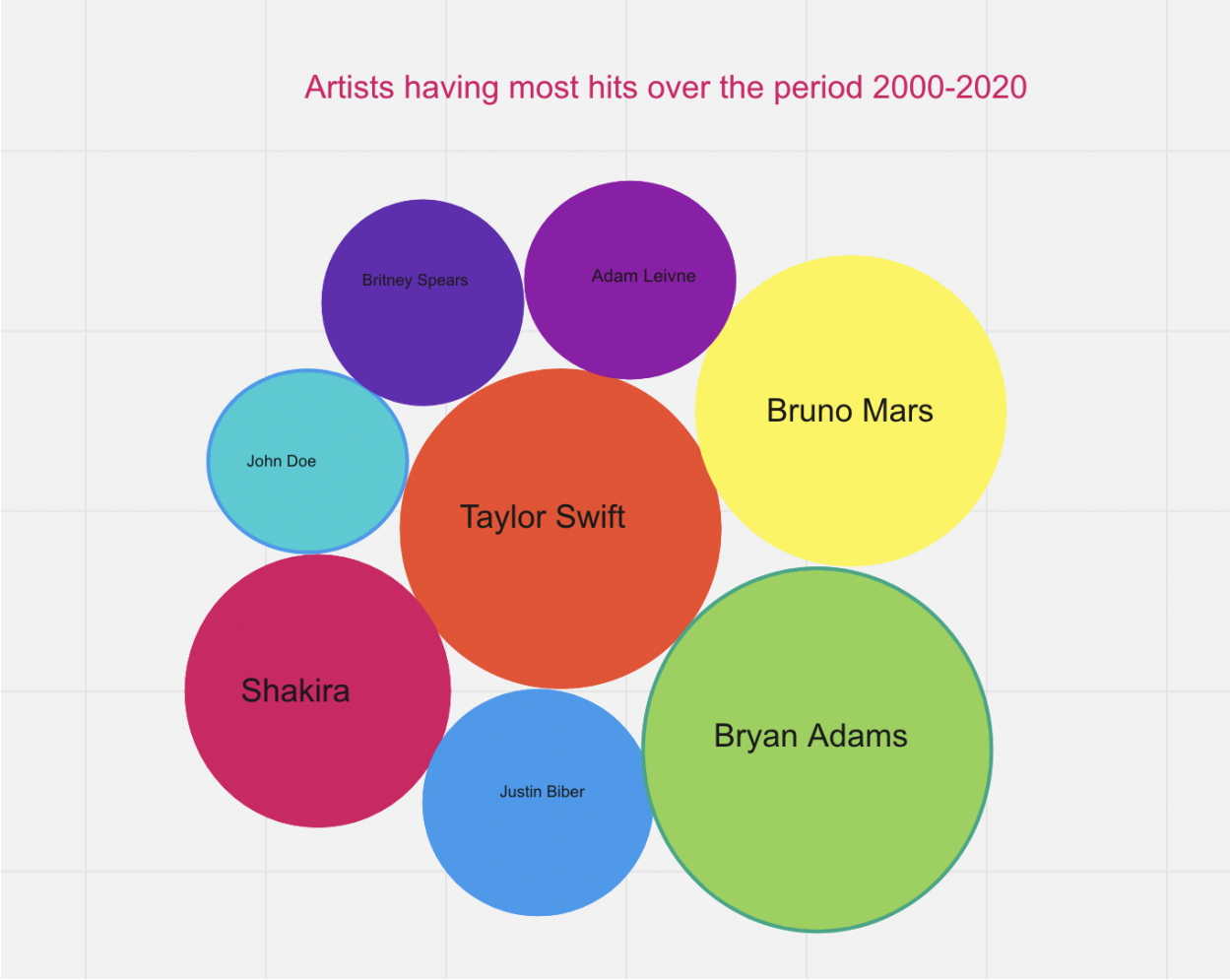
This is a bar chart to show the number of albums in a certain range of values for each characteristic. This could be combined with the above histogram in some way.



