



# **HUMMING BIRD**

Curriculum Project:

Cheyenne Lu



# PURPOSE

Song stuck in my head? How  
can I figure it out when I  
don't have lyrics?

Shazam, but for humming, but  
for classical music



Google Hum

Shazam



# HOW IT WORKS



Splice MP3 to numbers



🐦 Humming Bird 🐦

Start Listening

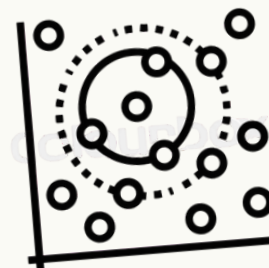
🎵 Final Predicted Song:

⌚ Waiting for prediction...



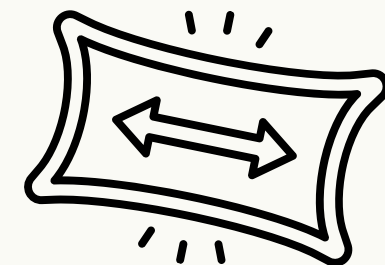
Apply to Input

Output Prediction



K Nearest Neighbor

Dynamic Time Warping



# WHAT I USED

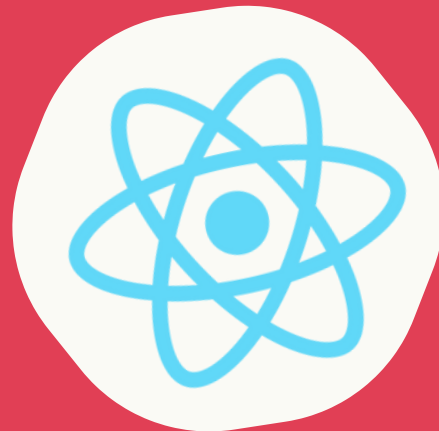
1. Youtube mp3 free converter



2. Librosa Library



3. React Js



4. FastAPI



WHAT I USED

1. Youtube mp3 free converter

 **EzMP3**

 **librosa**

 **FastAPI**





**SO...HOW WELL  
DOES IT WORK**



NOT VERY BEST...



By Chance: 1.96%



3.3%

	1	2	3
3)			
Waltz	Concerto No. 2, Concerto E Minor	No. 5 in D major	
Maestro	Maestro	Maestro	The Nutcracker
Claire de lune	Maestro	Maestro	Maestro
L'isle Joyeuse	Concerto No. 2, Concerto E Minor	Concerto in A minor	
Dvorak Symphony	Concerto No. 2, Concerto E Minor	Concerto in A minor	
Dvorak Humoresque	Concerto E Minor	Griegian Rhapsody, 9 (From the Nibelungen)	
Eine Klein Nact	Concerto E Minor	Etude Op. 10 No. 1	Maestro
Wedding March	Concerto No. 2, Concerto E Minor	Concerto in A minor	
bumblebee	Concerto E Minor	Concerto in A minor	
Peer Gynt	Concerto E Minor	Concerto in A minor	

k=4 chain = 5

Piece (k=4)	1	2	3
Brandenburg	Concerto E Minor	Concerto No. 2, Concerto E Minor	
Fur Elise	Concerto in A minor	Concerto E Minor	Maestro
Moonlight Sonata	Polonaise, Op. 40	Concerto in A minor	
Beethoven 5	Concerto E Minor	Concerto No. 2, Concerto E Minor	
Bizet Habanera	Concerto E Minor	Concerto in A minor	
Chopin Etude 3	Concerto E Minor	Concerto in A minor	
Fantasia Im	Concerto E Minor	Concerto in A minor	
Nocturn C# minor	Concerto E Minor	Concerto No. 2, Concerto E Minor	
nocturn op 9 no 3	Concerto E Minor	Concerto in A minor	
Chopin Polonaise	Concerto E Minor	Concerto in A minor	

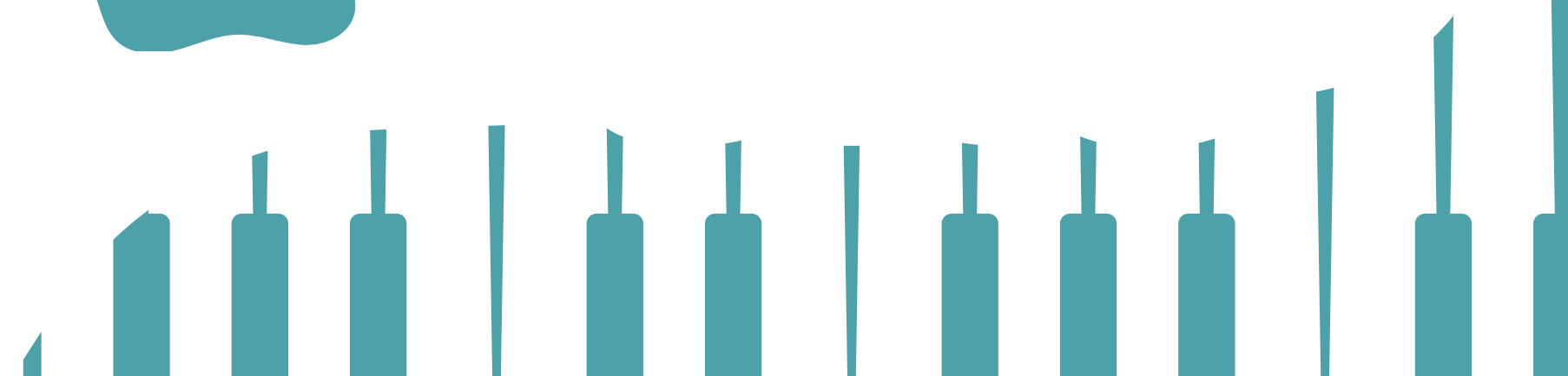
20%


Concerto No. 2, (Maestro)	Maestro	Maestro
Handel water moon	Concerto No. 2, (Maestro)	Maestro
Handel Music for	Concerto No. 2, (Maestro)	Maestro
Bach prelude no-	Concerto No. 2, (Maestro)	Maestro
Jesus joy of mar	Concerto E Minor	Concerto in A minor
Brahms Hungari	Concerto E Minor	Concerto in A minor
Listz Hungarian	Concerto E Minor	Concerto in A minor
Mahler symphon	Concerto in A minor	Concerto in A minor
Mendelssohn	Concerto in A minor	Concerto in A minor
Mendelssohn viol	Concerto E Minor	Concerto in A minor

k=5 chain = 4

3.3%

k=3 chain = 5





Entire song vs  
“hummable” slice

# ACCURACY


Oversimplification of  
melody

Longer pieces higher  
chance of detection

## CHALLENGES AND IMPROVEMENTS



Mic too sensitive







# THANK YOU FOR LISTENING!

Shoutout to Isaac & Bree 📖