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SI 206

Dr. Ericson

Final Project Report

Objective, Goals, and Problems:

For this project, we strived to determine which ticket platform, SeatGeek or Ticketmaster sold cheaper tickets on average, based on each event. We were able to successfully complete the following tasks:

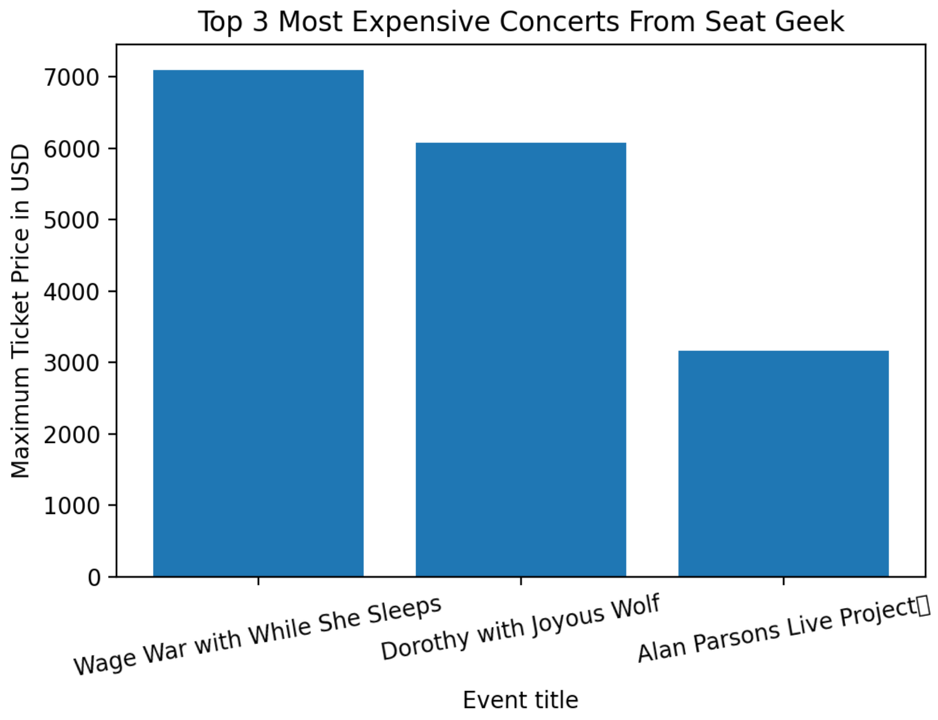
a. Pull at least 100 unique events from each database and created two tables to display each event's information in an organized manner
b. Calculate the mean ticket price for each event
c. Calculated the overall mean ticket price for each platform.
d. Wrote two csv files to display our calculations.
e. Created four visuals to display our findings.
f. We were able to determine that SeatGeek is the cheaper platform overall.

