1. The tables in the database are **account**, **account_date_session**, and **iap_purchase**. The table account stores the details of the users, iap_purchase holds information related to in-app purchases made by users, account_date_session contains the number of sessions for the users for the days they have been active.

   - The **account** table contains the attributes _account_id_ of the user that identifies each user uniquely, _created_time_ of the account, the _created_device_ such as iphone4,iphone5, ipad and so on_, created_platform_ being either ios or Android, _country_code_, and the _created_app_store_id_ which uniquely identifies the app store that created the account. There are 112792 account records altogether.

   - The **iap_purchase** table contains the attributes _account_id_ of the user, the account _created_time_, _package_id_hash_ which uniquely identifies each package that is purchased, _iap_price_usd_cents_ which contains the price of the package, and the _app_store_id_. There are 9909 packages purchased by the users.

   - The **account_date_session** table contains the attributes _account_id_ of the user, date, _session_count_ showing the number of sessions ,_session_duration_sec_ containing session duration in seconds. There are 1698974 sessions recorded in the database for the year 2016.

   Dataset covers data for the entire year of 2016. The dataset could be utilized for analyzing user behavior, understanding in-app purchasing patterns, or assessing user engagement through session data. The outcomes of data analysis could be used in customer segmentation, revenue analysis, or user engagement studies. The data is relational and stored in SQLite.

   The variation of the number of users with time in the year could be shown by a time series plot as in Figure 1.
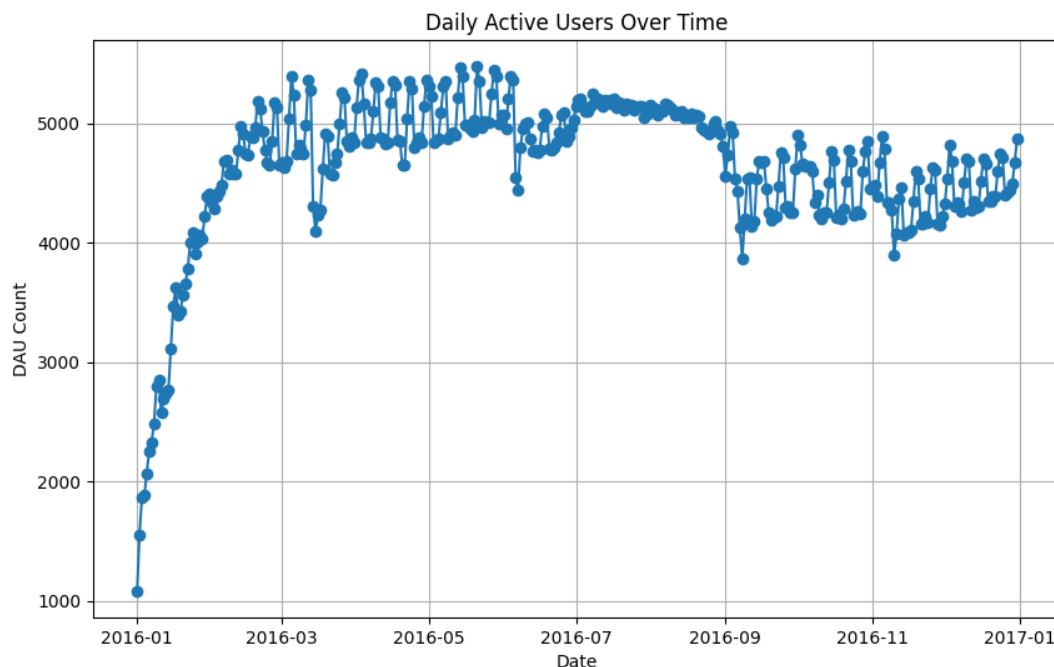

Figure 1

The Daily Active Users shows an overall upward trend from January to beginning of March. Since this is the first quarter of the year, this maybe due to new signups and new users getting active from promotions and new game packages being launched. Throughout the year, there are small peaks with two distinctive upper points and other points lying below. The peaks denote the weekends, where more hours are spent by the users playing games. But these peaks are flattened and the variation of time spent during the days of the week is lowered from July to September. This might possibly indicate a vacation period such as summer break where users frequently play games and the number of daily active users seems fairly constant during this period but lower than before as it might have lost some regular users who may be having other leisure activities during the holiday season. Towards the end of the year there is a decrease in daily active users might be due to the limitations on spending and budget constraints towards the year end, but has the same usual weekend peaks where more users are active in general

Apart from the usual variations that have been discussed above, there are some clearly noticeable drops that are out of the normal behavior shown by the circles in Figure 2.
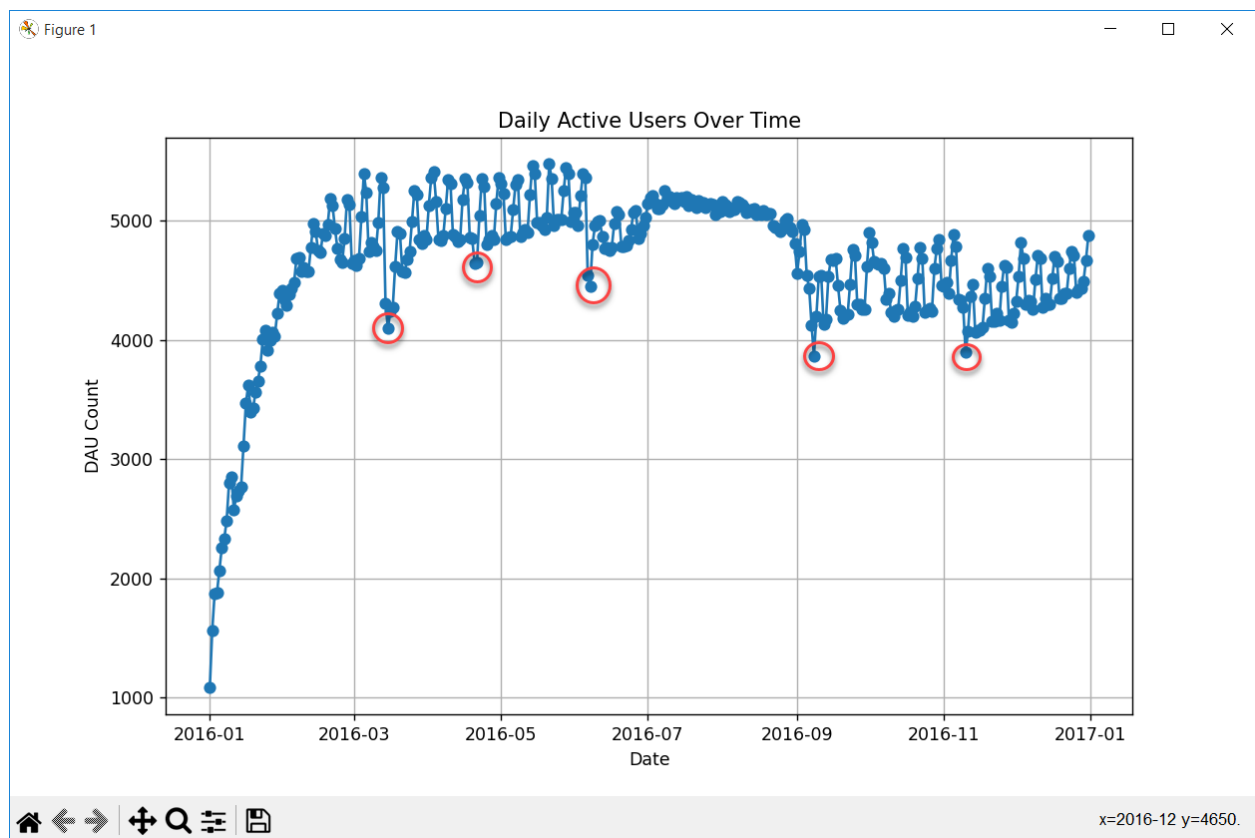

Figure 2

The possible reasons for these drops could be:

- Introduction of game updates or patches which the user may have negatively reacted.
- Technical issues, server downtime, or outages can negatively impact DAU.
- The release of new competing games or popular titles can divert player attention and cause to drop DAU.
- Economic factors, such as financial hardships, inflation or decrease in disposable income, can reduce player spending behavior, affecting in-app purchases and overall engagement.
- Negative featuring's on social media platforms and gaming communities can significantly impact DAU. Viral trends, negative reviews, or negative controversies can reduce player behavior.
- The discovery and widespread use of cheats or exploits in the game can lead to a sudden drop in DAU, as players may lose interest or trust in the fairness of the game.
- Implementation of anti-cheat measures, user bans, or account suspensions can influence DAU, specially if a significant number of players are affected.
- Additionally the device prices going up such as mobile phones may also cause drops.

In order to identify the exact reasons for these drops, a thorough analysis that includes examining player feedback, monitoring social media channels, reviewing recent game updates, and collaborating with the game development and marketing teams must be carried out. Combining quantitative data with qualitative insights can provide a more comprehensive understanding of the underlying factors.