Rising Insights:



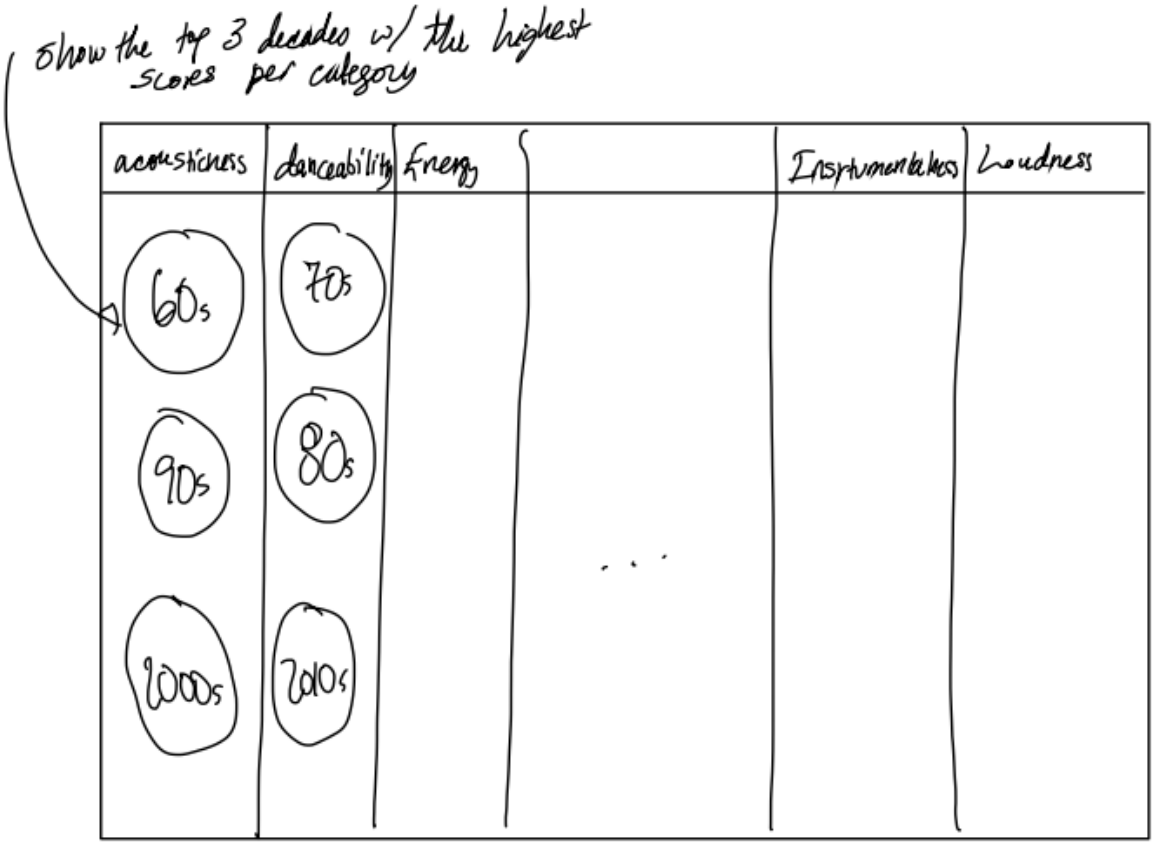
This would be a visualization of the top three artists in a decade, where the decade is selected from a dropdown menu. There would also be a tooltip for each artist showing the average values of characteristics across all of their albums, as well as the number of albums that they had on the charts.



