

**MUSIC**  
CASE STUDY



# Deconstructing the Billboard Hot 100

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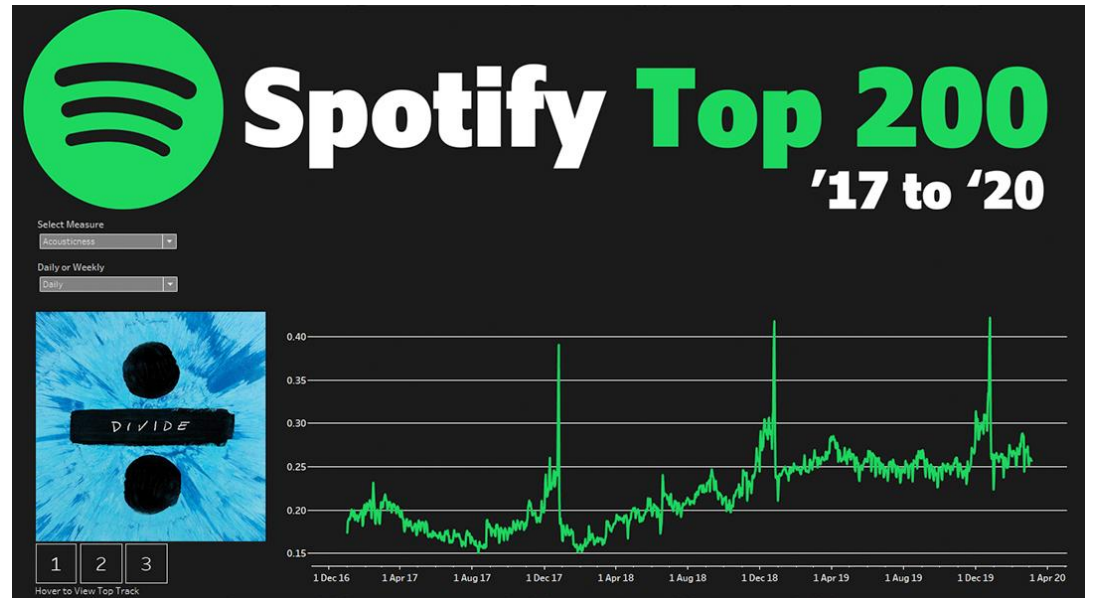
**Video by** Andrew Ullah

**Orchestrated by** Andrew Ullah, Alberto Martinez, Elaine Doan, Ashwin Kamaraj & Donghong Chen  
Students of the University of Southern California, Marshall School of Business

**Companion slides**

# Deconstructing the Billboard Hot 100

**MUSIC**  
INDUSTRY DATA





# Agenda

- Problem Matrix
- Background
- Influence Chart
- Analysis
- Models (Regression & Decision Trees)
- KPIs & Improvements
- Insights & Recommendations