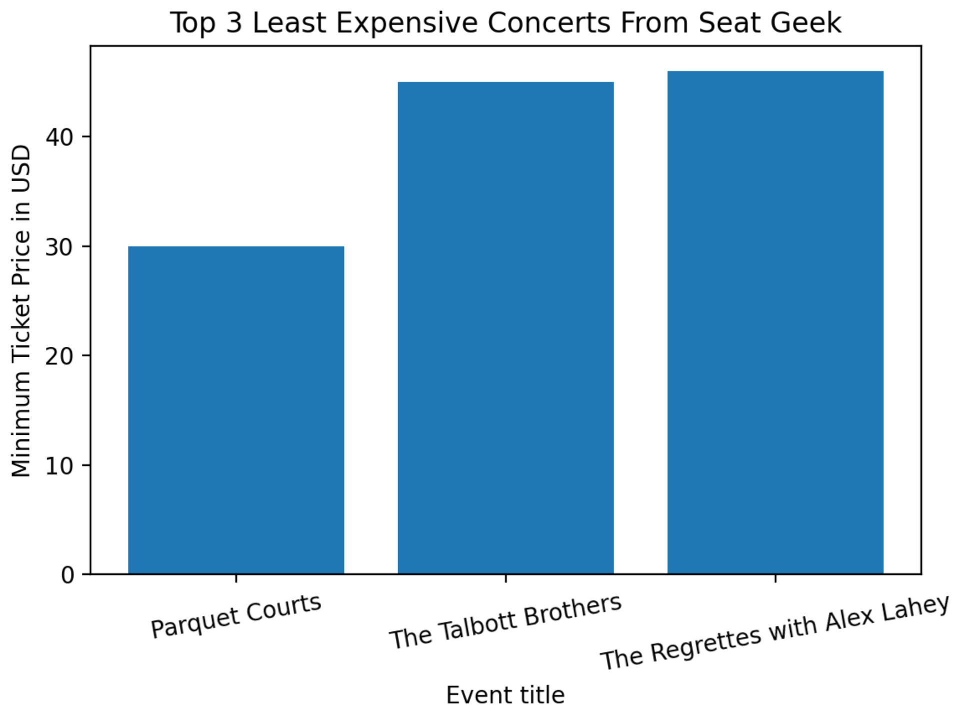
However, we did fall short when it came to joining our databases. We thought that the events that we added to our database would have aligned, such that we could compare ticket prices per event per ticket selling website, but that was not the case. So to combat this we decided to calculate the mean ticket price for the platform as a whole and compare the two platforms overall, rather than on a per event basis. We also found that with each site there were different amounts of concert events at differing prices. We tried to help this by putting in as many parameters as we could to parse through the different types of events in ticket master. As well as use only the first 100 to calculate the mean in order to keep the data consistent and as comparable as possible. However, we recognized that even with all of this the data for ticket master has smaller scale events and therefore the mean price shows a lower price and this is something that we did not know how to fix with a parameter or parsing.

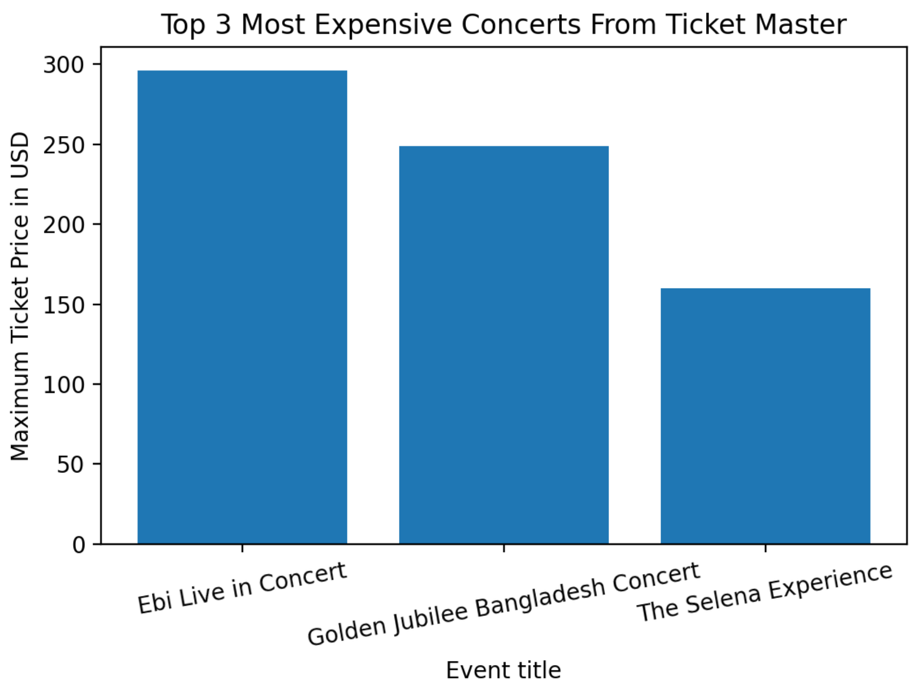
Instructions for Running the Code:

Click run and enter any page number for the input for seat geek and ticket master - we have already created the database with over 100 rows of data for each table. Each calculation function will work with the existing 100 rows. Everything should run automatically through the main function.

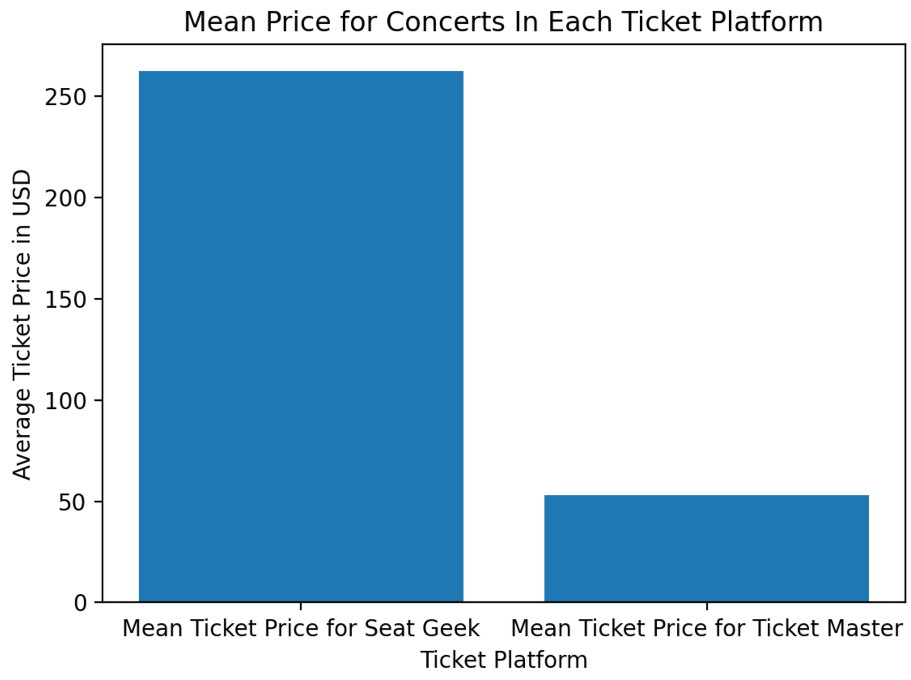
Visuals:


Top 3 Most Expensive Concerts From Seat Geek
Maximum Ticket Price in USD
7000
6000
5000
4000
3000
2000
1000
0
Wage War with While She Sleeps
Dorothy with Joyous Wolf
Alan Parsons Live Project
Event title


Top 3 Least Expensive Concerts From Seat Geek
Minimum Ticket Price in USD
40
30
20
10
0
Parquet Courts
The Talbott Brothers
The Regrettes with Alex Lahey
Event title



Top 3 Most Expensive Concerts From Ticket Master
Maximum Ticket Price in USD
300
250
200
150
100
50
0
Ebi Live in Concert
Golden Jubilee Bangladesh Concert
The Selena Experience
Event title



Mean Price for Concerts In Each Ticket Platform
Average Ticket Price in USD
250
200
150
100
50
0
Mean Ticket Price for Seat Geek
Mean Ticket Price for Ticket Master
Ticket Platform

CSV Files:

SeatGeek:

Event Title	Seat Geek Average Ticket Prices
Jacob Collier	255.5
The Flaming Lips with Particle Kid (16+)	125.0
Girl Talk	72.0
Deftones (Rescheduled from 9/5/2020, 9/10/2021)	251.0
Godspeed You! Black Emperor	95.0
Aly & AJ	194.5
Ashe (16+)	255.5
OMD	110.5
Lorde	384.5
The Piano Guys	135.0
JXDN	100.0
JXDN	106.5
Easy Life (21+)	259.5
The String Cheese Incident	134.0
James Arthur with Nina Nesbitt	274.0
Indigo De Souza (18+)	75.0
Parquet Courts	27.0
Yumi Zouma (16+)	272.0
For King & Country	529.0
Diana Krall	262.5
The Talbott Brothers	43.0
Pabllo Vittar	82.0
Tai Verdes	99.0
Fast Times	117.0
Cat Power	209.0
Charli XCX	227.5
The Story So Far with Joyce Manor, Mom Jeans, and Microwave	199.5
Saba	285.0
Gang of Youths	84.5
Journey with Toto	1534.5
Testament with Exodus	135.0
Ultimate Music Experience	59.5
Lights	108.0
Trace Adkins	136.0

Turnstile with Citizen, Ceremony, and Ekulu (16+)	317.0
Dayseeker with Holding Absence, Thornhill, and Caskets	80.0
Mat Kearney with Birdtalker	131.0
HAIM with Buzzy Lee	256.0
Sierra Ferrell	117.0
Rainbow Kitten Surprise with Flipturn	230.5
Modest Mouse with The Cribs	200.0
Black Veil Brides with Ice Nine Kills and Motionless in White	291.5
The Magnetic Fields with Jake Xerxes Fussell	208.5
Melissa Etheridge	249.5
Code Orange	118.5
Primus with Battles	261.0
Riverside (18+)	291.0
Wayne Newton with Up-Close and Personal	209.5
Too Many Zooz	62.5
Candlebox	219.0
Melvin Seals	183.0
Helado Negro	274.0
Homeshake (18+)	115.0
Lars Frederiksen	98.0
John Scofield	236.0
Brit Floyd	238.0
Megadeth with Lamb of God and In Flames and Trivium	424.5
PEARS (21+)	118.0
10 Years with Black Map	76.5
Guerilla Toss (18+)	50.0
Spoon with Margaret Glaspy	91.0
Gladys Knight	1181.5
Aimee Mann	121.0
Aimee Mann	188.0
Escape The Fate with The Red Jumpsuit Apparatus	89.5
Eagles	925.5
Wage War with While She Sleeps	3571.0
The Brian Jonestown Massacre with Mercury Rev	86.5
Interpol with Tycho	157.5
Alan Parsons Live Project	1689.0
The Warning	71.0
Dorothy with Joyous Wolf	3065.0
Shelby Lynne	90.0

Biffy Clyro	106.0
Kelsy Karter with Niki Demar	265.5
Lindsey Buckingham	121.0
Cut Copy with Suzanne Kraft	122.0
NEEDTOBREATHE with Patrick Droney	88.0
Breaking Benjamin	176.5
Waxahatchee	89.5
The California Honeydrops	77.5
Mastodon with Opeth	206.5
Anson Seabra	252.0
HO99O9 (18+)	74.5
Iron Butterfly (21+)	118.0
Citizen Cope	85.0
Snow Tha Product	97.5
Pedro The Lion (18+)	125.5
Casting Crowns with Hillsong Worship	143.5
Shelby Lynne	153.0
The Glorious Sons	100.5
Jason Bonham's Led Zeppelin Experience	347.5
OhGeesy	91.0
PUP	87.5
Nathaniel Rateliff & The Night Sweats	197.5
Bilal	176.0
Raveena	132.5
Kurt Vile and the Violators with Chastity Belt	117.5
H.E.R.	345.0
Angel Du$t	98.0
Mean Price	262.38

Ticketmaster:

Event Title	**Ticketmaster Average Ticket Prices**
Ship It Off! A Taylor Swift Party Cruise!	35.0
BrownstoneJAZZ NITE CONCERT SERIES	35.0
SOLD OUT: Concert Crave Presents: Aaron West & The Roaring Twenties	25.0
Bela Fleck & Abigail Washburn	64.0
Hey Nineteen: Tribute to Steely Dan	30.0
Pavlo in Concert	42.0
Mack, Jack & McConaughey presents Jack & Friends Concert 2022	52.0

BrownstoneJAZZ NITE CONCERT SERIES	35.0
The UTEP Symphony Orchestra In Concert	3.0
Legends In Concert (Las Vegas)	92.5
An Evening With Whitney: The Whitney Houston Hologram Concert (Las Vegas)	72.0
The 70's Soul Jam Valentines Concert	100.0
Rock on the James Benefit Concert for Parkinson Wellness and Support of Greater Cincinnati	20.0
Emo Boat NYC	30.0
BrownstoneJAZZ FEST CONCERT SERIES	35.0
Slee Visiting Artist Concert: Melissa White, Violin	20.0
The 70's Soul Jam Valentines Concert	100.0
Zac Brown Tribute Band	15.0
BrownstoneJAZZ FEST CONCERT SERIES	35.0
Dre'Co: Live in Concert	20.0
Nashville Jamboree Benefit Concert - w/ Stoop Kids, Jack Schneider & Friends, The Burps, and Special Guests!!	20.0
Legends In Concert (Las Vegas)	92.5
An Evening With Whitney: The Whitney Houston Hologram Concert (Las Vegas)	72.0
Ebi Live in Concert	171.0
The Noise Reggaeton Party	15.0
The Flaming Lips: American Head American Tour	45.0
A Concert Benefiting Lili Huettlinger ft. Lily Ryder, Jacob Lourie, and Brea Fournier	30.0
Legends In Concert (Las Vegas)	92.5
An Evening With Whitney: The Whitney Houston Hologram Concert (Las Vegas)	72.0
KOHAI & C9 Presents CIX 1st Concert REBEL in U.S.	66.0
Legends In Concert (Las Vegas)	92.5
Center for 21st Century Music: Slee Sinfonietta	10.0
An Evening With Whitney: The Whitney Houston Hologram Concert (Las Vegas)	72.0
UTEP Jazz Bands in Concert	3.0
Chicano Batman, Divino Niño	25.0
May The Fourth: A2-D2 Spring Concert	10.0
An Evening With Whitney: The Whitney Houston Hologram Concert (Las Vegas)	72.0
Legends In Concert (Las Vegas)	92.5
KottonMouth Kings	35.0
Los Rabanes Live In Concert	70.0
KOHAI & C9 Presents CIX 1st Concert REBEL in U.S.	62.0
An Evening With Whitney: The Whitney Houston Hologram Concert (Las Vegas)	72.0
The Selena Experience	87.5
Black Tiger Sex Machine	40.5
Ryan Hurd: tour de pelago	50.0

Legends In Concert (Las Vegas)	92.5
Flatland Cavalry - Far Out West Tour	18.0
Allmost Brothers Band & Half Step	15.0
Star Wars: Return of the Jedi in Concert W/Atlanta Symphony Orchestra	109.0
Golden Jubilee Bangladesh Concert	154.0
An Evening With Whitney: The Whitney Houston Hologram Concert (Las Vegas)	72.0
Black Jacket Symphony - "Synchronicity" + The Best of Greatest Hits	36.5
Flatland Cavalry - Far Out West Tour	36.5
Legends In Concert (Las Vegas)	92.5
An Evening With Max Creek	38.5
Ryan Hurd: tour de pelago	25.0
The Black Jacket Symphony "Synchronicity" + The Best of Greatest Hits	34.5
Sponge	17.0
BrownstoneJAZZ FEST CONCERT SERIES	35.0
Star Wars: Return of the Jedi in Concert W/Atlanta Symphony Orchestra	109.0
Dear Momma Mother's Day R&B Concert	100.0
Dance To The Max International - Spring	15.0
An Evening With Whitney: The Whitney Houston Hologram Concert (Las Vegas)	72.0
Kid Ink	70.0
Sir Rod - Rod Stewart Tribute	10.0
BrownstoneJAZZ FEST CONCERT SERIES	35.0
Los Lobos + Quetzal - The Cheech Benefit Concert	44.5
Max Frost	25.0
Tucson International Mariachi Conference Espectacular Concert	100.0
The Black Jacket Symphony "Synchronicity" + The Best of Greatest Hits	34.5
Joseph - The Requests Only Tour	50.0
Legends In Concert (Las Vegas)	92.5
Blink 180-True	15.0
An Evening With Max Creek	38.5
Madeleine Peyroux	66.5
Grand Asian Concert	30.0
An Evening With Whitney: The Whitney Houston Hologram Concert (Las Vegas)	72.0
ABBA The Concert: Direct From Sweden	34.0
Legends In Concert (Las Vegas)	92.5
Mat Kearney - The January Flower Tour	52.0
Legends In Concert (Las Vegas)	92.5
CIX 1st Concert REBEL in U.S.	60.0
An Evening With Whitney: The Whitney Houston Hologram Concert (Las Vegas)	72.0
Gifts from the Holy Ghost Tour featuring Dorothy and special guests	37.0

Mat Kearney - The January Flower Tour	29.0
Five for Fighting	55.0
An Evening With Whitney: The Whitney Houston Hologram Concert (Las Vegas)	72.0
Said the Sky	38.0
Max Frost	17.0
Gifts from the Holy Ghost Tour featuring Dorothy and special guests	19.0
Legends In Concert (Las Vegas)	92.5
An Evening With Whitney: The Whitney Houston Hologram Concert (Las Vegas)	72.0
KALEO	67.0
Legends In Concert (Las Vegas)	92.5
Said the Sky	25.0
Schism: A Tribute to Tool - Concert Cruise Aboard The Lucille	50.0
Too Many Zooz, HIGH AND MIGHTY BRASS BAND	40.0
Halestorm	49.0
An Evening With Whitney: The Whitney Houston Hologram Concert (Las Vegas)	72.0
The 90's Band	10.0
Mean Price	52.91

Function Documentation:

- *main():* takes in no parameter and returns nothing, but is called to run through each of the following functions for both the SeatGeek API and Ticketmaster API, as well as complete our calculations, create and write two csv files for ticketmaster and seat geek respective event price averages, and display our four visuals.
- *get_sg_events(pg_num):* takes in a number from user input and pulls the event ids for all events from the SeatGeek API. Then it iterates through the json object data to pull out only the events with a type="concert" and adds the event_id to a list called concerts_only that is returned by the function
- *create_sg_json(concert_list):* takes in a list of event_ids and then iterates through that list to pull the event information for each event id from the SeatGeek API and load it into a

json object. This information is appended to a list called info_list, which is returned by the function.

- *get_tm_events(page_number):* takes in a number from the user as a page number that is then inserted into a formatted URL. This URL has parameters to sort the data in ascending order by date, pull data with the key word concert, events that are only in the US, and in the music genre classification. All of this was done to ensure that we get as similar data from Seat Geek's and Ticket Master as possible. From the response json, each event is iterated through and added to a list of event_dictionaries if they meet the conditions of having the price ranges key and name key in their respective nested dictionaries, and match the necessary genre classification using a boolean. This function returns a list of event dictionaries that meet the conditions above.
- *setUpDatabase(dbname):* takes in a SQLite database file name and creates a database returning the cur and conn variables
- *create_sg_events_table(cur, conn):* takes in the cur and conn functions that were generated by setUpDatabase and creates a table called Seat_Geek_Events with the columns event_id (primary key), event_title, performers, dates, location, max_price, and min_price. Nothing is returned from this function.
- *create_tm_events_table(cur,conn):* takes in the cur and conn functions that were generated by setUpDatabase and creates a table called Ticket_Master_Events with the column event_id(primary key), event_title, performers, max_price, and min_price. Nothing is returned from this function.
- *create_tm_venue_table(cur,conn):* takes in the cur and conn functions that were generated by setUpDatabase and creates a table called Ticket_Master_Venues with a shared column

of event_id (primary key), and location of the event. Nothing is returned from this function.

- *add_sg_events(info, cur, conn)***:** takes in a nested list of event information that was generated in create_sg_json. Then, each event is iterated through to pull the necessary information that creates the variables event_id, event_title, dates, performers, location, max_price, and min_price. However, if that event does not have a max and min price then that event is skipped over. For each event the information found in the variables is then added to the accurate column within the SQLite Database table Seat_Geek_Events, and it skips over any event that is already included in the database.
- *add_tm_info(tm_data, cur, conn):* takes in a list of event dictionaries from the get_tm_events function. Each event is iterated through a for loop to pull data and add it to the table in the database. Nothing is returned from this function.
- *calc_sg_avgs(cur, conn):* takes in the cur and conn variables that were created in setUpDatabase. It then selects the event_title, max_price, and min_price from Seat_Geek_Events for each event in the table. Then while iterating through the results it adds each event title to a list called events and calculates the mean price for each event adding that value to a list called avgs. A nested list with events and avgs is returned by the function.
- *calc_tm_avgs(cur,conn):* takes in cur and conn variables that were created in setUpDatabase. Then selects event title, max price, and min price from each event from the Ticket_Master_Events table. Then iterates through each event tuple, and adds the event title to a list called events. It also calculates the average price using the two max

and min values and adds this to a list called avgs. A nested list with events and avgs is returned by the function.

- *calc_sg_mean(cur, conn):* takes in the cur and conn variables created by setUpDatabase and calculates the mean ticket price out of all of the avgs that were calculated from each event's individual mean price. The mean is rounded to the second decimal place and is returned by the function.
- *calc_tm_mean(cur,conn):* This function takes in the cur and conn variables created by setUpDatabase. It uses the calc_tm_avgs function to get a nested list with events and averages for ticketmaster events. It then uses a for loop to calculate the mean price for all events in ticket master, and returns the mean value as an integer.
- *write_sq_csv(cur, conn):* takes in the cur and conn functions generated by the setUpDatabase function. It runs the functions calc_sg_avgs and calc_sg_mean to get the list of events, list of averages, and the mean ticket price for Seat Geek. The list of events and averages are zipped together to create a list of tuples. A header is created for the two columns Event Title and Seat Geek Average Ticket Prices. Next, a csv file called "sg_avg_prices.csv" is created and opened to write. Using the csv writer, the header is written and then each tup from the list event_avgs is written into the file. Finally, the mean price is written in and the file is closed. Nothing is returned from this function.
- *write_tm_csv(cur, conn):* takes in the cur and conn functions generated by the setUpDatabase function. It runs the functions calc_tm_avgs and calc_tm_mean to get the list of events, list of averages, and the mean ticket price for Ticket Master. The list of events and averages are zipped together to create a list of tuples. A header is created for the two columns Event Title and Ticket Master Average Ticket Prices. Next, a csv file

called "tm_avg_prices.csv" is created and opened to write. Using the csv writer, the header is written and then each tup from the list event_avgs is written into the file. Finally, the mean price is written in and the file is closed. Nothing is returned from this function.

- *min_price_sg_visual(cur, conn):* takes in the cur and conn variables created from setUpDatabase. It selects the event_title and min_price from the Seat_Geek_Events table in the SQLite database ticket_platforms. The results are fetched and sorted by the min_price using a lambda function. The sorted results are iterated through and the concert title is appended to a list called x and the prices are appended to a list called y. The first three values from x and the first three values from y are plotted in a bar graph. The y-label is “Minimum Ticket Price in USD” and the x-label is “Event Title”. The x-ticks are rotated 10 degrees to make the labels more readable. The bar graph has a title of “Top 3 Least Expensive Concerts From Seat Geek” and the plot is shown. Nothing is returned from this function.
- *max_price_sg_visual(cur, conn):* takes in the cur and conn variables created from setUpDatabase. It selects the event_title and max_price from the Seat_Geek_Events table in the SQLite database ticket_platforms. The results are fetched and sorted by the max_price using a lambda function in reverse order. The sorted results are iterated through and the concert title is appended to a list called x and the prices are appended to a list called y. The first three values from x and the first three values from y are plotted in a bar graph. The y-label is “Maximum Ticket Price in USD” and the x-label is “Event Title”. The x-ticks are rotated 10 degrees to make the labels more readable. The bar graph

has a title of “Top 3 Most Expensive Concerts From Seat Geek” and the plot is shown. Nothing is returned from this function.

- *max_price_tm_visual(cur, conn):* takes in the cur and conn variables created from setUpDatabase. It selects the event_title and max_price from the Ticket_Master_Events table in the SQLite database ticket_platforms. The results are fetched and sorted by the max_price using a lambda function in reverse order. The sorted results are iterated through and the concert title is appended to a list called x, and the prices are appended to a list called y. The first three values from x and the first three values from y are plotted in a bar graph. The y-label is “Maximum Ticket Price in USD” and the x-label is “Event Title”. The x-ticks are rotated 10 degrees to make the labels more readable. The bar graph has a title of “Top 3 Most Expensive Concerts From Ticketmaster” and the plot is shown. Nothing is returned from this function.
- *avg_price_visual(cur, conn):* takes in the cur and conn variables created from setUpDatabase. Using the functions calc_sg_mean and calc_tm_mean the sg_mean and tm_mean are calculated. There are two x values: “Mean Ticket Price for Seat Geek” and “Mean Ticket Price for Ticket Master”. The two y values are sg_mean and tm_mean. A bar graph is plotted with a y-label of “Average Ticket Price in USD” and x-label of “Ticket Platform”. The title of the graph is “Mean Price for Concert”. Nothing is returned from this function.

Resources:

Date	**Issue Description**	**Location of Resource**	**Result**
Monday April 18th	Pulling 100 rows of data from SeatGeek	Office Hours with Amanda	Created an input variable to change the

	API		page that the API data was being pulled from
Thursday, April 21	Could not see all of text for each title, event titles were overlapping	Reddit thread	Rotated 10 degrees in order to have the event titles not overlap