~~This would show the top artists of each decade, potentially along with their genre to show top genres of the decade. The decade would be selected from a dropdown menu.~~

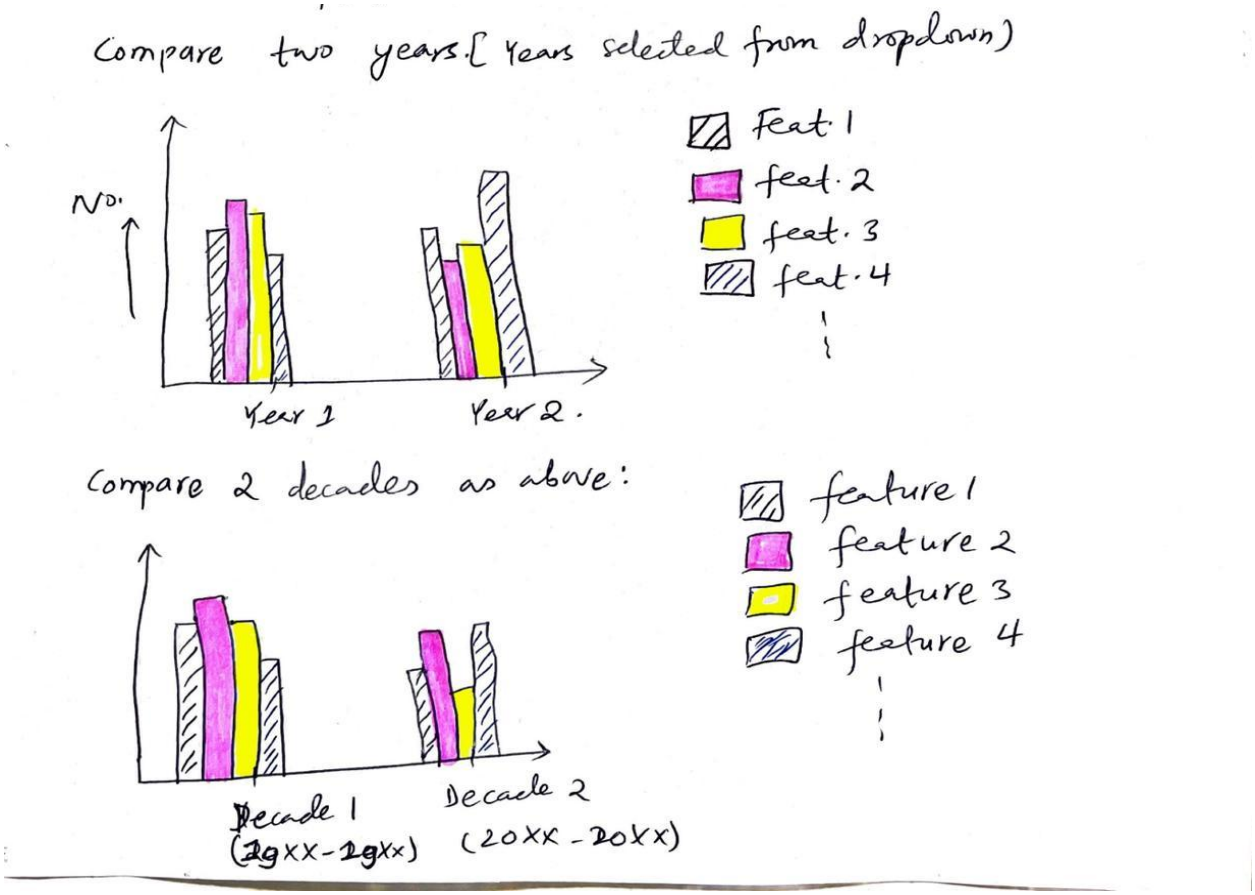
This would show the top **albums** of each decade, along with their album cover and potentially a tooltip to show more info about the album. Maybe a grid structure? 2 rows of 5 albums each row.

Main Message:

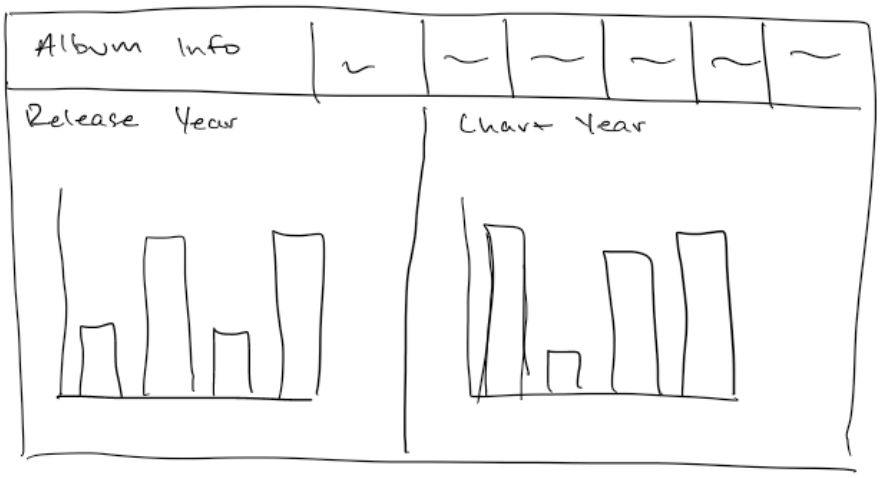


This would show the top three decades with the highest scores per characteristic.

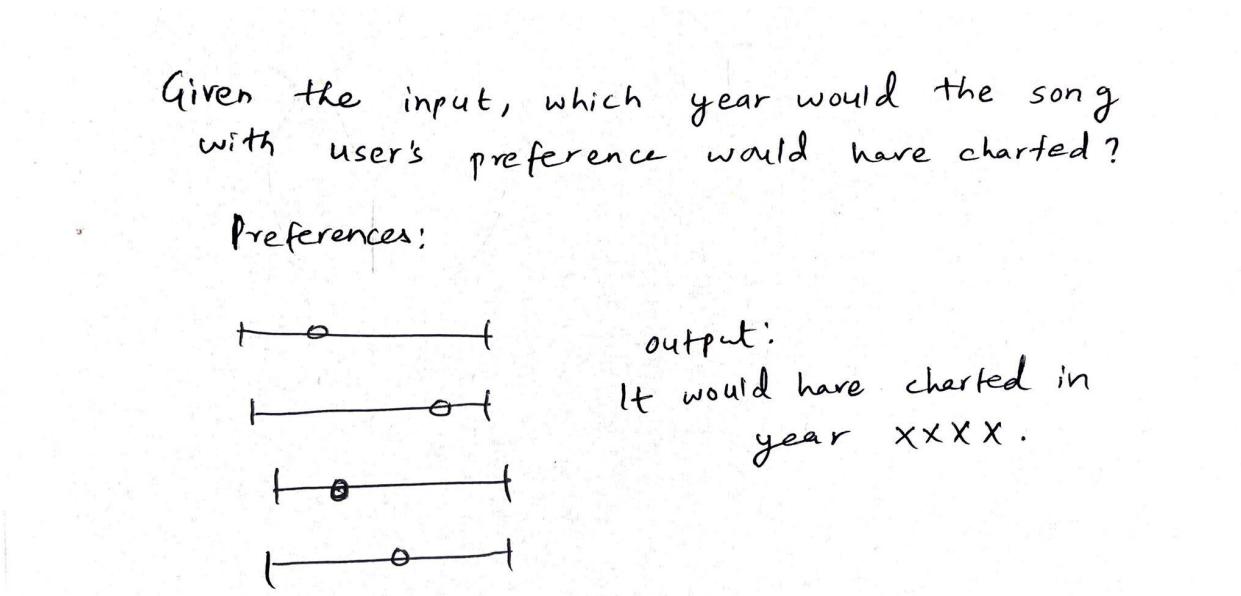
Conclusion:



This would be a comparison of the characteristics of music between two years. The years would be selected from a dropdown menu.



This would show information about an album that charted years/decades after it was released. The album info would be in a header at the top, and information about music in the year it was released and the year it charted.



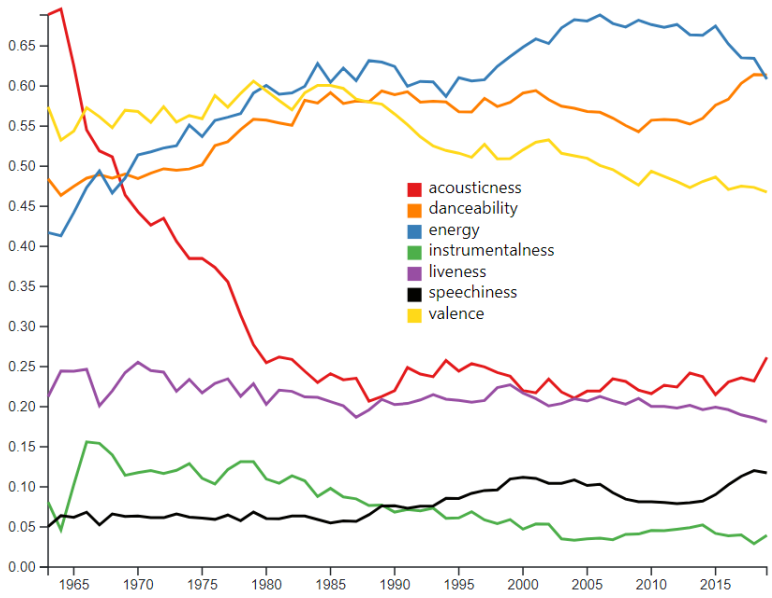
This would be a tool for the user to input different values for the music characteristics and it would output a year that has music most similar to those characteristics. Instead of the message “which year would the user’s preferences have charted”, it would instead be “what range of years has popular music with these characteristics”.

Prototypes

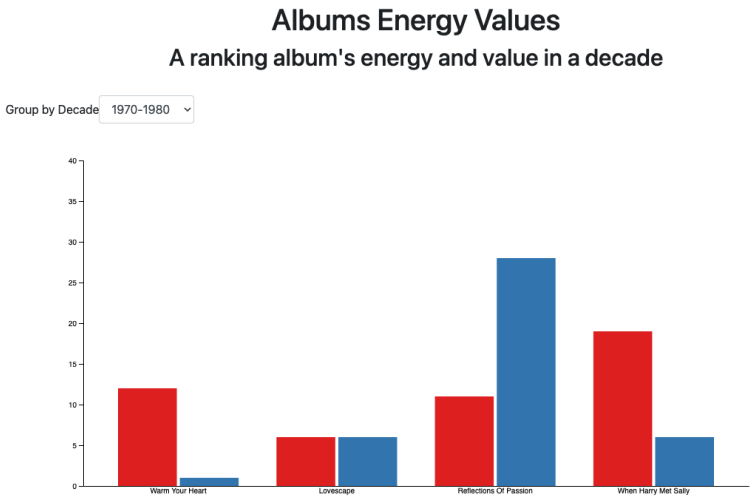
Links

- Original data files: https://components.one/datasets/billboard-200/
- Github repo: https://github.com/AdwaitVT/Guided-Project2
- Github Pages (complete data story): https://elizabethc99.github.io/

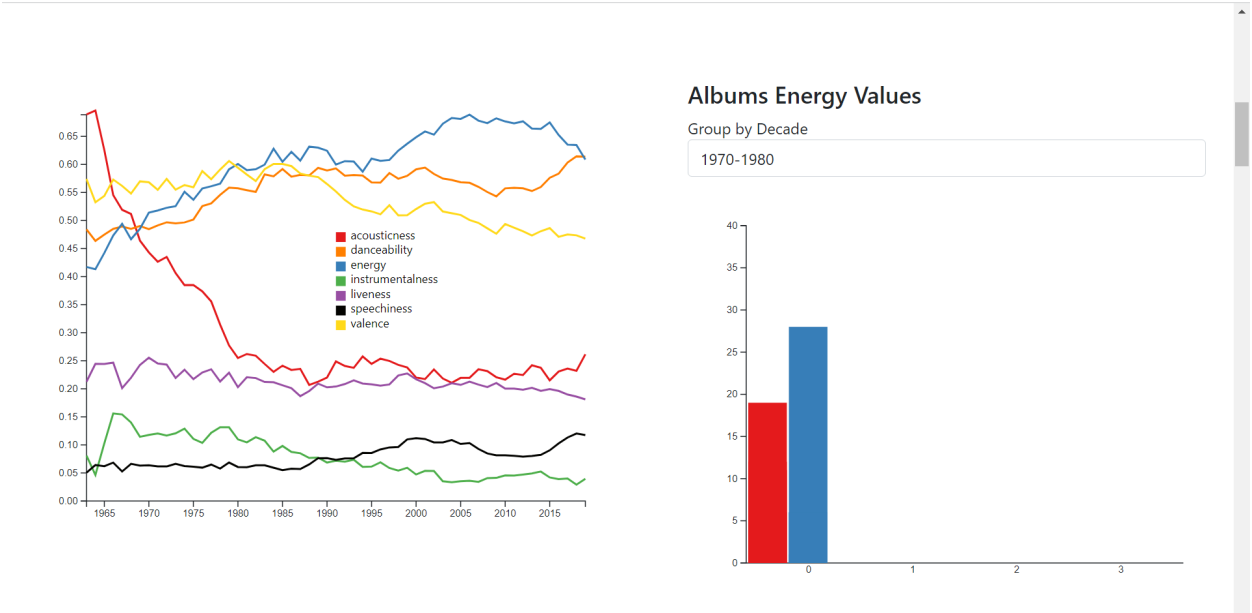
Line chart showing sound values over time



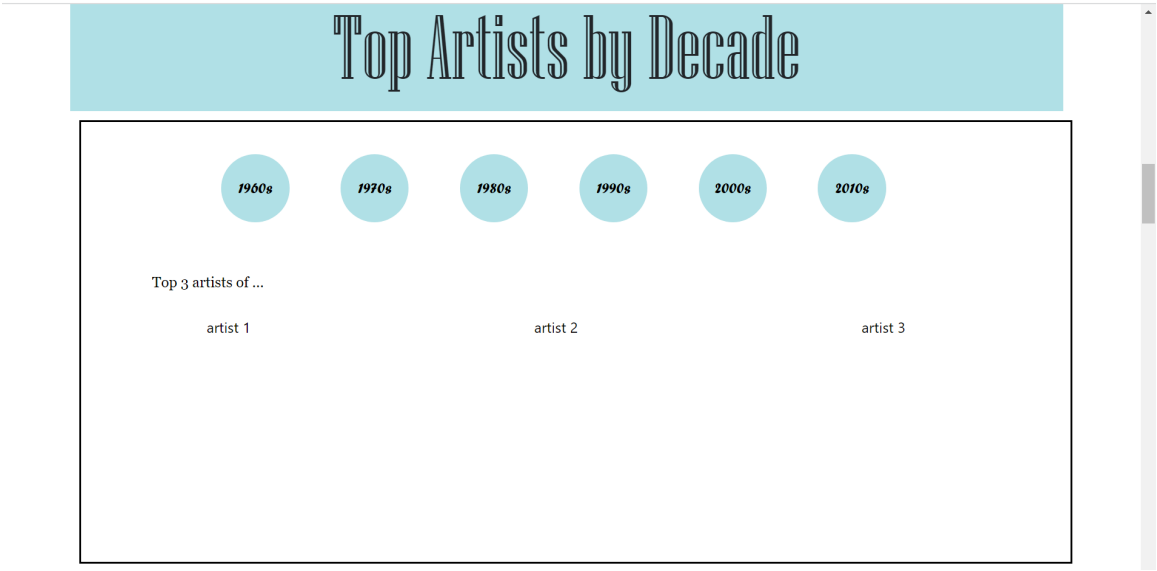
Histogram showing total counts of sound characteristics per decade - user can select a decade from a dropdown box to see a histogram. X axis is the range of values for that characteristic, y axis is counts of songs in that decade in a bin range.



The above two visualizations will be linked - users can click on a characteristic from the line chart to see the related histogram.



Visualization to show top artists from each decade. A user can select the decade and see the top three artists. Each artist will include a picture and info about them.