# Billboard

**THE HOT 100**



# Analysis: Variables

**Y-variable:** Song Success

**X-variables (14):**

Acousticness

Time signature

**Loudness**

Explicit

Instrumentalness

Popularity

Liveness

**Danceability**

**Speech**

Mode

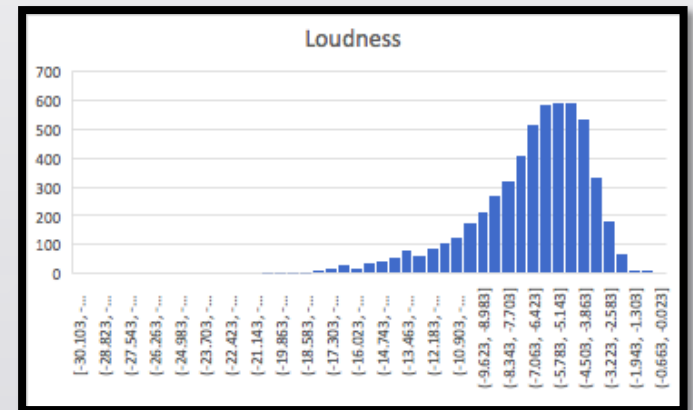
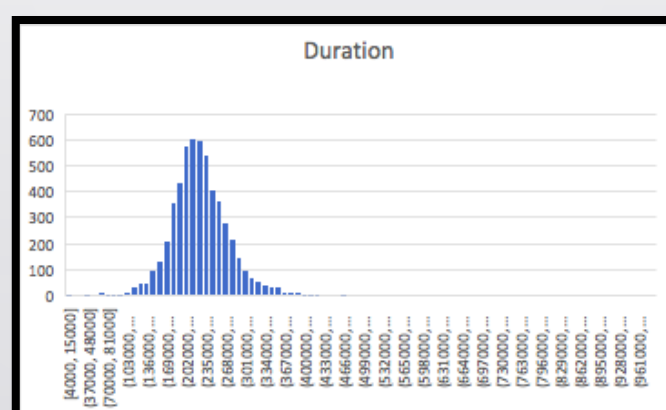
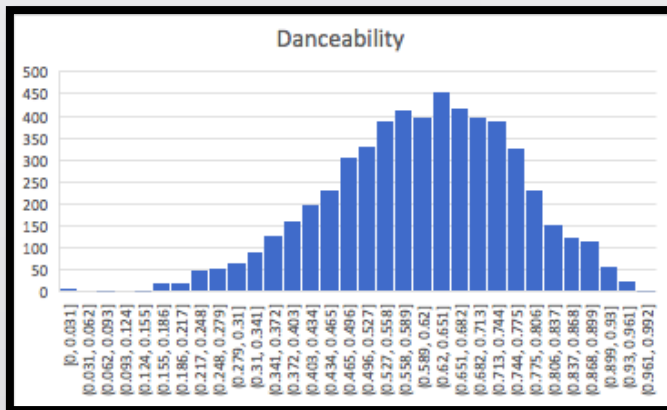
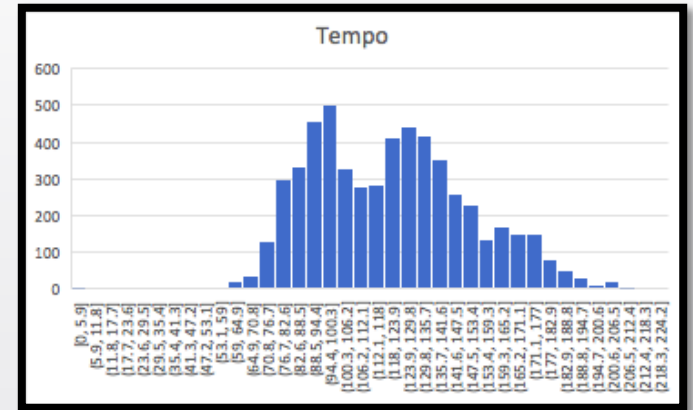
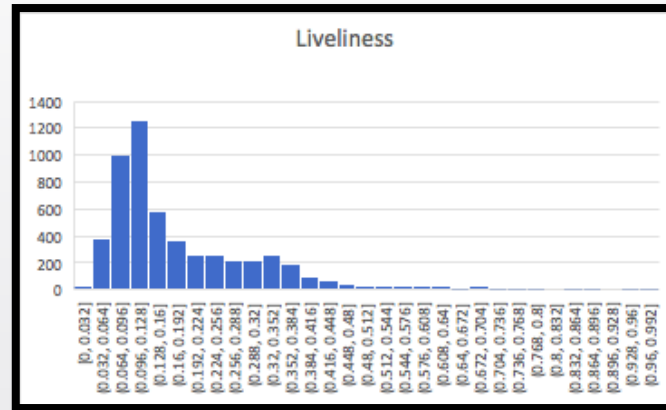
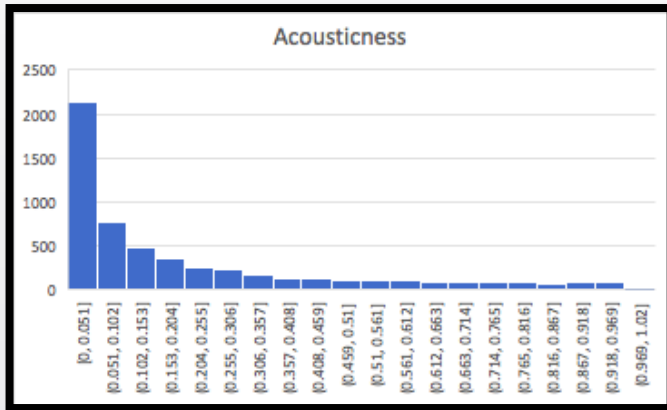
Duration

