The Battle of Cities: Tbilisi vs Berlin

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1. Introduction

1.1 Background

Tbilisi, the capital of post-soviet country Georgia, one of the oldest cities which is rediscovered by the world in recent years. For the past 10 years, the whole country is experiencing immense growth in tourism and its especially noticeable in Tbilisi. People come here to experience the natural beauty of Caucasus mountains or, the greenness of the forests and the wildlife preserved there, or simply enjoy summer on the beaches of the Adjara region. However, Tbilisi became popular for its night clubs, bars, and restaurants. As time goes by Tbilisi is attaining its reputation for mesmerizing nightlife and raving culture. In several articles Forbes, The Guardian and VICE pronounced Tbilisi as the center of the nightlife, putting him in from of such huge cities like Berlin and London. Last year Forbes called Tbilisi “This Year's Most Exciting City”[1] and it’s only beginning.

On the other side of the story, we have Berlin, which has a well-established reputation and has worldwide popularity due to its outstanding night clubs and bars and the experience the city can give to the peoples who are into nightlife. Since the fall of the berlin wall, this city converted itself as the benchmark city for clubbing and nightlife. However, the growth of Tbilisi’s, later conversations and the increase in demand for the Georgian DJ’s around the globe brought me to a question, is Tbilisi in competition with Berlin for the best nightlife city? Does Tbilisi compare to Berlin in terms of night clubs and bars, and if it’s worth it tapping into that business?

1.2 Approach

To elaborate better on this topic, we need to dive into the culture and investigate important metrics which I will address in the next paragraph. To experience nightlife fully, especially in the foreign city, just having a good night club is not enough, it’s a combination of other venues, services and freedom of expression. The Guardian in their article about Tbilisi said that “These cities share the magic ingredients that allowed clubbing to thrive in east Berlin: cheap rents, plenty of space, often in the form of unused communist-era buildings, and creative, open-minded young people”[2]. We’ll look at the combination of factors like taxi services, hotels, a measure of personal freedom and crime rates in combination with the number of clubs and bars and their average reviews and how easy it is to travel to Tbilisi.

1.3 Methodology

We will be looking at multiple indicators and the distribution of those indicators side by side for two cities; Tbilisi and Berlin. Based on the visual and empirical analysis we will try to draw a picture of how respectable venues in those cities are and find similarities and dissimilarities. We will use density distribution and histogram to visualize how ratings and number of reviews are distributed. We will look at the clustered map to analyze how convenient hotels and venues are situated for visitors. And finally, we will compare trends in tourism, taxi fares, and crime rates to evaluate how attractive those cities can be for potential visitors looking for an amazing nightlife experience.

2. Data

2.1 Main Data Collection

I used foursquare API to collect the top 25 venues from Tbilisi, Georgia, and Berlin, Germany searchable under the category “Night Life” and "Night Clubs." Using the same portal and the same technics I collected the top 25 venues searchable under the category "Hotel." Process of the initial data extraction using python notebook can be found here

2.2 Complementary Data

After initial scraping and cleaning the data for the top 25 hotels and nightlife venues, I extracted average ratings of the venues with the total number of feedbacks for each venue to analyze the reputation and the impressions of the visitors. Data is merged with additional columns for 'categories', 'longitude' and 'latitude' which is used for clustering and mapping.

The rating was chosen as a measure of quality - how well does it satisfy customers and how well does it match their expectations.

The overall number of reviews was chosen to reduce the no response bias in average ratings. Also, as an indicator of how many people have been visiting the place and how reputable venue of choice has been compared to other places

2.3 Other Indices

To portray a full representation of the trends in those two cities I obtained information about foreign tourists visiting Tbilisi and Berlin for the last four years. Direct data for Tbilisi visitors is not available, thus I obtained data for the total number of international visitors in Georgia for the last 4 years from Wikipedia page[3] and calculated Tbilisi's share based on GNTA database’s information. GNTA showed that 27.1% of the registered accommodation units were in Tbilisi, hence I took 27% of the total number of visitors to analyze visitations in Tbilisi.

For Berlin, it was relatively easy to accomplish this task as the explicit data is available with the number of foreign visitors who stayed in Berlin for the past four years on statista.com webpage[4]

2.4 Taxi Fares

I used numebo.com to get and compare taxi fares for Tbilis[5] and for Berlin[6]. Data were extracted in the current $US and were posted in CSV file which I cleaned and reorganized in a manner that was plottable on the bar chart for the comparisons of how taxi prices different for the start, 1 km and 1-hour wait. Data contains average, minimum, and maximum values.

2.5 Crime/Safety Index

For the representation of crime and safety, I also used numbeo.com[7] for its crime/safety indices. Several indices were utilized for this portion of analyzes. Three out of nine indices represent the measure of safety, ranging from 0 to 100, where higher the score safer the area is. The crime indices are also measured from 0 to 100 but lower the score better the situation is in the area. The full details about the crime and its indices are present in the crime/safety comparison section.

3. Nightlife - Data Analysis

3.1 Top 25 Venues: Tbilisi

First, we take a look at the top venues found under the category “Nightlife.” Table 1 is organized in ascending order for the highest rated venues and table 2 for the highest number of reviews and table three is the description of the statistic for both ratings and a total number of reviews.

name	categories	rating	total
8000 Vintages	Wine Bar	9.0	19
41° Cocktail Bar	Cocktail Bar	9.0	20
Bassiani	Nightclub	8.9	174
Cocktail Factory	Cocktail Bar	8.9	22
Dadi Wine Bar and Shop	Wine Bar	8.9	137

name	categories	rating	total
Cafe Gallery	Nightclub	7.8	459
Funicular Bar	Cocktail Bar	8.1	244
Warszawa	Bar	8.1	243
Mtkvarze	Nightclub	8.4	200
g.Vino Underground	Wine Bar	8.3	194

class	mean	st. dev.	min	max
Ratings	8.27	0.45	8.1	9
Total	113	106	8	459

In Tbilisi, the highest-rated venues are 8000 Vintages and 41° Cocktail Bar, however as their total number of reviews is relatively low thus the 4th best venue with 8.9 a rating but 174 reviews can be considered as one of the most popular places for the nighttime fun. The lowest scoring place in the top 25 was with a 7.5 rating and the one with a minimum number of reviews with 8.

3.2 Top 25 Venues: Berlin

Next, we explore the top 25 venues under the same search "Nightlife" for Berlin and analyze findings. Table 1 is the top 5 venues organized in the ascending order starting with the highest rated. Table 2 is for the total number of reviews and table 3 is descriptive of given variables.

city	name	categories	rating	total
Berlin	Herr Lindemann	Cocktail	9.2	62
Berlin	Freya Fuchs	Bar	9.2	118
Berlin	Muted Horn	Beer Bar	9.2	219
Berlin	Etc:Bar	Bar	8.6	69
Berlin	Berghain	Nightclub	8.9	2296

name	categories	rating	total
Baden im Wein	Wine Bar	9.4	62
Klunkerkranich	Beer Garden	9.3	2039
Lerchen und Eulen	Bar	9.3	664
Herr Lindemann	Cocktail	9.2	62
Freya Fuchs	Bar	9.2	118

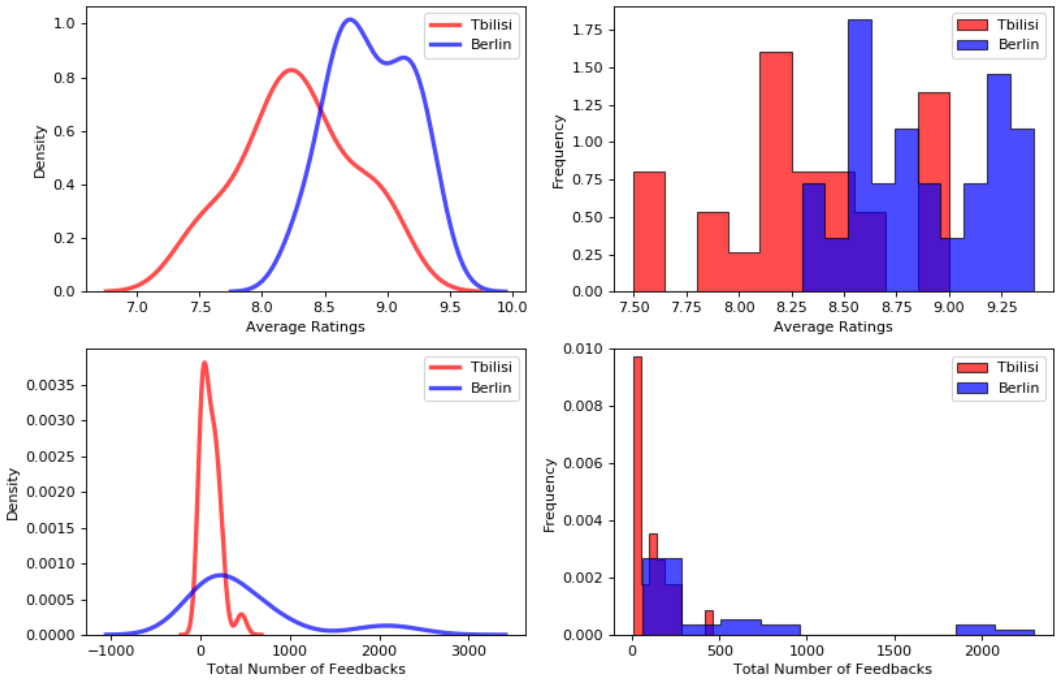
class	mean	st. dev.	min	max
Ratings	8.87	0.32	8.3	9.4
Total	519	643	62	2296

For Berlin, the highest-rated venue is 'Baden im Wein' with a 9.4 rating. However, it has a small number of total reviews compared to the next venues on the list. Berghain appears to be the most popular place with 2296 reviews and still holds strong as 5th in the rating list. Worth noting that lowest-scoring venue in Berlin was with 8.3 and lowest number of feedbacks 62. This is a more sizeable number, especially for a total number of reviews compared to Tbilisi.

3.3 Data Analysis – Nightlife Venues

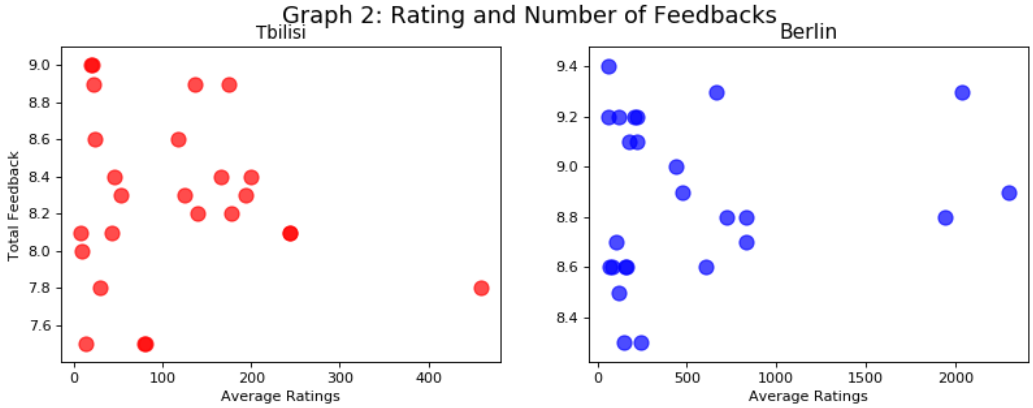
In graph 1 we take a look at how our ratings and number of feedbacks are distributed in two cities and how they compare to each other. In order to draw the information of the comparable conclusion for both are plotted together which makes it easier to compare and infer differences and similarities. In all four graphs and further in general throughout this report, the red color will be used to represent information about Tbilisi and the blue color will be used to do the same for the city of Berlin. Graphs on the left side are the density distribution and on the right side are the histograms. The top line is the plotting for the average reviews and the bottom line is for the total number of reviews.

Graph 1: Night Life



Next, we look at the scatter graph for the relationship between a number of reviews and the rating to try to see if somehow number of reviews affects how the ratings are distributed among the venues:

Graph 2: Rating and Number of Feedbacks



3.5 Observation

When we look at the distribution of ratings and number of reviews it is apparent that the top 25 venues in Berlin have better ratings and also more people have reviewed them. This was expected as Berlin has been in the center of the nightlife industry for a long time. Tbilisi is just coming into the picture and starting to step up its reputation gradually. Worth noting that ratings for Tbilisi venues are more spread but the total number of reviews for each venue is closely

concentrated in a smaller sector, which can mean that there is substation difference in the quality of venues even within for the top 25 business. However, we have the opposite picture in Berlin. The ratings are comparably concentrated in a small tight section, and a number of feedbacks are spread widely. This means that well-trusted places and popular places see visitor's way more often than other also good and highly reviewed venues. This means that overall quality is high all over the place in Berlin but still a big majority of visitors choose to visit and review a comparably smaller number of clubs or bars or pubs.

If we'd like to make any assumptions, we would think that when the number of reviews increases average rating becomes close to the natural rating, and as a general business anecdotal data suggest when the number of customers increases, it is expected that the quality of service may decrease. We can use average rating as the measure of quality and when we look at the scatter graphs there is nothing that will confirm that with the increase in the number of reviews ratings decrease. In Tbilisi, they are distributed in a manner of a horizontal line, while in Berlin there even is a small indication of a positive slope - meaning ratings increasing with the increase in the number of reviews. Of course, the sample size and the given data are not enough to make the final conclusions but at the same time, there is no indication of ratings dropping as more people visit venues, thus if more people visit Tbilisi for its night clubs bars or lunges we should not expect lowering of their quality and therefore lowering of their ratings.

Overall ratings in both cities are satisfactory high and even though Tbilisi is behind from Berlin in terms of the number of reviews which is directly correlated with the difference in the number of tourists per year (which will see in section 6.1) venues in Tbilisi still managed to accumulate a noticeable amount of positive reviews in high 8 and 9 ratings.

3. Hotels - Data Analysis

3.1 Top 25 Hotels: Tbilisi

Now we will perform the same type of analysis for the top 25 hotels found in foursquare search for the keyword "hotels." As we did for the venues, first we start with Tbilisi. Top 25 hotels are selected based on the inquiry done through foursquare.com API than was cleaned, wrangled and organized for the columns which will be needed for our analyses. The first table is sorted in ascending order based on average rating. The second table based on the total number of ratings and the third table is the summary or the description of the given data.

	name	categories	rating	total
	Shota @ Rustaveli Boutique Hotel	Hotel	9.5	56
	Rooms Hotel Tbilisi	Hotel	9.3	569
	Stamba Hotel	Hotel	9.3	78
	Radisson Blu Iveria Hotel	Hotel	9.1	459
	Vinotel	Hotel	9.1	96

	name	categories	rating	total
	Rooms Hotel Tbilisi	Hotel	9.3	569
	Holiday Inn Tbilisi	Hotel	8.9	463
	Radisson Blu Iveria Hotel	Hotel	9.1	459
	Tbilisi Marriott Hotel	Hotel	8.5	205
	The Biltmore Hotel Tbilisi	Hotel	8.1	137

class	mean	st. dev.	min	max
Ratings	8.59	0.44	8	9.5
Total	118	152	11	569

Description statistics of the data for the hotels are similar to what we so for venues. However, here we have the highest rated hotel having a rating of 9.5 and the second and third highest with 9.3. Let me remind you that the highest rating for venues was the one with 9. Overall ratings are distributed in the higher range of ratings for the hotels than it is for the venues. Same for the total number of reviews. More reviews overall for the top hotels than it was for the venues.

3.2 Top 25 Hotels: Berlin

Now as with venues, we explore the top 25 hotels for Berlin and analyze findings. Table 1 is the top 5 venues organized in the ascending order starting with the highest rated. Table 2 is for the total number of reviews and table 3 is descriptive statistics of given variables.

name	categories	rating	total
Das Stue	Hotel	9.4	230
Michelberger Hotel	Hotel	9.3	754
25hours Hotel Bikini Berlin	Hotel	9.3	335
Hotel Zoo	Hotel	9.3	192
Hotel am Steinplatz	Hotel	9.2	88

name	categories	rating	total
Soho House	Hotel	8.8	1201
Michelberger Hotel	Hotel	9.3	754
Hotel Adlon Kempinski Berlin	Hotel	8.9	541
The Ritz-Carlton, Berlin	Hotel	9.0	470
InterContinental Berlin	Hotel	8.6	462

class	mean	st. dev.	min	max
Ratings	8.94	0.24	8.5	9.4
Total	290	253	73	1201

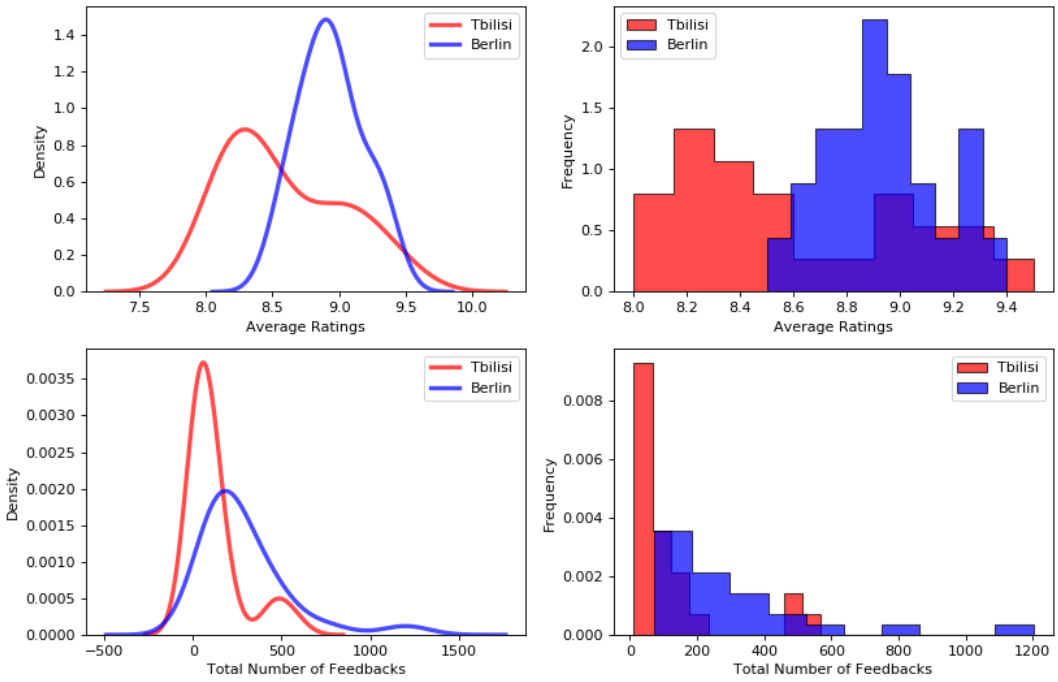
Just like venues in berlin hotels' ratings are also mainly distributed in a high eight and nine ratings and the total number of reviews are double of what we see for Tbilisi hotels.

3.3 Data Analysis – Hotels

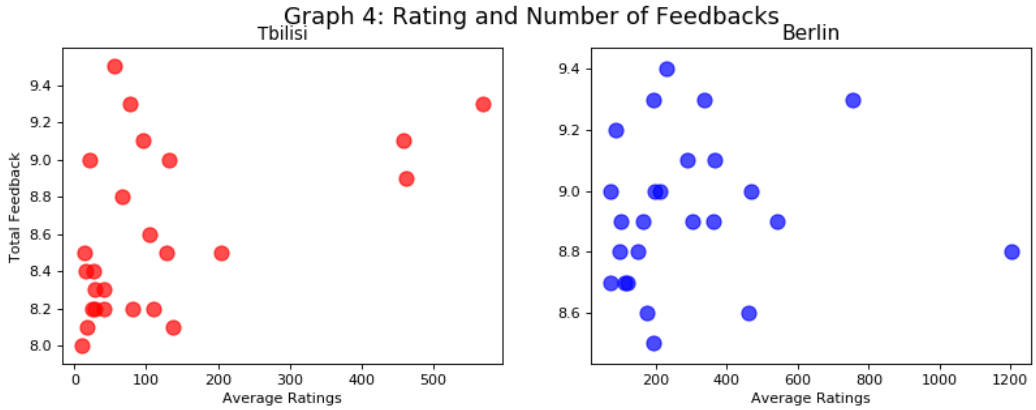
We perform the same density and histogram visualization for the hotel's data for both cities. We'll see how our ratings and the total number of reviews are distributed between those two cities and how they compare to each other. We start by plotting density and histogram graphs and then move to the scatter graph to analyze if there is any visible relationship between the total number of ratings and the average ratings.

Graph 3 is the illustration of the descriptive comparison of hotels in two cities. Once again, as in the previous instance, red color is used for Tbilisi and blue is used for Berlin.

Graph 3: Hotels



Graph 2 is a scatter graph to represent the relationship (if any) between the total number of reviews and ratings:



4.5 Observation

Hotels are distributed in a similar manner as venues, but in this case, for Tbilisi, the number of reviews is not as densely concentrated as in venues' case but is spread a bit more. For Berlin distribution of ratings in tighter than it was for venues.

The histogram shows that a bigger portion or ratings are in a range of 8 and 8.6 in Tbilisi and 8.5 and 9.3 in Berlin. We can say that in terms of Hotels Tbilisi is closer to berlin for ratings and a number of reviews than it is in terms of venues. This can be explained by the fact that hotels

attract a variety of customers who travel for different purposes and their expectations for a pleasant stay are relatively simple than the expectations when visiting a club or a bar and expecting to have a good time. Simple stating there are way more variables involved for the experience to be positive in venues than in hotels where you mainly evaluate your experience based on 3 main factors: cleanness, quietness, and pleasant personnel.

Once, again, a continuation of the previous that there is a minimum to no relationship between the number of reviews and average ratings. However, while looking at a scatter graph for Tbilisi it even shows that the hotels with one of the biggest number of reviews also have relatively high ratings. The positive slope will give an optimistic expectation that with the increase in visitors quality will not deteriorate.

Comparable high ratings and number of reviews suggest that in both cities you will be able to find a good place to stay easily. When we examined the names of the hotels, we saw some international hotels present in both cities, which means the expected quality will be similar in those instances. Long story short, hotels will complement positive experiences found in the venues in both cities and in no case will be a distraction from it.

4. Maps

4.1 Map of Tbilisi

Now we will look at how chosen venues and hotels are distributed around the city. How far they are located from each other and how far they are from the center of the city. This should create an idea of how easy and accommodative cities can be for travelers and how much they should expect of traveling times and costs within the city.

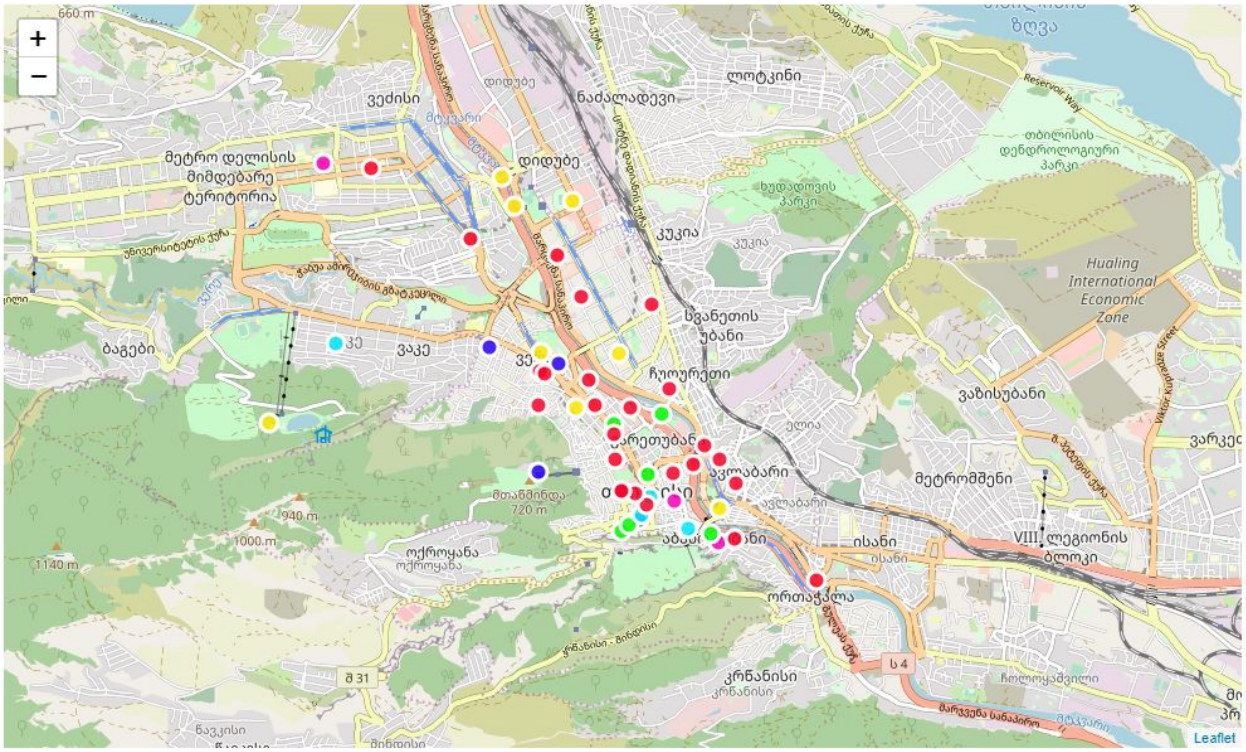
For this practice, I used the *folium maps* package for python and clustered hotels and venues in 6 groups. Each cluster is represented by a specific color on the map, so it makes easy to visualize their locations and approximate traveling distances. Worth noting that Berlin is nearly two times larger than Tbilisi with 891 km^2 compared to Tbilisi's area of 504 km^2 so any distance with may appear to the eye as a similar can actually take two times longer distance to travel.

First, we obtain the geographical coordinates of Tbilisi.

```
The geographical coordinate of Tbilisi, Georgia are 41.6934591, 44.8014495
```

Color codes for clusters on the map:

- Red - Hotels
- Yellow - Nightclub
- Green - Bar
- Cyan - Wine Bar
- Pink - Cocktail Bar
- Blue - Pub, Lounge, *Dive Bar*



The interactive map is available in [python jupyter file]

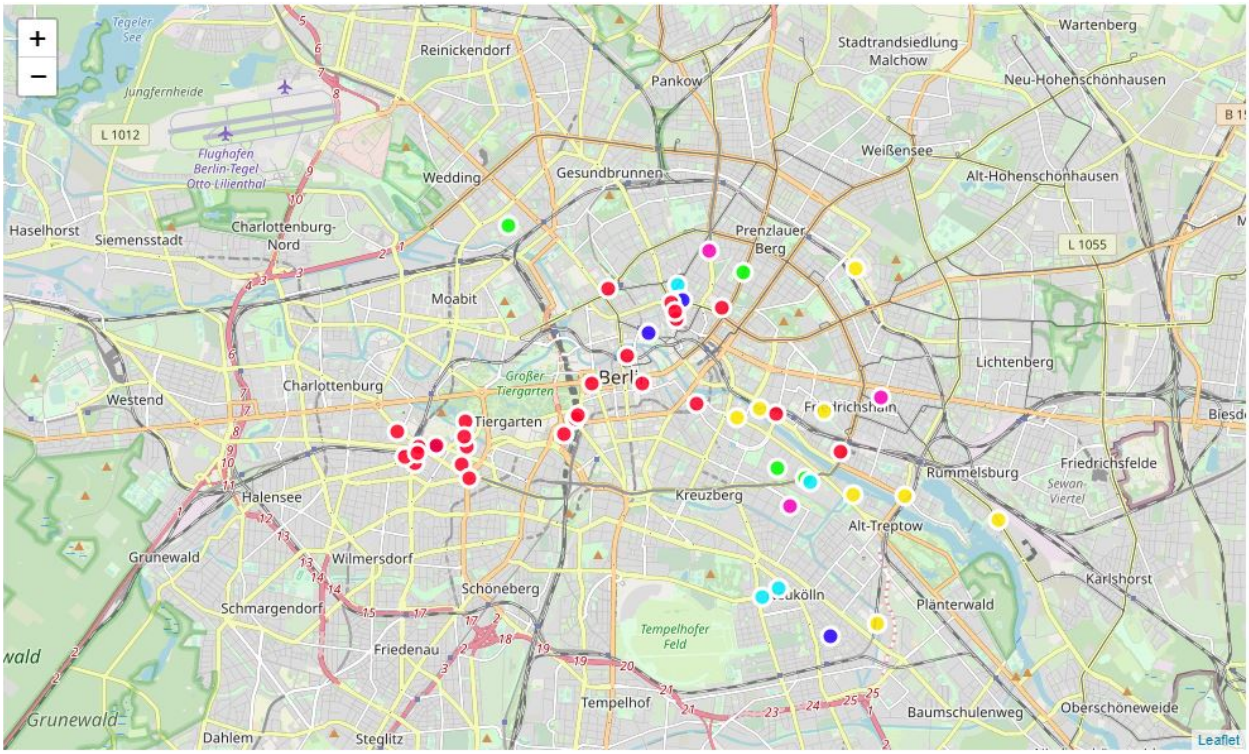
4.2 Map of Berlin

We perform the same procedures for Berlin. As mentioned above. Even though the scaling for the maps is the same for both cities, Berlin is nearly two times larger than Tbilisi, which I advise to take into consideration when evaluating the arrangement of venues and hotels.

First, we obtain geographical coordinates for the center of Berlin:

`The geographical coordinates of Berlin, Germany are 52.5170365, 13.3888599`
We create a folium map with 6 clusters color-coded:

- Red - Hotels
- Yellow - Nightclub
- Green - Bar
- Cyan - Cocktail
- Pink - Wine Bar, Pub
- Blue - Beer Garden



4.3 Observation

Here is some good news for Tbilisi. When looking at the map we see that the majority of top venues and hotels are located close to the central area and they are located close to each other as well. We can state that their locations are intertwined with closely distributed clusters. This can be a great advantage for the visitors. Not only tourists can save time and money on transportation costs when moving from one spot to another, but this will also allow for better walks and enjoyment of cultural treasures the city can offer. Perfect setup for clubbing, resting, and sightseeing.

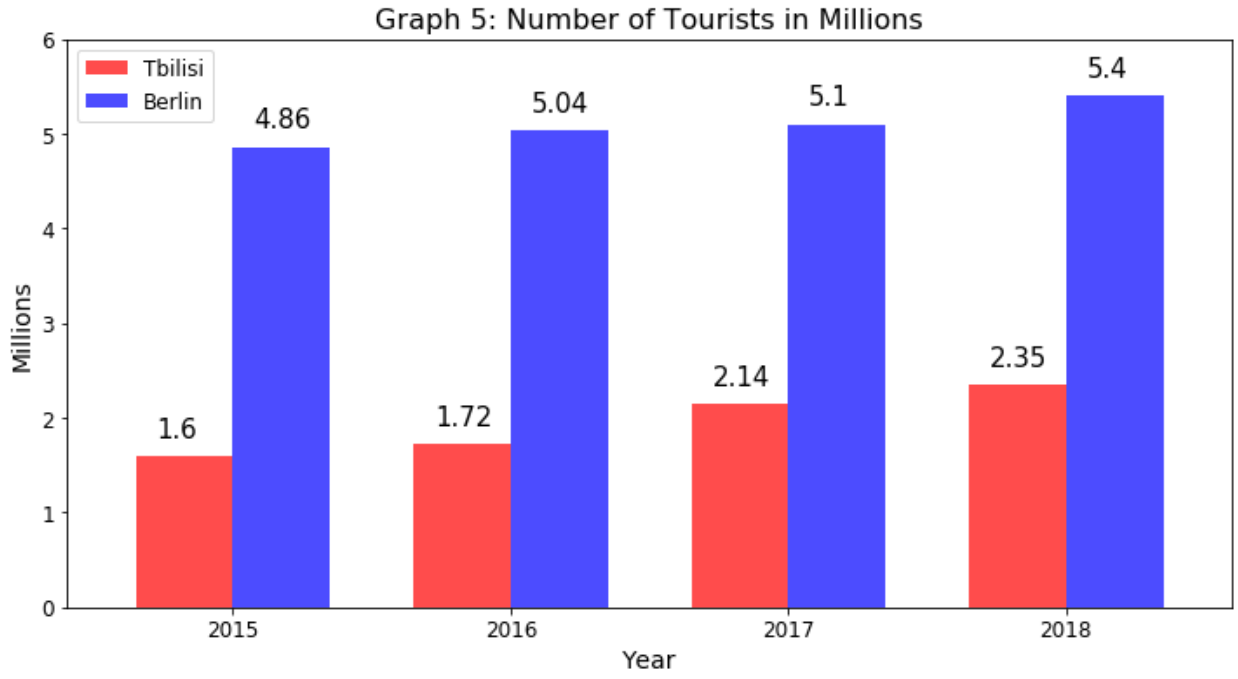
While in Berlin you have nearly all the hotels separated from the top venues and clustered together in the west part of the city when main nightclubs are located on the other side (eastern) part of Berlin or old East Berlin. Even other types of venues are a bit far from the center and especially from where best hotels are. This arrangement in Berlin combined with heavy traffic and taxi fares gives Tbilisi a massive advantage that can be conclusive to many visitors.

5. Other Statistics

5.1 International visitors

We will look at several statistics now to draw a better picture of what to expect when visiting those cities and how the full nightlife experience compares in those two cities.

First, we start comparing the number of international tourists for last for years (from 2014 to 2018). We plot the bar graph for each year with Tbilisi and Berlin side by side for a better comparison in the number of visitors



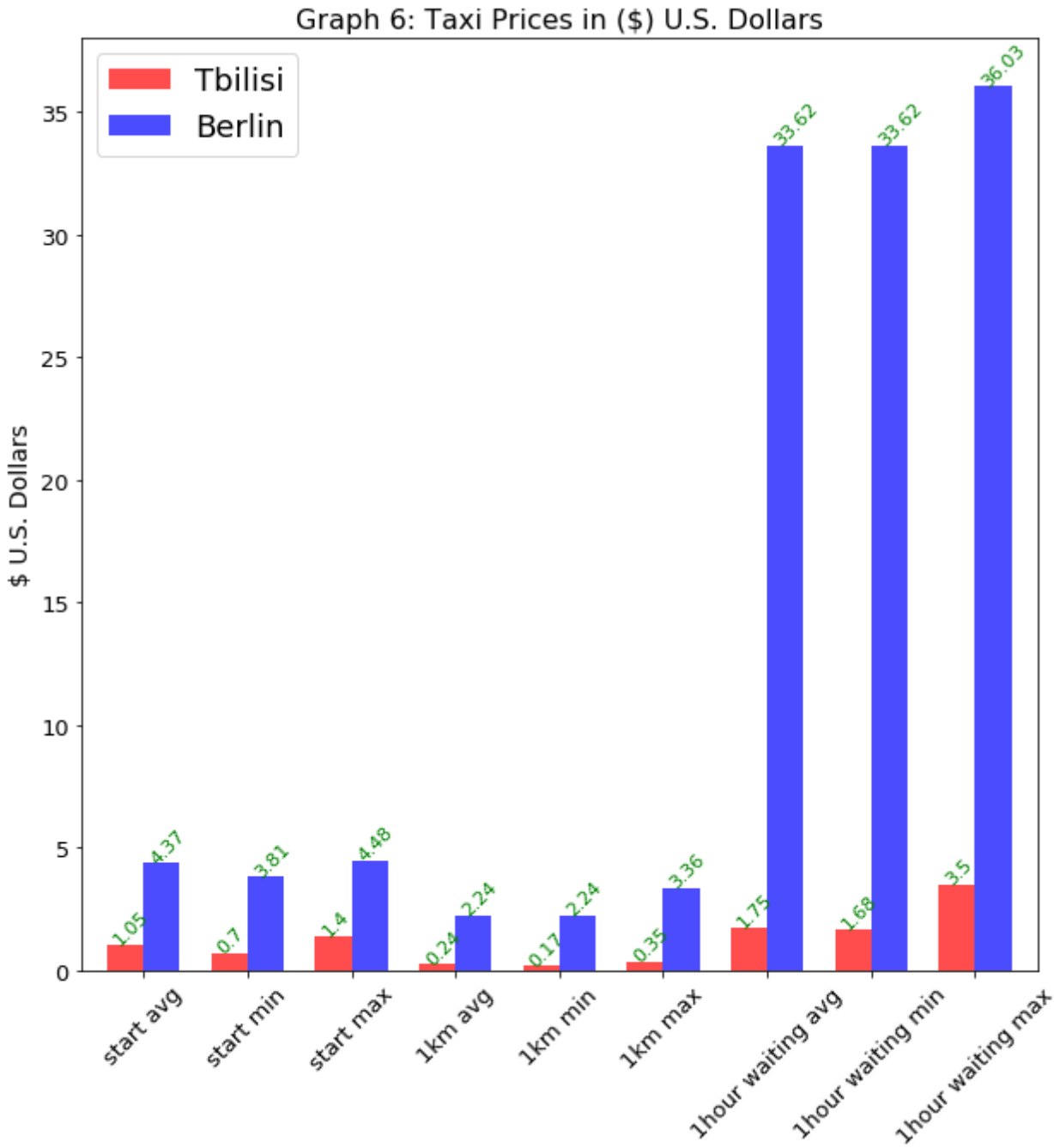
We see that even the total number of visitors is much higher in Berlin the growth trend is bigger for Tbilisi. If we take into consideration that Russia banned all the flights to Tbilisi in 2018 and country still saw an 8.8% increase in the number of tourists we can assume that there is something that despite all difficulties retains loyal visitors and attracts new ones.

5.2 Taxi Rates

**This is an estimated fare. The actual fare might differ due to time of the day, tolls, works (available routes), different car companies, error in collecting prices and other human or software error.*

To analyze taxi rates, we compare prices for the average start flat cost, the average cost of 1 km in the city and the average cost of 1 hour wait time for both cities. We also plot minimum and maximum values for a better comparison.

In Graph 6 we see that average prices for start flat costs are 337% expensive in Berlin and the average cost for 1 km is 800% more. And for the 1 hour wait time I will not convert the difference in percentages as they appear to be the costs of completely different services. If you are in Berlin, make sure not to make Taxi wait for you!



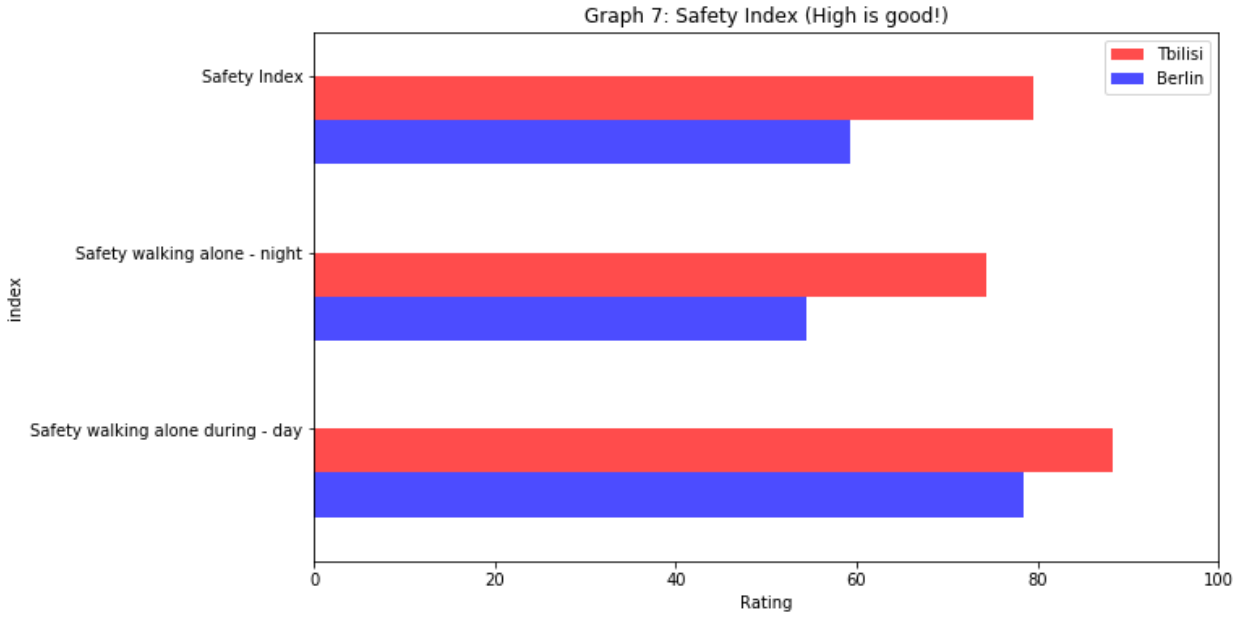
5.3 Crime Rates

- This section is based on surveys from visitors to this website. Questions for these surveys are similar to many similar scientific and government surveys.
- Each entry in the survey is saved as the number in the range [-2, +2], with -2 having the meaning of strongly negative and +2 meaning of strongly positive.
- We filter surveys to eliminate potential spam, like people entering a large amount of data which are differentiating from the median value.

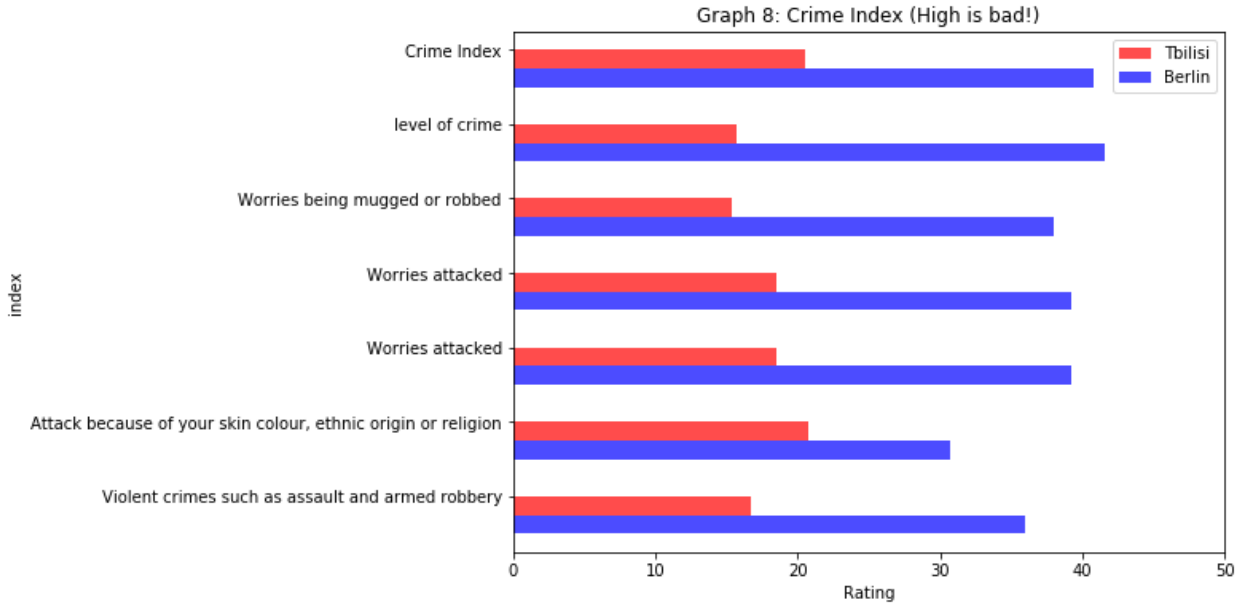
- To present the survey results, we use the scale [0, 100] for values since it is easier to read for users.
- To generate a current index (which is always updated) we use data up to 36 months old. We include only cities for which there are at least a certain number of contributors. Our semiannual index is remade twice per year by pushing the current index into this historical view.
- Crime Index is an estimation of the overall level of crime in a given city or a country. We consider crime levels lower than 20 as very low, crime levels between 20 and 40 as being low, crime levels between 40 and 60 as being moderate, crime levels between 60 and 80 as being high and finally crime levels higher than 80 as being very high.
- Safety index is, on the other way, quite opposite of the crime index. If the city has a high safety index, it is considered very safe.

We separate out dataset into two parts and graph them separately: one with the safety ratings (Higher-better!) and crime ratings (Lower-better!)

First, we plot the safety index which shows that it's much safer to walk alone in Tbilisi, during the day and during the night and overall it is safer in Tbilisi than it is in Berlin.



Second, in Graph 8 we see that the crime index is two times higher in Berlin than it is in Tbilisi. The level of crime is three times higher. Not to go further and count down every index will some up findings in one sentence that in every possible aspect it is less dangerous and less worrisome to be in Tbilisi than it is in Berlin.



this is how actual indices compare:

index	Tbilisi	Berlin
Crime Index	20.55	40.77
Safety Index	79.45	59.23
level of crime	15.69	41.52
Worries being mugged or robbed	15.33	37.98
Worries attacked	18.45	39.24
Attack because of your skin colour, ethnic origin or religion	20.78	30.73
Violent crimes such as assault and armed robbery	16.69	36.02
Safety walking alone - night	74.42	54.46
Safety walking alone during - day	88.31	78.40

6. Discussion

The number of international visitors shows that while Berlin is still hosting more people, the growth trend is bigger in Tbilisi at a constant rate. Taxi fares are so cheap in Tbilisi that I will not even bother comparing findings any further than it was already discussed, and you can compare them again on your own in Graph 6. What is most important for international visitors wanting to spend a night in a foreign city is that the crime rate is relatively low in Tbilisi. Especially it appears to be less dangerous for people of color, homosexuals and different religions (Graph 8). This is a big plus for world travelers. Overall safety during the

nighttime is stronger, which is the index we will concentrate as clubbing is about spending the night at the venues and then going home or at the hotel (Graph 7).

Of course, Berlin is on top of the world for the nightlife, however, we see Tbilisi is getting closer with high-quality venues and top-notch hotels. Service is more affordable in Tbilisi. Taxi fares are beyond comparable. Taxi in Tbilisi can get you where you want cheaper than it will cost you to travel by bus or metro in Berlin. That’s why every year more and more people are choosing to visit Tbilisi and to spend their vacations or to attend massive parties at BASSIANI or Gallery. The market for the night entertainment is booming in Tbilisi and there is no sign that it will slow down in the near future.

The hype created by The Guardian, Forbes, and VICE is totally justifiable and years to come we should expect Tbilisi fully transforming as one of the megapolises for the nightlife lovers. If an opportunity arises, I would definitely recommend exploring Tbilisi’s nightlife and even I would go saying to invest in it as it will make substantial returns as Tbilisi has the potential to establish as one of the top tourists' destinations where people would seek to spend their money in local nightclubs, bars and pubs.

Reference:

[1] Wilson, B. (2019, September 25). Berlin Is Out, Tbilisi Is In: Georgia's Capital Is This Year's Most Exciting City. Retrieved from https://www.forbes.com/sites/breannawilson/2018/09/05/berlin-is-out-tbilisi-is-in-georgias-capital-is-this-years-most-exciting-city/#435a0d80479d.

[2] Ravens, C. (2019, January 22). Bassiani: the Tbilisi techno mecca shaking off post-Soviet repression. Retrieved from https://www.theguardian.com/music/2019/jan/22/bassiani-tbilisi-techno-nightclub-georgia.

[3] Koptyug, E. (2019, November 6). Tourism Berlin: arrivals by origin 2018. Retrieved from https://www.statista.com/statistics/568463/tourism-arrivals-berlin-germany-by-origin/.

[4] Tourism in Georgia (country). (2019, September 26). Retrieved from https://en.wikipedia.org/wiki/Tourism_in_Georgia_(country).

[5] Taxi Fare in Tbilisi. (n.d.). Retrieved from https://www.numbeo.com/taxi-fare/in/Tbilisi?displayCurrency=USD.

[6] Taxi Fare in Berlin. (n.d.). Retrieved from https://www.numbeo.com/taxi-fare/in/Berlin?displayCurrency=USD.

[7] Crime. (n.d.). Retrieved from https://www.numbeo.com/crime/compare_cities.jsp?country1=Germany&country2=Georgia&city1=Berlin&city2=Tbilisi&tracking=getDispatchComparison.

[8] Foursquare Developer. (n.d.). Retrieved from https://developer.foursquare.com/