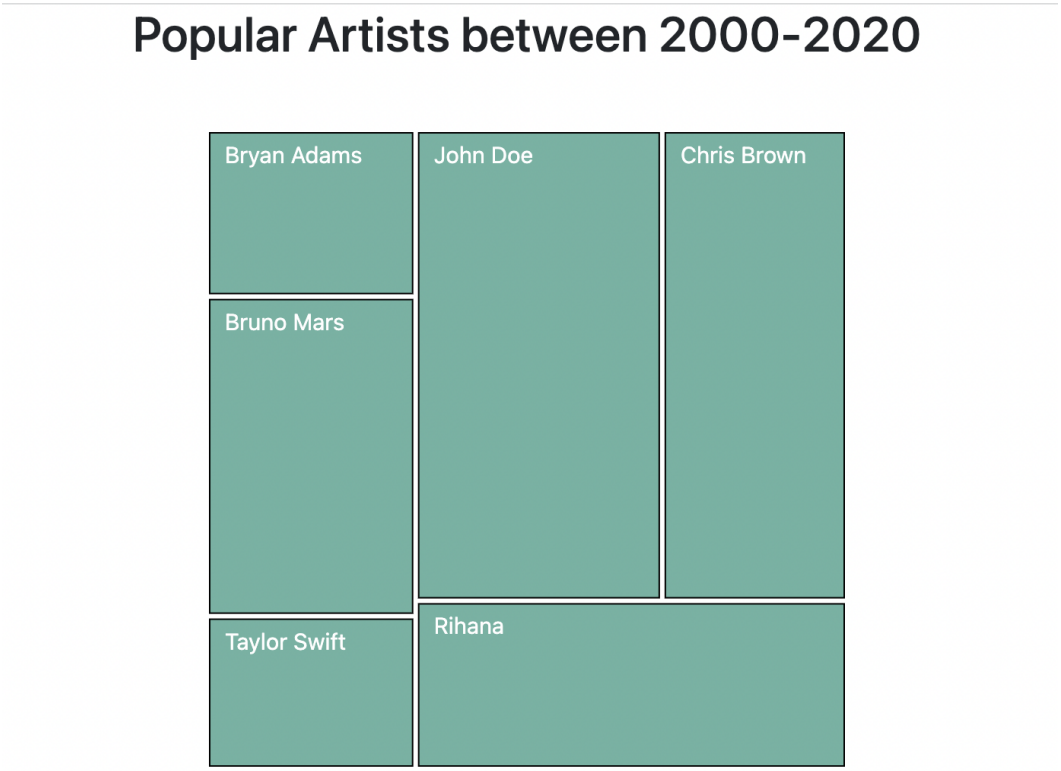
Progress so far:

- Buttons are functional in changing the decade and displaying associated text

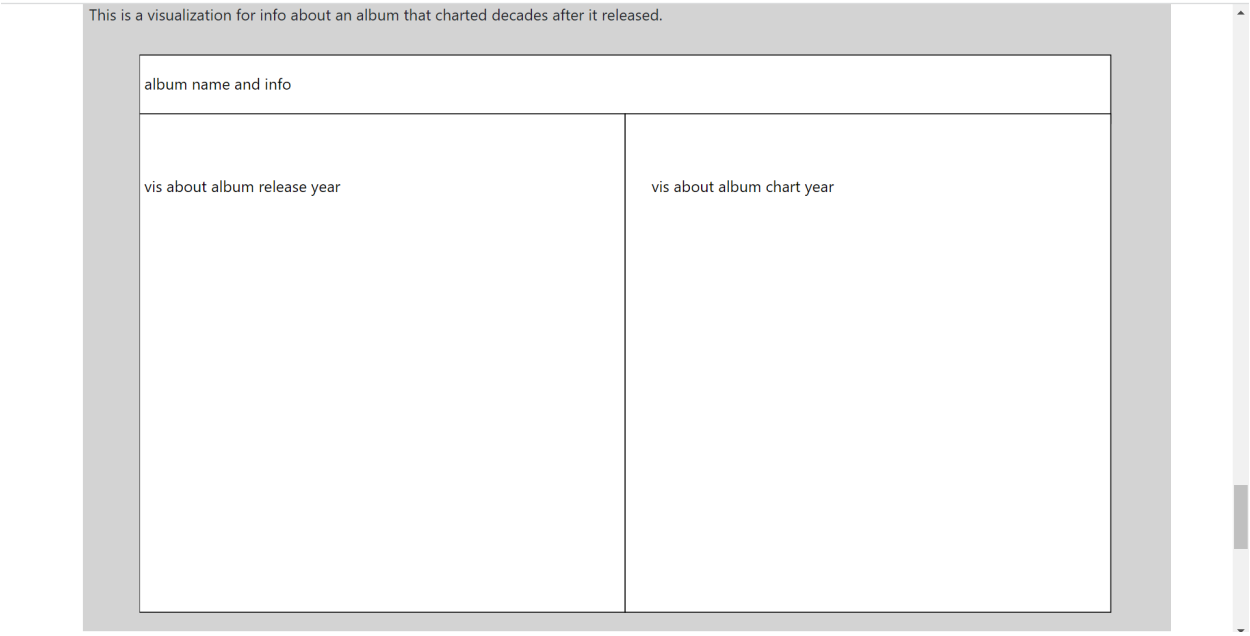
Finishing steps:

- Add the data for each of the artists per decade to display
- Then work on adding in displaying pictures for each artist
    - Change data displayed to be a tooltip for each artist
- Considering doing top 5 artists instead??

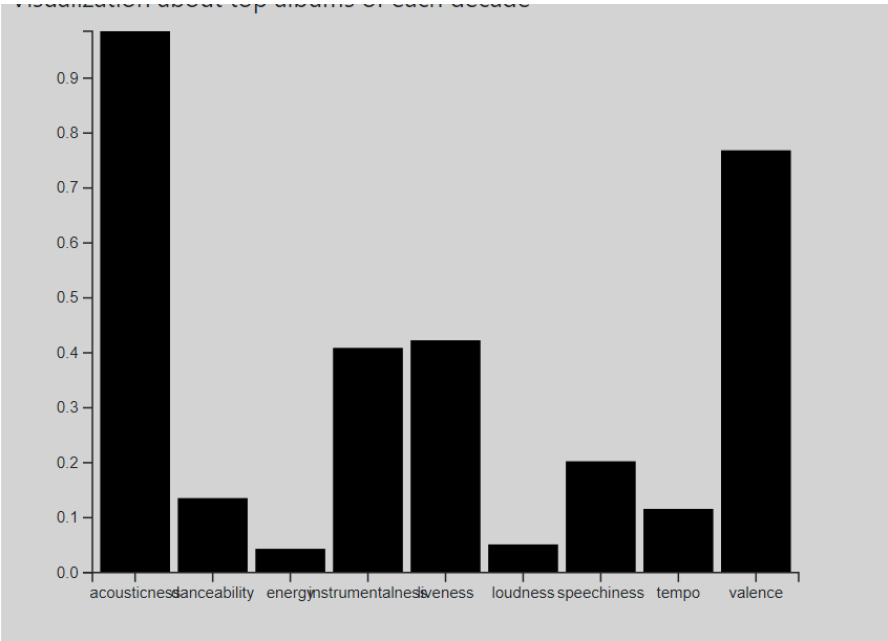
This is a visualization that will eventually show top albums of each decade, based on how many weeks the album was on the charts. The user can select the decade from a dropdown menu. Each square will have a tooltip to show more information about the album.



This visualization will show information about albums that charted more than 10 years after its release. The user can select the album from a dropdown menu at the top and see the album info along the header. On the left will be a dual bar chart showing the average sound characteristic values for the release year along with the values for the album. On the right will be the same type of bar chart, but for the year the album charted.



This is a bar chart that will eventually show a comparison between values for two decades.



Week 7: Test