Valence

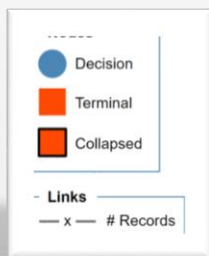
Tempo

Energy

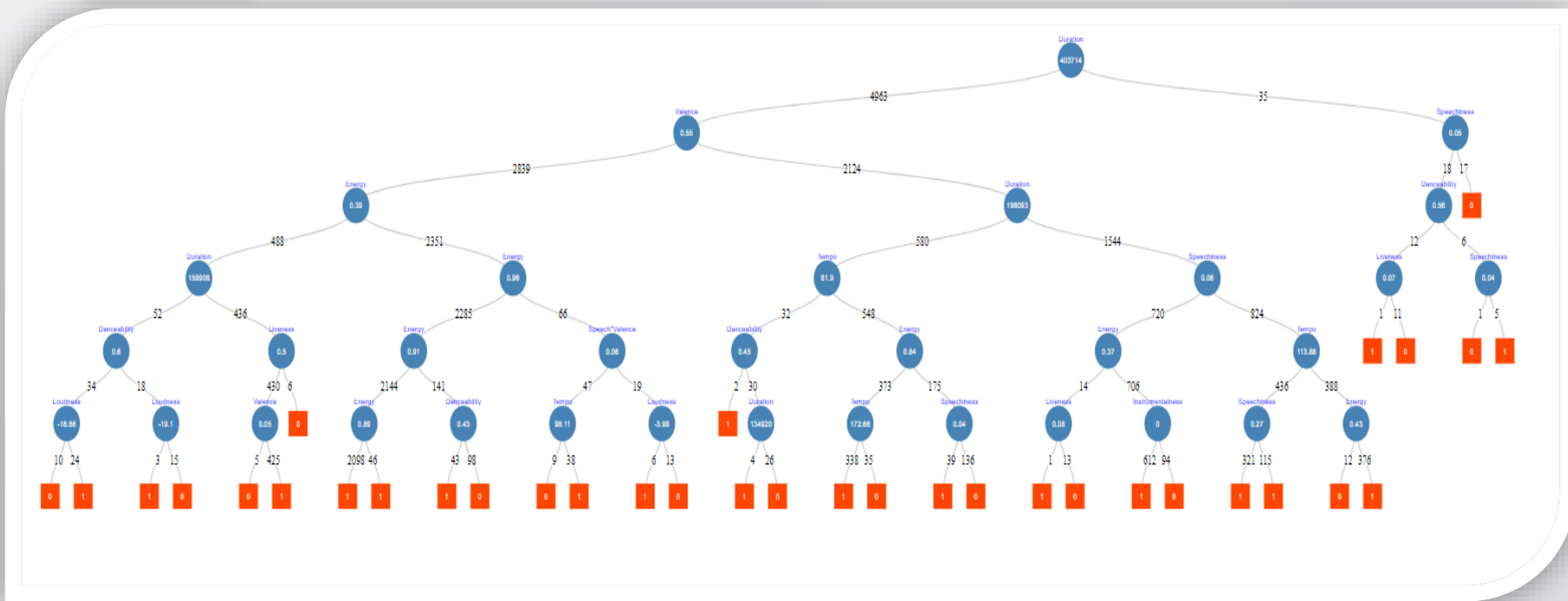
# Primitive Visualization



# Analysis: Decision Tree



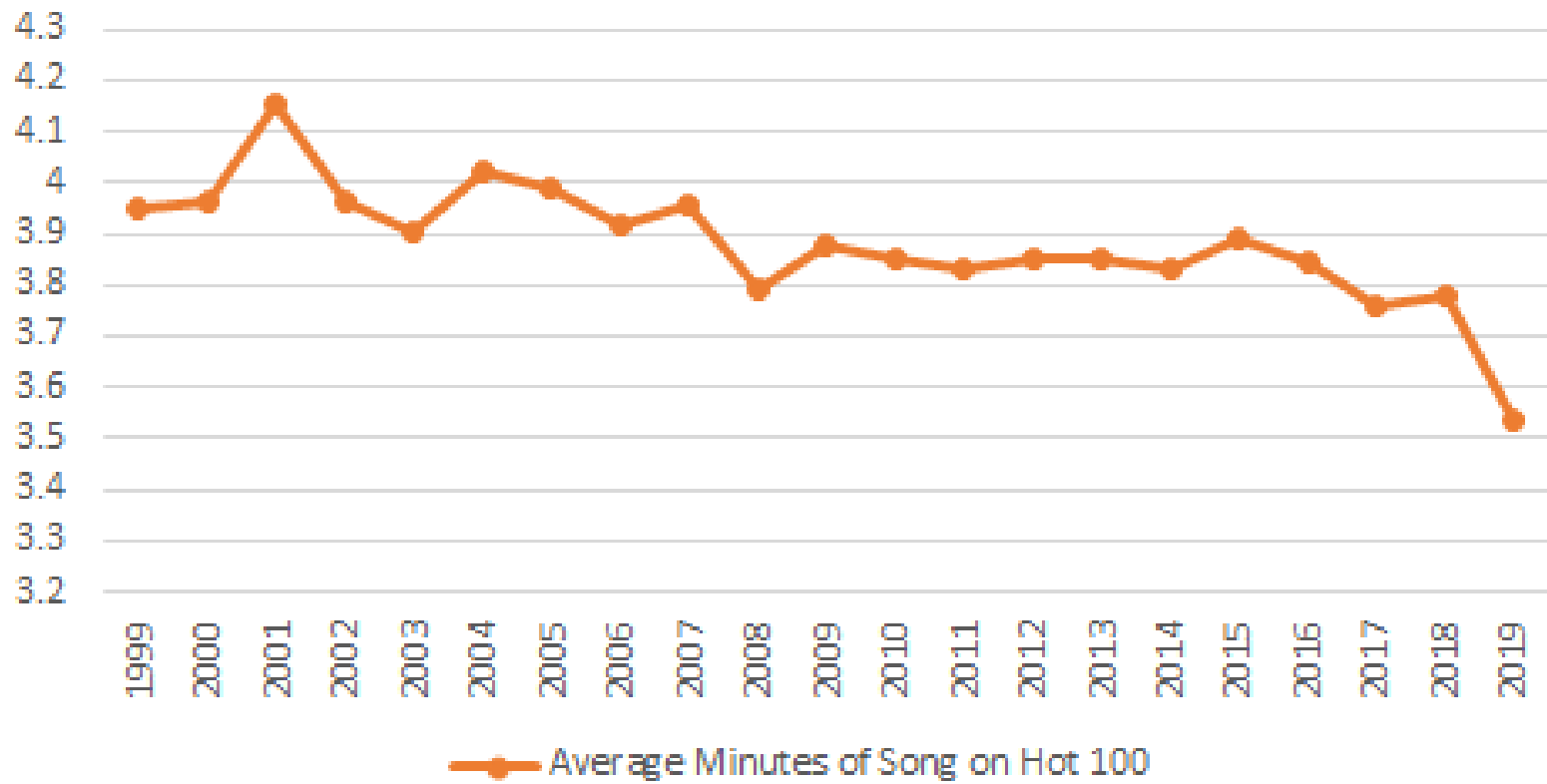
**Tree Info**  
 Tree Height: 7  
 # Nodes: 69



Feature	Importance
Duration	2.112244898
Acousticness	0.802120848
Explicit	0
Liveness	2.052020808
Mode	0.391756703
Tempo	2.069627851
Time Signature	0
Instrumentalness	0.795518207
Danceability	2.483993597
Energy	3.740496198
Loudness	1.628251301
Speech*Valence	0.421368547
Speechiness	2.094637855
Valence	0.849539816

# Business Insights:

Average Minutes of Song on Hot 100



	Mood	Old Town Road
Primary Performing Artist(s)	24kGoldn, iann dior	Lil Nas X featuring Billy Ray Cyrus
Duration	2:17	2:34
Peak Chart Position	1	1
Weeks in the Top 10	10	19
Genre	Rock (All), Hip Hop/Rap, Pop, Trap	Blues, Country, Hip Hop/Rap, Pop, Trap
Group	Duet/Group (All Male)	Duet/Group (All Male)
Origin	TikTok	TikTok





## Business Use Case: "Tap In," Saweetie

- "Tap In" has peaked at No. 3 on Billboard's Hot Rap Songs and R&B/Hip-Hop, and Billboard Hot 100 at 20, and has **earned** 110.1 million on-demand U.S. streams, according to Nielsen Music/MRC Data, thanks in part to a TikTok dance challenge. The expected payout from on-demand streams for this song is near \$860K. The song is 2:19 in duration and features a sample at the start of the song to ensure you listen to at least 30 seconds to earn a royalty.

<https://www.youtube.com/watch?v=0GEziVTQAA8>



Recommendations:

