

# Spotify Artist Network

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# Our Project

For our project, we decided to create a network based off song collaborations between music artists. We did this by compiling the songs of the top 1000 artists. Each artist collaborated both within the top 1000 and outside of the top 1000, giving us a total of 20,478 nodes and 44,410 edges.

What is the most well-connected artist on the spotify platform?

Does the music industry have their own Kevin Bacon?

Do the top 500 artist collaborate amongst themselves more than with artists outside the top 1000?

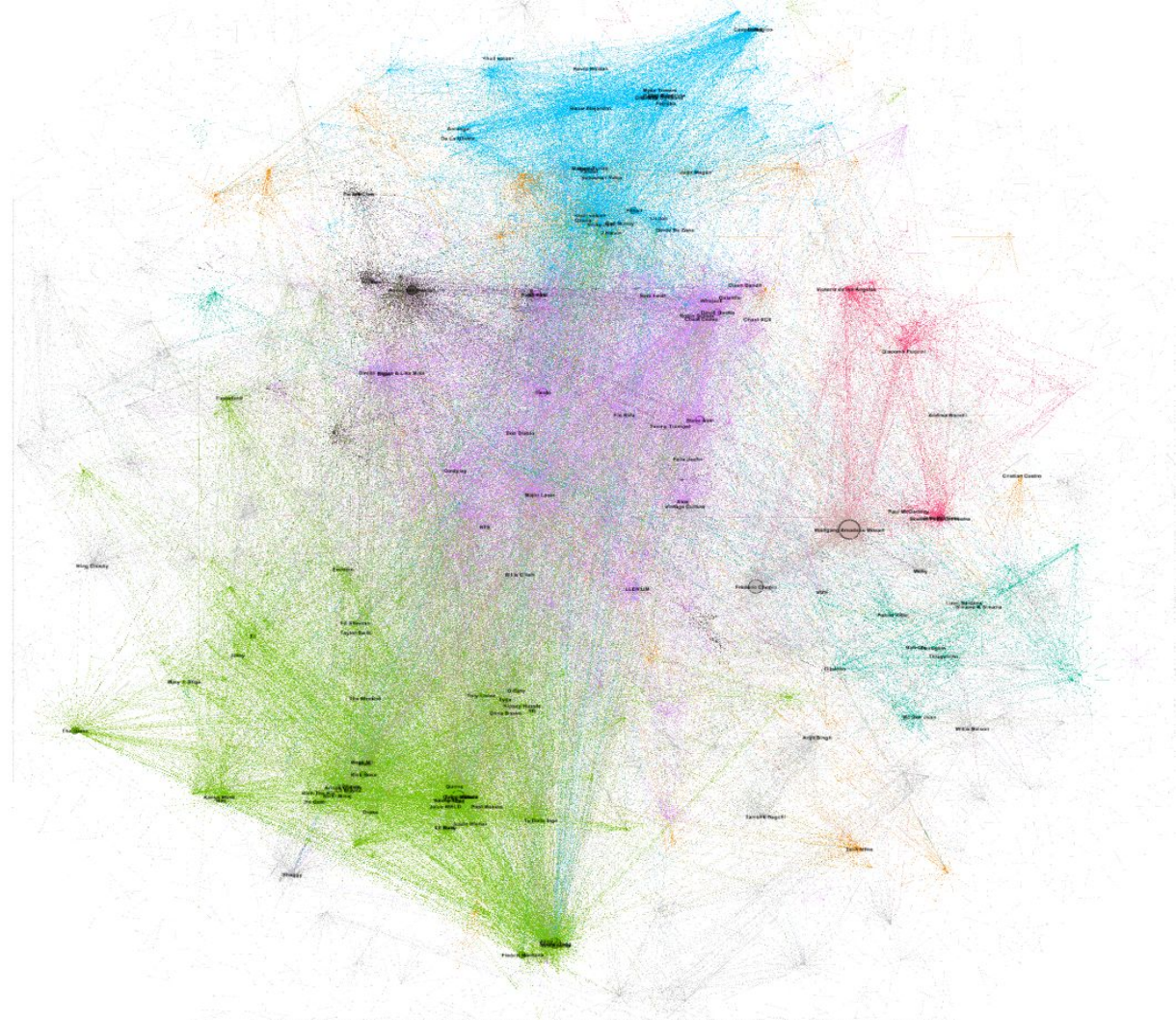
# Nodes and Edges

Edges: Songs with 2 or more artists.

