

# Moosic playlists Strategy

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# Key Metrics for Evaluation

## Data Overview

### Datasets:

- the 5235 song dataset from Spotify

### Data preparation:

- Duplicates
- Feature selection
- Outliers

### Final set:

- 5164 songs dataset

## Songs features:

- ✓ name
- ✓ artist
- ✓ danceability
- ✓ energy
- key
- ✓ loudness
- ✓ mode
- ✓ speechiness
- ✓ acousticness
- ✓ instrumentalness
- ✓ liveness
- ✓ valence
- ✓ tempo
- type
- ✓ duration\_ms
- ✓ time\_signature
- id
- html

## Key Questions



🎵 **Are Spotify's audio features able to identify “similar songs”, as defined by humanly detectable criteria?**

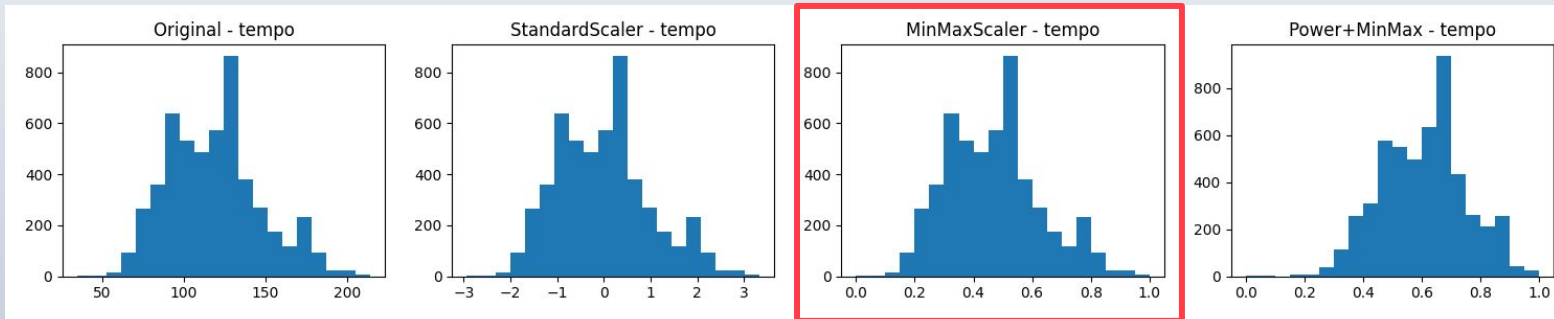
🎵 **Is K-Means a good method to create playlists?**

# Feature scaling

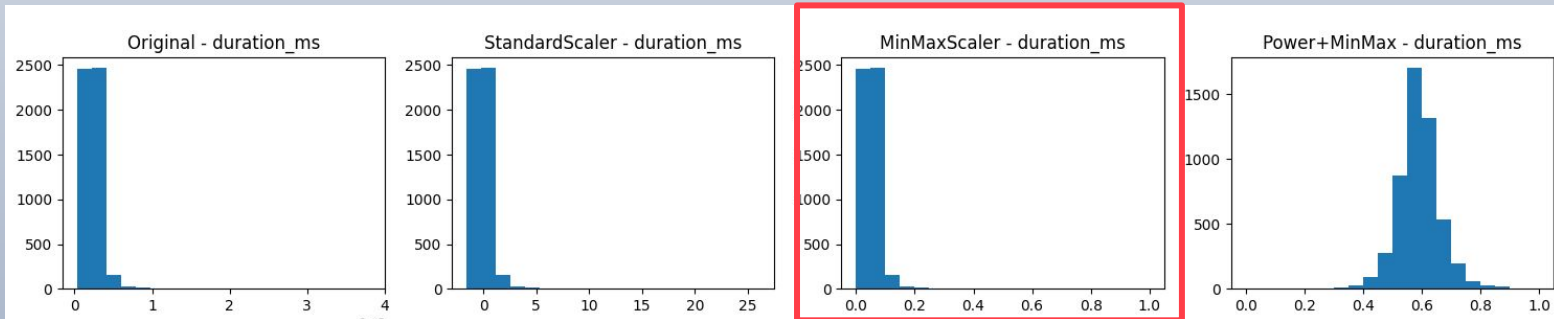
♪ Features like **tempo** and **duration\_ms** have different ranges.

♪ Scaling ensures equal contribution to clustering → **MinMaxScaler**

tempo



duration\_ms



# Dimensionality Reduction Using PCA

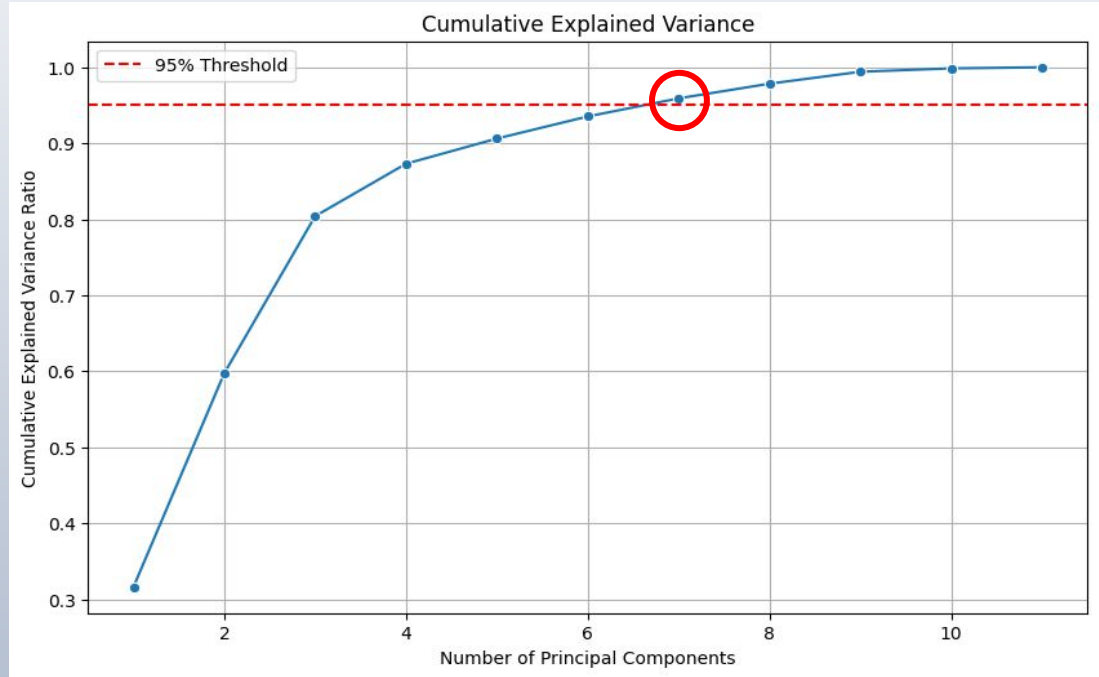
PCA (Principal component analysis):

- ▷ A **dimensionality reduction** technique.
- ▷ Captures the most important patterns or variance in the data.



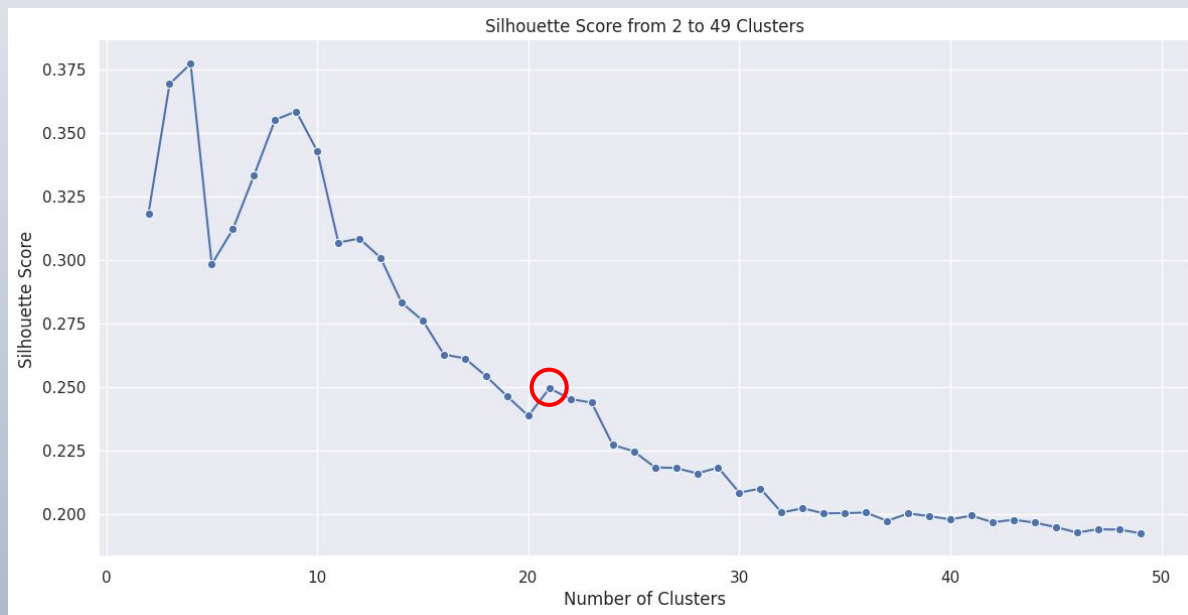
Cumulative explained variance:

- ▷ Retained **95% of the variance** to ensure high data quality for clustering.
- ▷ Reduced 11 audio features to **7 principal components**.



# K-Means Clustering – Optimal Number of Clusters

- ▷ Automatically organizes data into clusters based on similarity.
- ▷ **Technical Criterion:** Evaluated using the **Silhouette Score**, which measures how well data points fit within their clusters.
- ▷ **Business Constraint:** Playlists typically range from **50 to 250 songs**, ensuring customer satisfaction and usability.

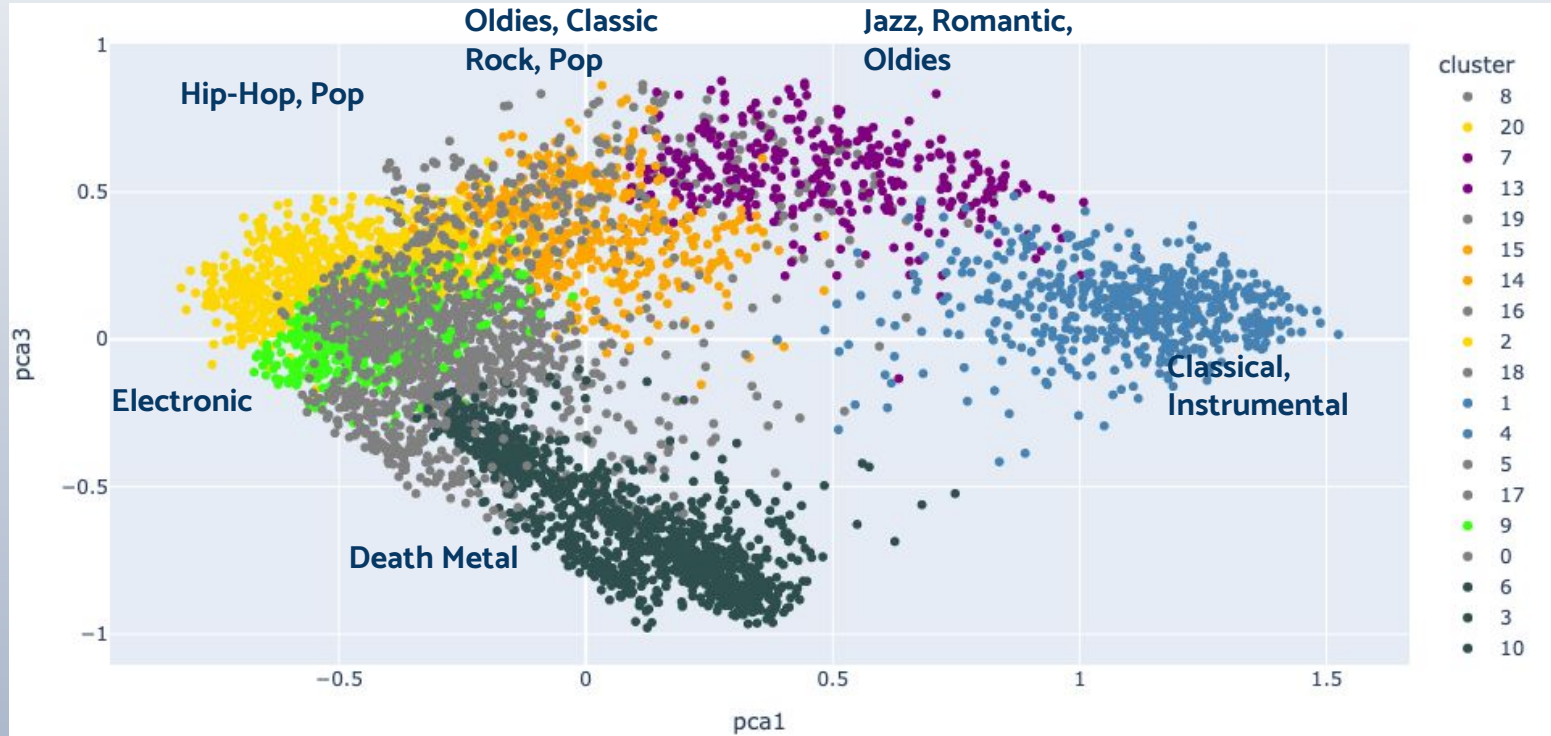


## Final Choice:

Based on both business and technical factors, we selected **21 clusters** (adjust based on actual result).

# K-Means Clustering – Results

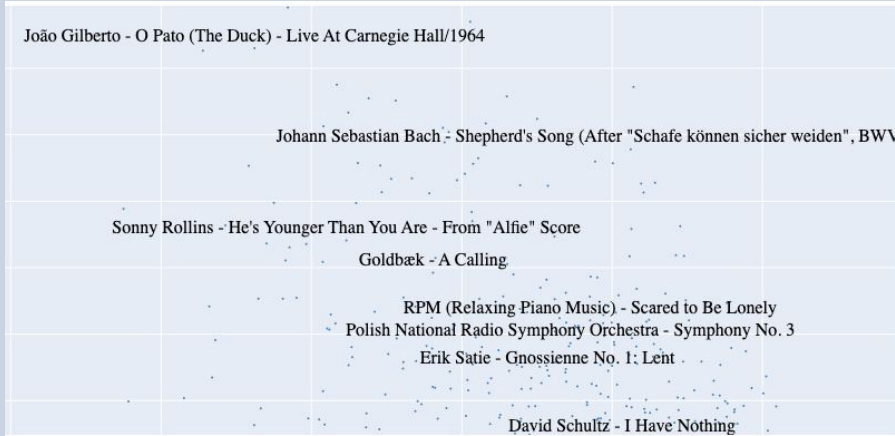
Projection of our songs onto a 2-dimensional component space



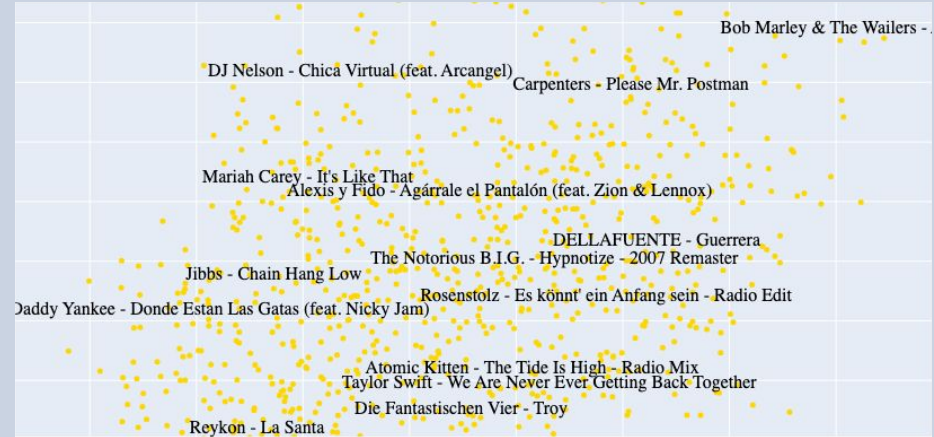
# K-Means Clustering – Example Playlist



Random samples from **Classical / Instrumental** Playlist



Random samples from **Hip-Hop / Pop** Playlist





# Conclusion

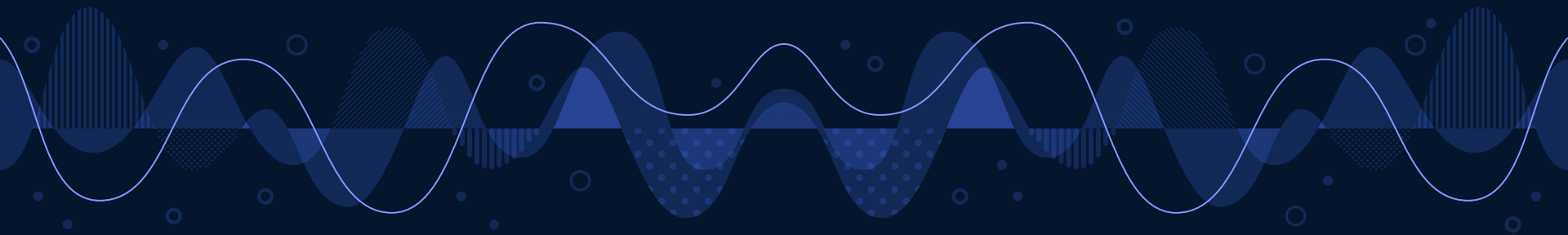
## Results:



- Used scaling, PCA, and K-Means to create **21 playlists** with clear themes (e.g., hip-hop, death metal, instrumental).
- Spotify's audio features can generally identify similar songs, with only minor errors.
- K-Means works well, but it's the only method we tested so far!

## Next steps:

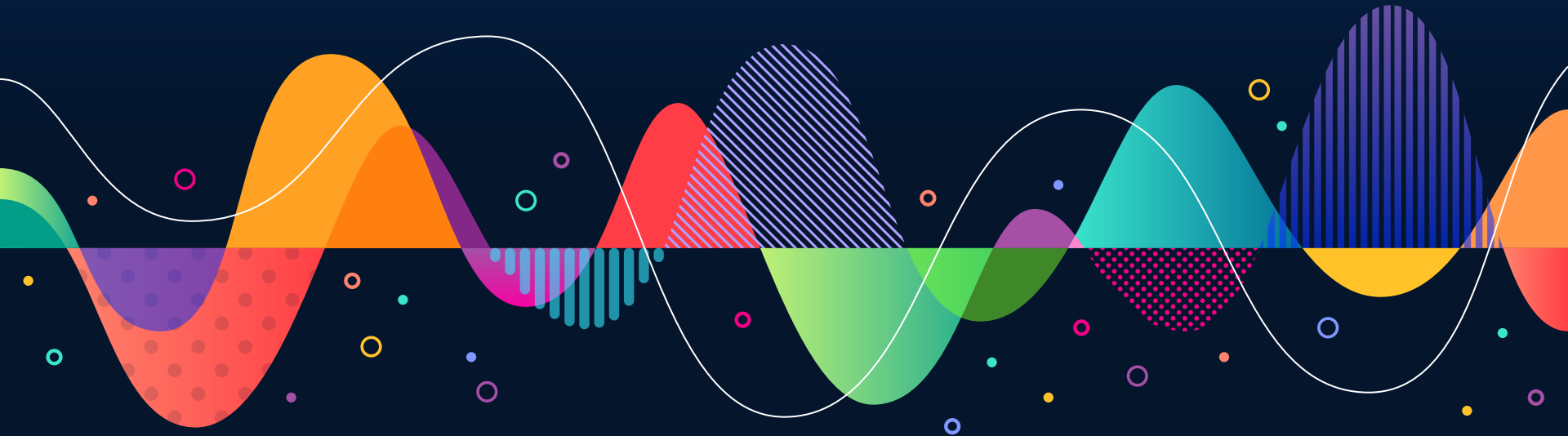
- Spotify's features are strong but need additional data to better capture human perceptions.
- Explore new algorithms and advanced techniques for improved personalization.



THANKS!



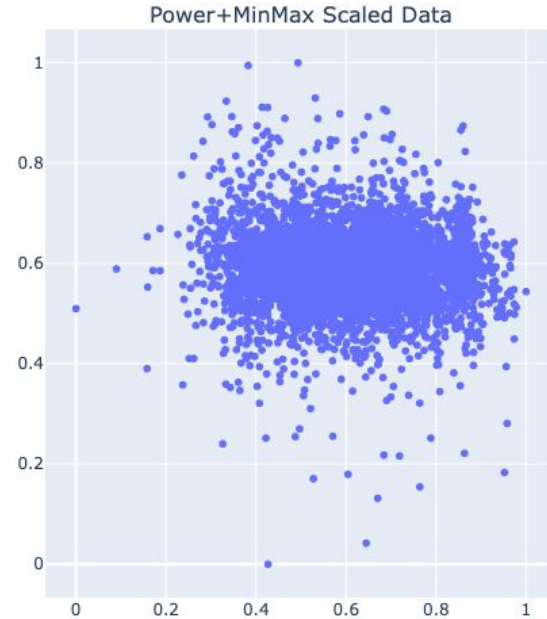
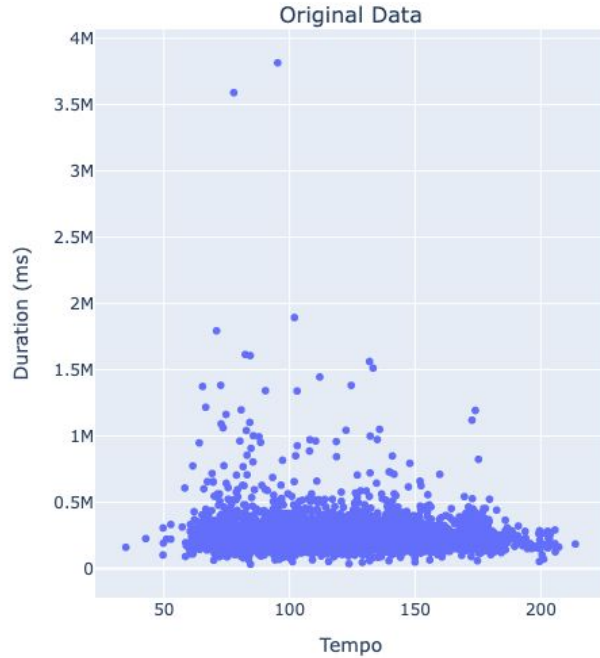
# Backup slides



# Feature scaling (extra slide)



Scatter Plots Comparison



# Conclusion

## 1. How did you create your prototype?

- ▶ How many playlists (clusters) are there?
- ▶ What audio features did you use and what did you drop? Why?

## 2. Is the prototype effective at creating cohesive playlists?

- ▶ Showcase one or two playlists to evaluate the prototype's performance.

## 3. Are Spotify's audio features capable of identifying "similar songs" as defined by humanly detectable criteria?

- ▶ What kind of data might help us create better playlists?

## 4. Is K-Means a good method for creating playlists?

- ▶ Provide pros and cons.

## 5. What would be your next steps if you continued with this project?

Spotify's audio features provide a strong foundation but are insufficient on their own for fully capturing human perceptions of song similarity.

Incorporating additional data sources (e.g., lyrics, listener feedback) could bridge the gap between algorithmic and human-defined criteria.

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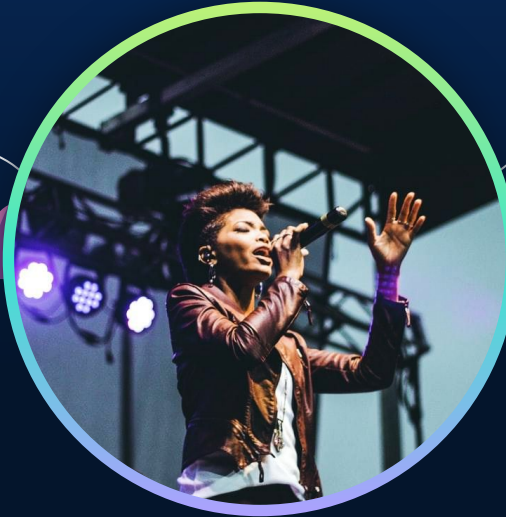
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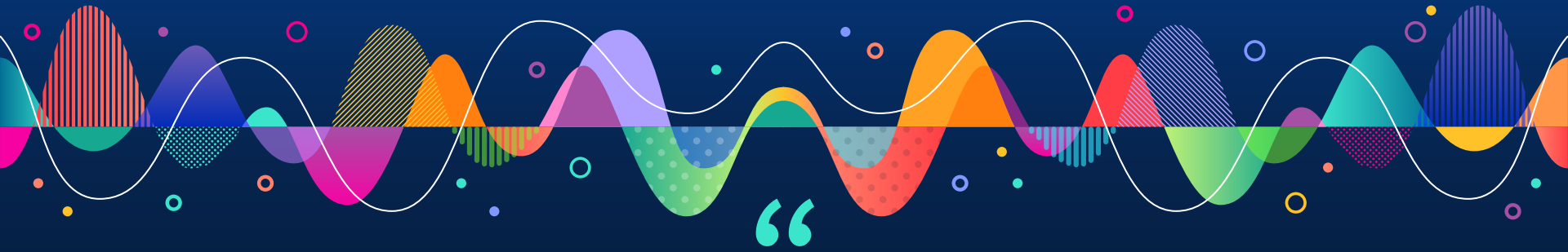
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# HELLO!



**I am Jayden Smith**

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“

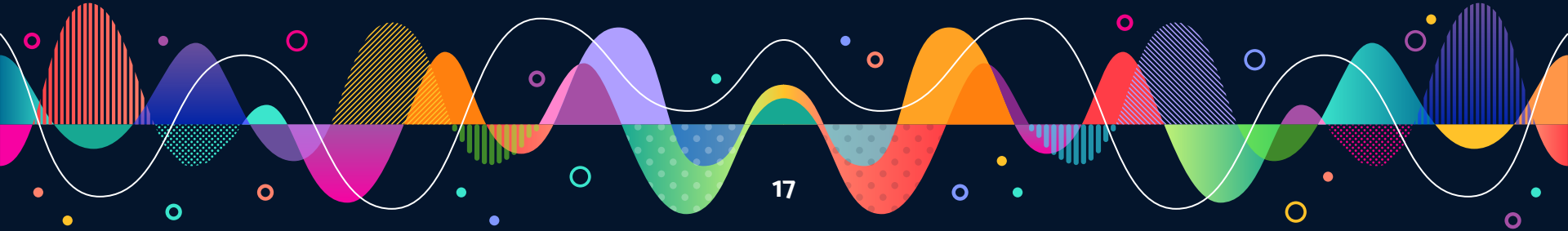
Quotations are commonly printed as a means of inspiration and to invoke philosophical thoughts from the reader.



# BIG CONCEPT



Bring the attention of your audience over a key concept using icons or illustrations



## YOU CAN ALSO SPLIT YOUR CONTENT



### White

Is the color of milk and fresh snow, the color produced by the combination of all the colors of the visible spectrum.

### Black

Is the color of ebony and of outer space. It has been the symbolic color of elegance, solemnity and authority.

## IN TWO OR THREE COLUMNS



### Yellow

Is the color of gold, butter and ripe lemons. In the spectrum of visible light, yellow is found between green and orange.

### Blue

Is the colour of the clear sky and the deep sea. It is located between violet and green on the optical spectrum.

### Red

Is the color of blood, and because of this it has historically been associated with sacrifice, danger and courage.

# A PICTURE IS WORTH A THOUSAND WORDS



A complex idea can be conveyed with just a single still image...

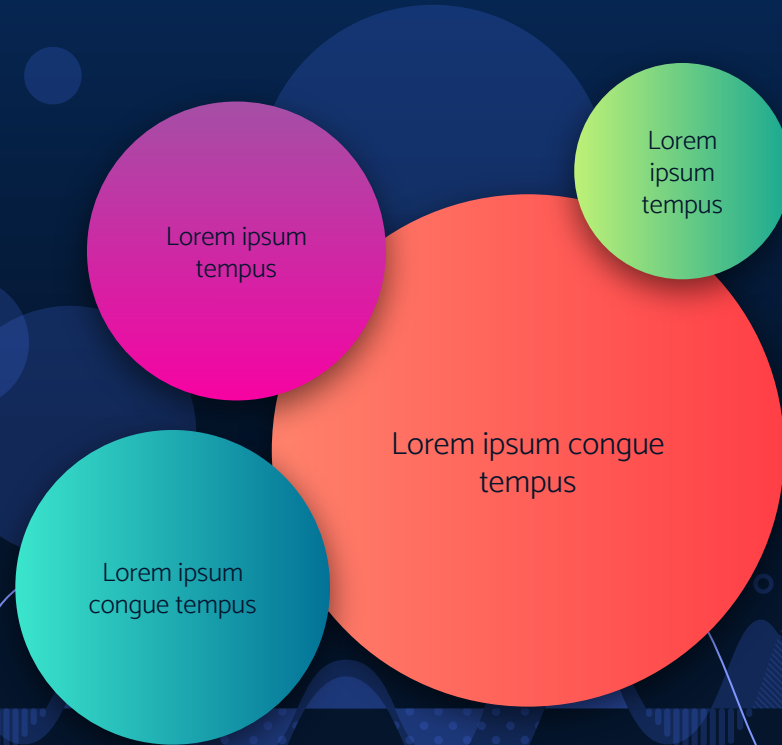


...namely making it possible to absorb large amounts of data quickly.

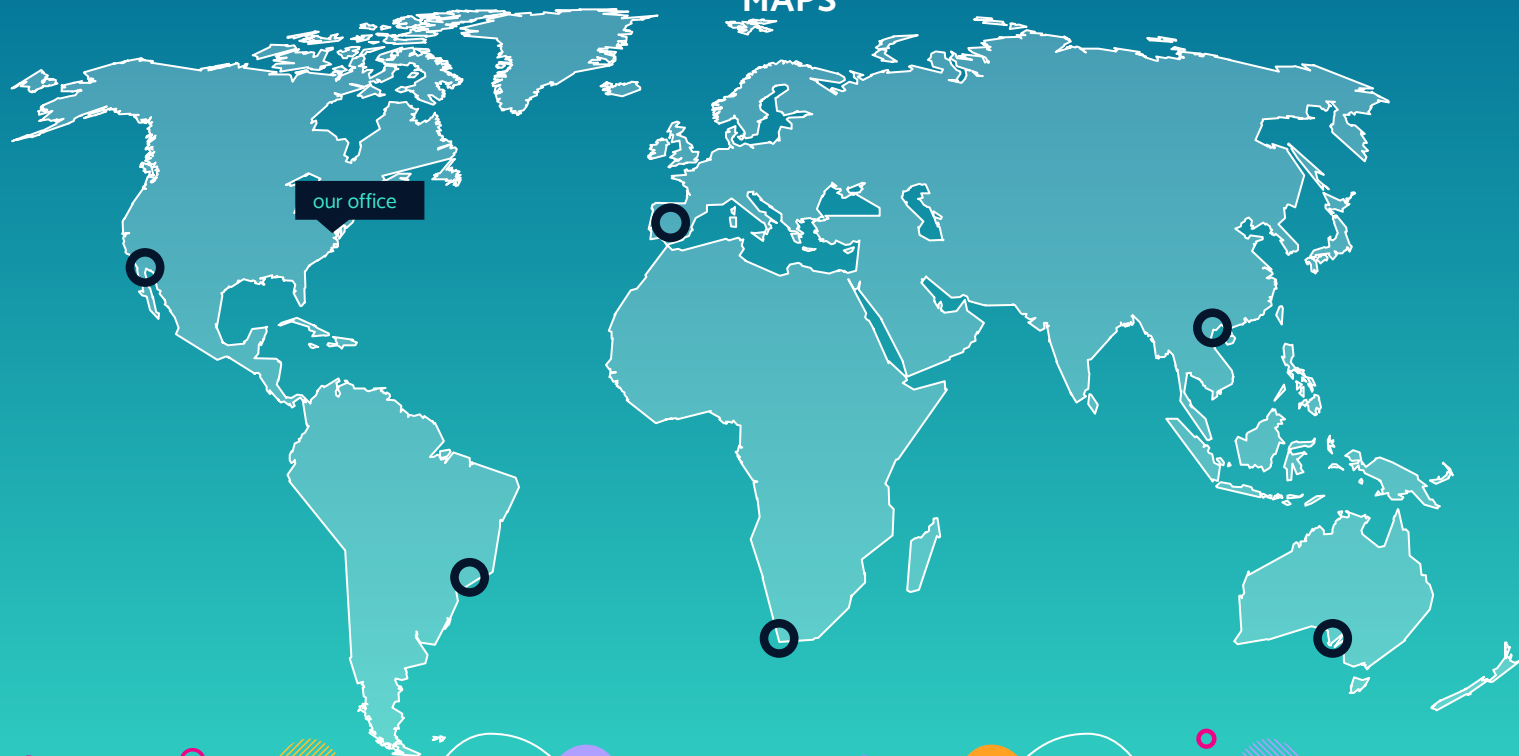
Want big impact?  
**USE BIG IMAGE.**



# USE DIAGRAMS TO EXPLAIN YOUR IDEAS

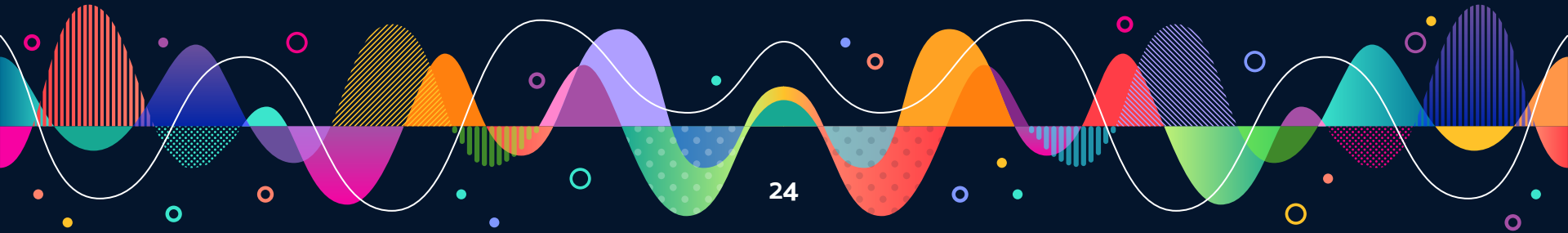


## MAPS



# 89,526,124

Whoa! That's a big number, aren't you proud?





# 89,526,124\$

That's a lot of money

# 185,244 users

And a lot of users

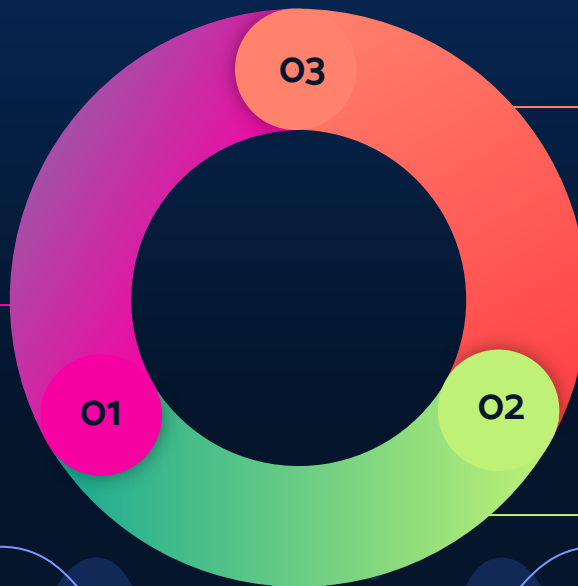
# 100%

Total success!

# OUR PROCESS IS EASY

## Vestibulum congue tempus

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor. Donec facilisis lacus eget mauris.



## Vestibulum congue tempus

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor. Donec facilisis lacus eget mauris.

## Vestibulum congue tempus

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor. Donec facilisis lacus eget mauris.

# LET'S REVIEW SOME CONCEPTS



## Yellow

Is the color of gold, butter and ripe lemons. In the spectrum of visible light, yellow is found between green and orange.

## Blue

Is the colour of the clear sky and the deep sea. It is located between violet and green on the optical spectrum.

## Red

Is the color of blood, and because of this it has historically been associated with sacrifice, danger and courage.

## Yellow

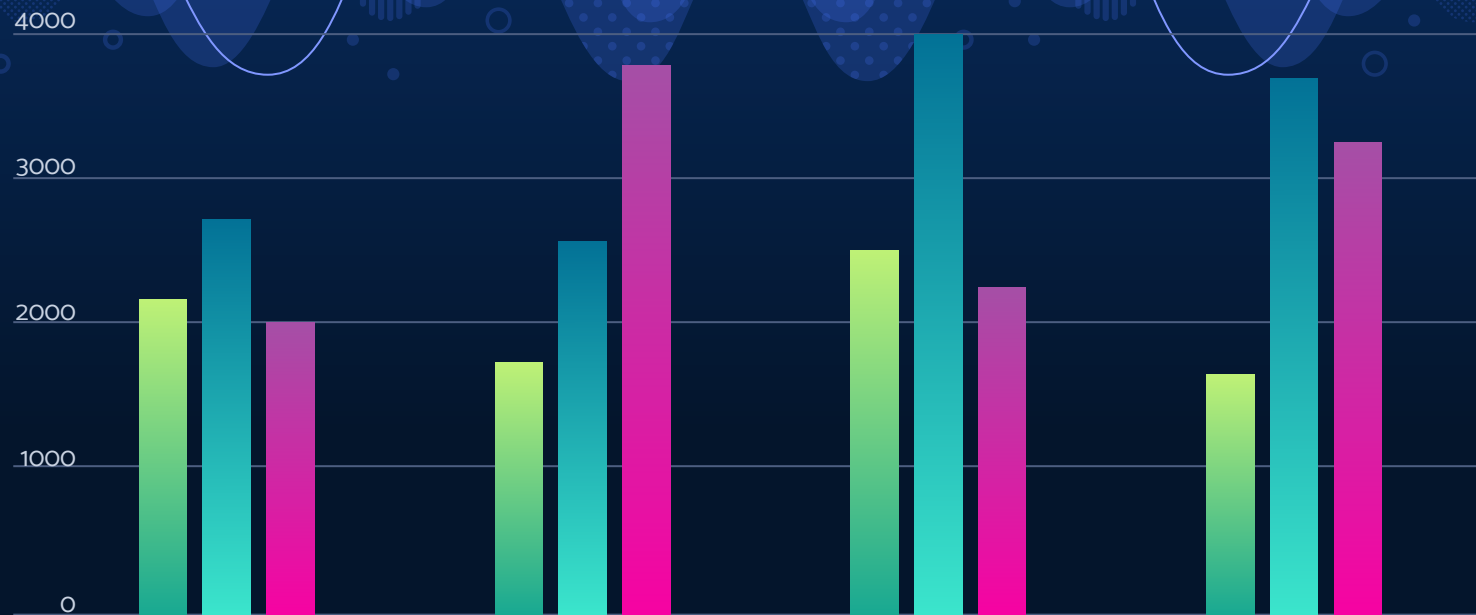
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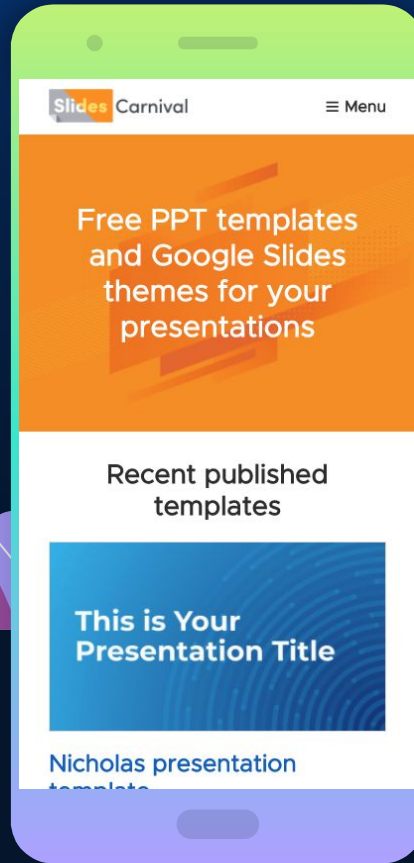
## Red

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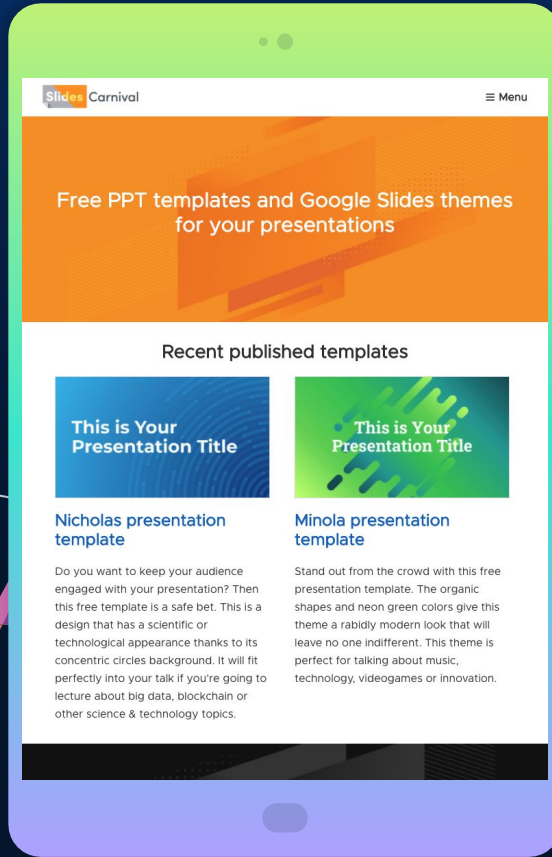
You can insert graphs from Excel or Google Sheets

# MOBILE PROJECT



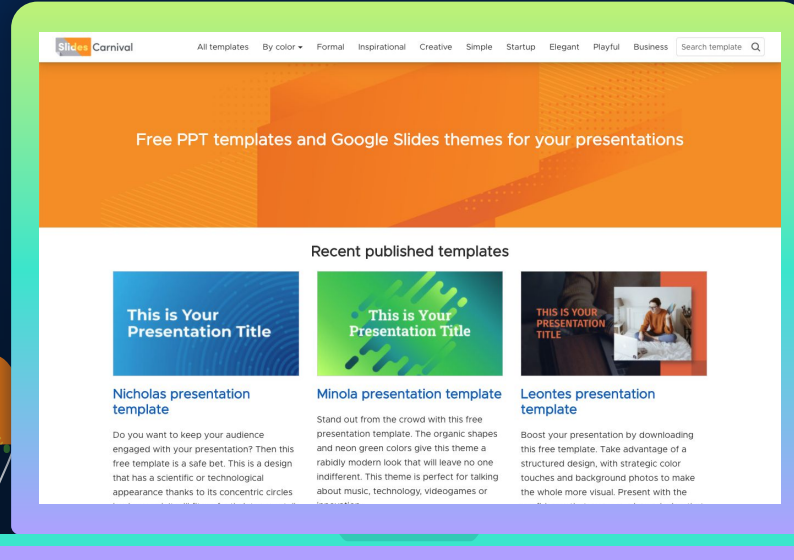
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# TABLET PROJECT



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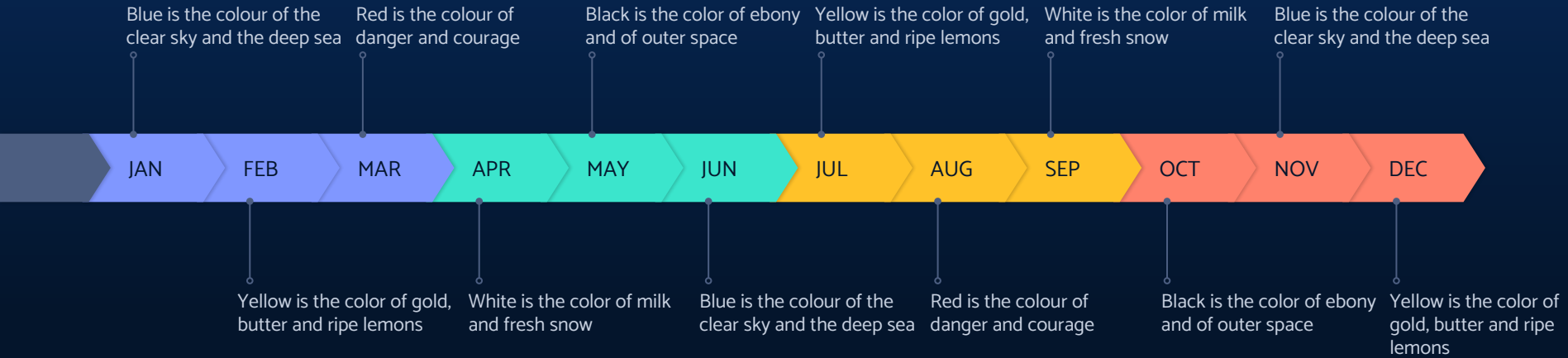
2.