Nodes: Artists in the top 1000 as well as artists that created songs with said artists

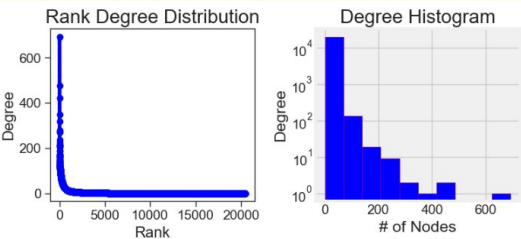
# Our Network

Nodes	20,478
Edges	44,410
Min degree	1
Max degree	693
Avg degree	4.3
Cluster Coeff	0.37
Avg shortest path	1.050985
Modularity	0.7237

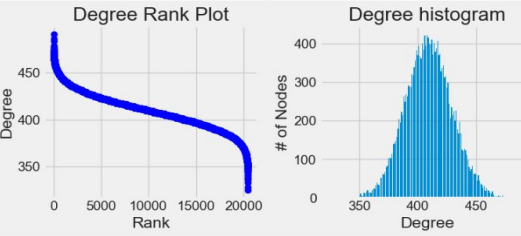


# Null Model Comparison

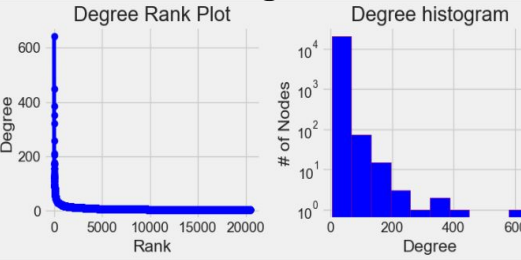
## Spotify Network Degree Distribution



## ER Network Degree Distribution

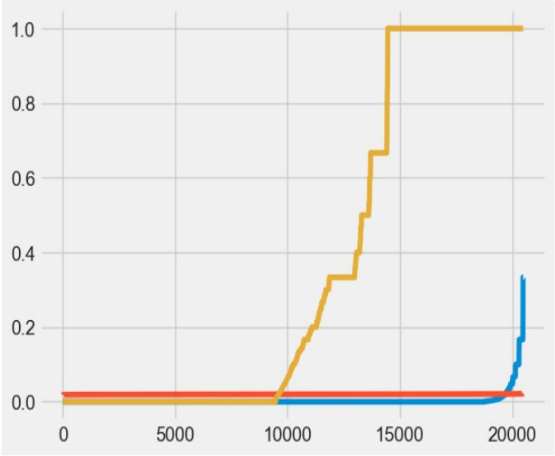


## BA Network Degree Distribution



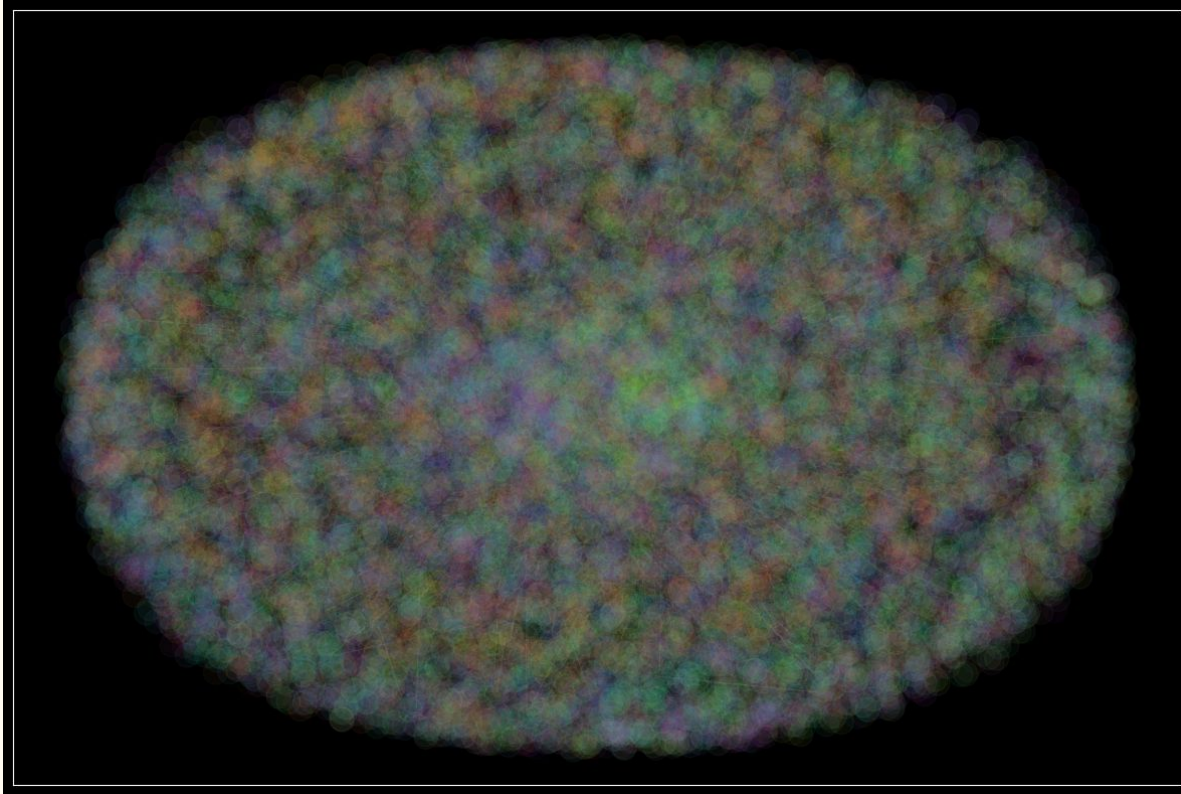
Network	Cluster Coefficient	Shortest path
Spotify	0.37	1.05
Erdős-Rényi	0.02	0.99
Barabasi Albert	0.0036	2.06

Cluster Coefficient per node



Node

# Communities



Using a greedy algorithm, we determined that our network has 965 communities and a modularity of 0.7237

# Our Findings pt.1

What is the most well-connected artist on the spotify platform?

Artist	Degree	Popular ranking
Wolfgang Amadeus Mozart	683	829
Frédéric Chopin	476	896
Gucci Mane	423	222
Snoop Dogg	349	240
Armin van Buuren	318	378
R3HAB	281	384

Artist	Degree	Popular ranking
Drake	99	1
Bad Bunny	95	2
Ed Sheeran	97	3
The Weeknd	56	4
Taylor Swift	30	5
Justin Bieber	82	6

- Connectivity
- Longevity
- Genre

# Our Findings pt.2

Do the top 1000 artist collaborate amongst themselves more than with artists outside the top 1000?

Internal to the top 1000 artists, we found 23,953 collaborations and the number of collaborations between the top 1000 artists and artists external to the top 1000 to be 60,559



# Limitations and Improvements

One limitation we found was for our question regarding the Kevin Bacon of the music industry. Although we can compute the shortest path between 2 nodes, doing so for all nodes in our network and then checking if an artist was connected to the whole network with paths less than 6 we found to be computationally infeasible with the time we had.

Platform dependant.

Region dependant.