# EXTRA RESOURCES

For Business Plans, Marketing Plans, Project Proposals, Lessons, etc



# TIMELINE



# ROADMAP

Blue is the colour of the  
clear sky and the deep sea

1

Red is the colour of danger  
and courage

3

Black is the color of ebony  
and of outer space

5

2

Yellow is the color of gold,  
butter and ripe lemons

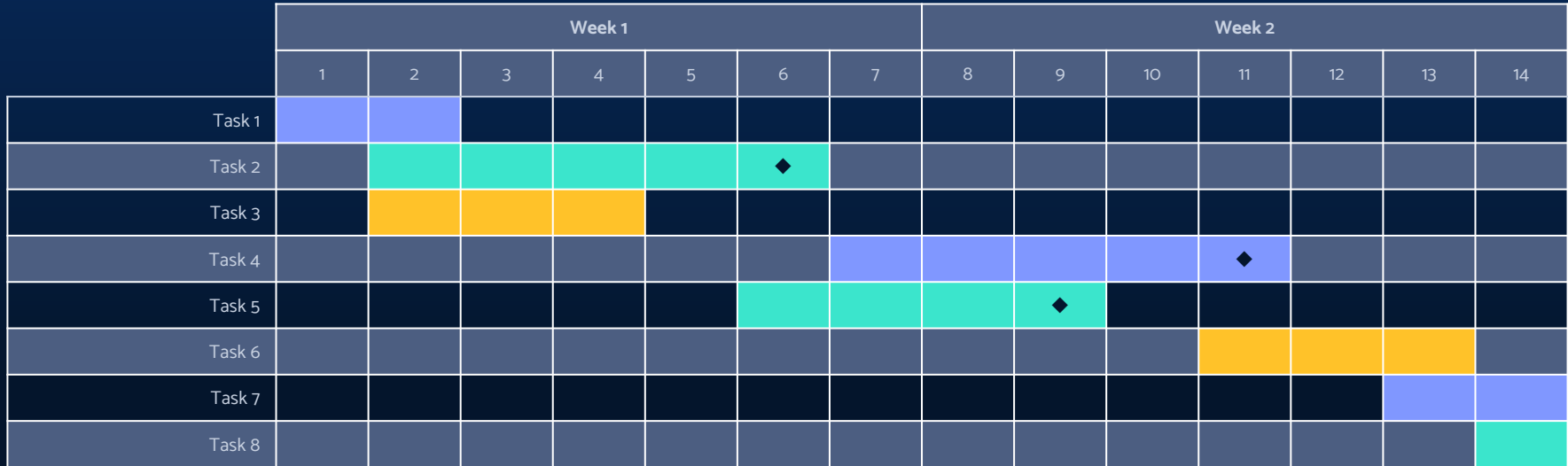
4

White is the color of milk  
and fresh snow

6

Blue is the colour of the  
clear sky and the deep sea

# GANTT CHART



# SWOT ANALYSIS

## STRENGTHS

Blue is the colour of the clear sky and the deep sea

## WEAKNESSES

Yellow is the color of gold, butter and ripe lemons

S

W

O

T










Black is the color of ebony and of outer space

## OPPORTUNITIES

White is the color of milk and fresh snow

## THREATS

# BUSINESS MODEL CANVAS

<b>Key Partners</b> Insert your content 	<b>Key Activities</b> Insert your content 	<b>Value Propositions</b> Insert your content 	<b>Customer Relationships</b> Insert your content 	<b>Customer Segments</b> Insert your content 
	<b>Key Resources</b> Insert your content 		<b>Channels</b> Insert your content 	
<b>Cost Structure</b> Insert your content 		<b>Revenue Streams</b> Insert your content 		

# FUNNEL





# TEAM PRESENTATION



**Imani Jackson**

JOB TITLE

Blue is the colour of the clear  
sky and the deep sea



**Marcos Galán**

JOB TITLE

Blue is the colour of the clear  
sky and the deep sea



**Ixchel Valdía**

JOB TITLE

Blue is the colour of the clear  
sky and the deep sea

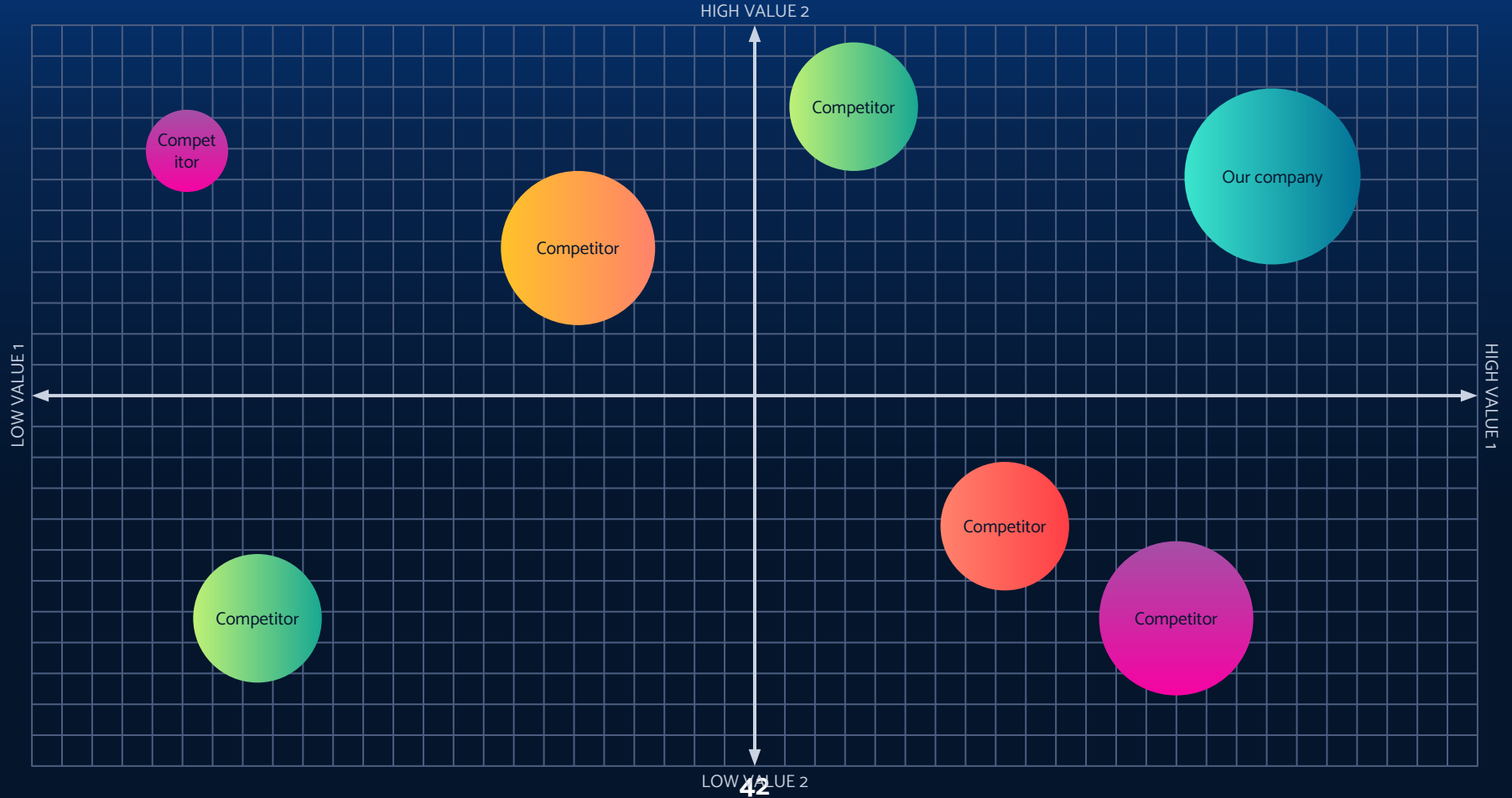


**Nils Årud**

JOB TITLE

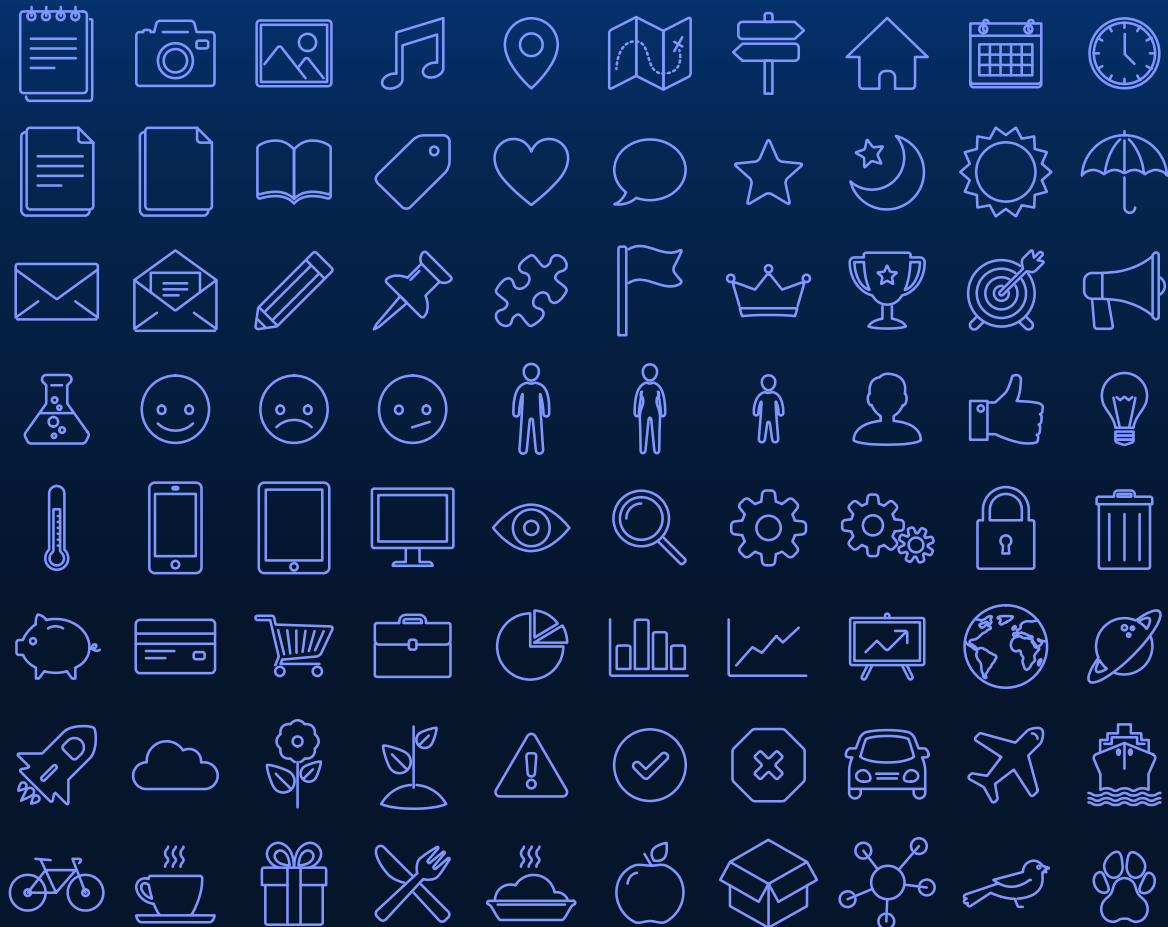
Blue is the colour of the clear  
sky and the deep sea

# COMPETITOR MATRIX



# WEEKLY PLANNER

	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
09:00 - 09:45	Task	Task	Task	Task	Task	Task	Task
10:00 - 10:45	Task	Task	Task	Task	Task	Task	Task
11:00 - 11:45	Task	Task	Task	Task	Task	Task	Task
12:00 - 13:15	✓ Free time	✓ Free time	✓ Free time	✓ Free time	✓ Free time	✓ Free time	✓ Free time
13:30 - 14:15	Task	Task	Task	Task	Task	Task	Task
14:30 - 15:15	Task	Task	Task	Task	Task	Task	Task
15:30 - 16:15	Task	Task	Task	Task	Task	Task	Task



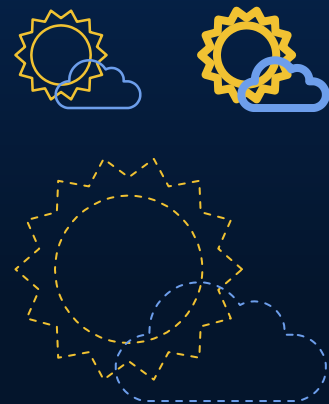
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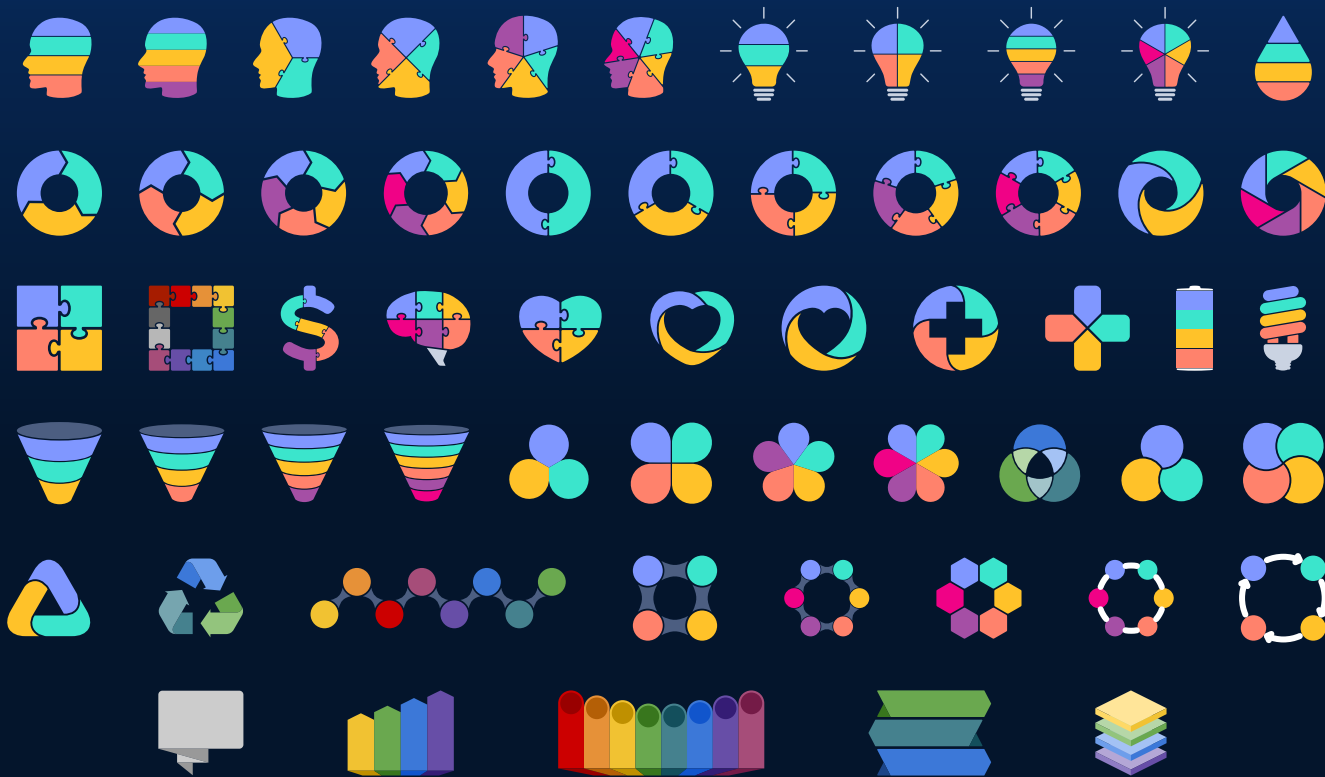
Isn't that nice? :)

Examples:



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# DIAGRAMS AND INFOGRAPHICS





You can also use any emoji as an icon!  
And of course it resizes without losing quality.

How? Follow Google instructions <https://twitter.com/googledocs/status/730087240156643328>



many more...