2. The Geographic split of revenue is shown in Figure 3.
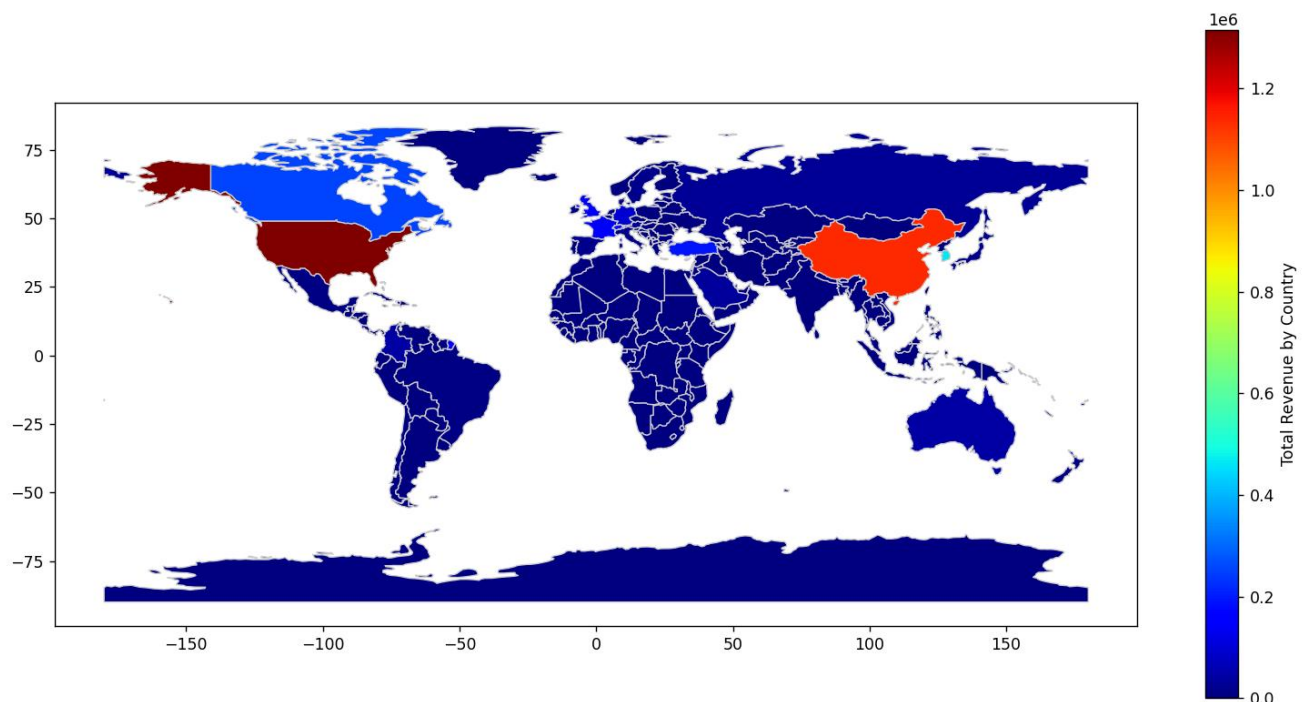

Figure 3

According to the map, the highest total revenue is obtained from USA followed by China. These countries show significant high values for total revenue than others. To understand this, Figure 4 shows the variation of Gross National Income Per Capita (The income per person) distribution worldwide in 2016.
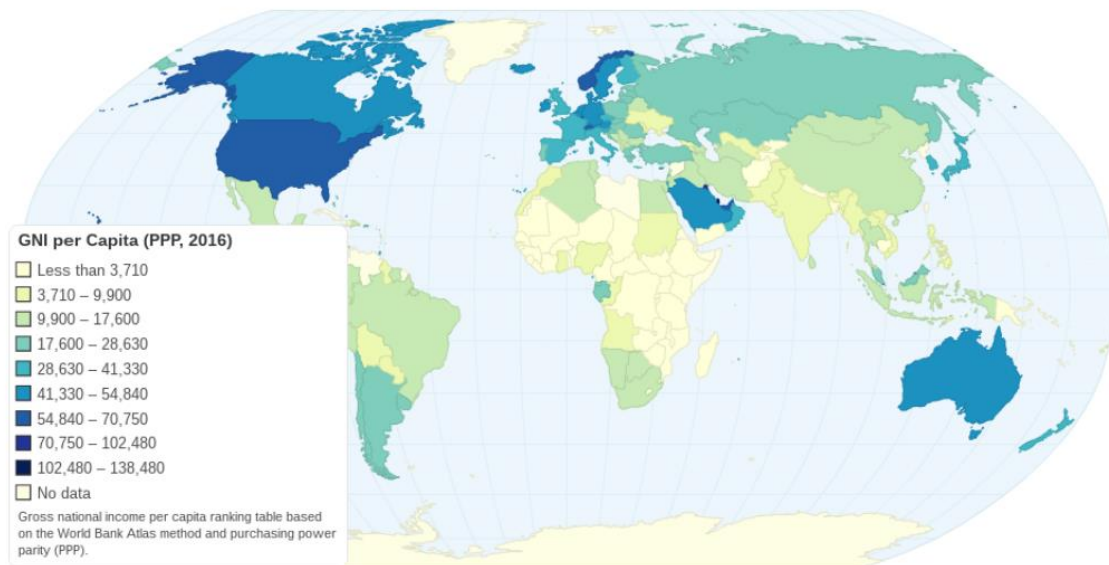
Gni Per Capita 2016

GNI per Capita (PPP, 2016)
- Less than 3,710
- 3,710 – 9,900
- 9,900 – 17,600
- 17,600 – 28,630
- 28,630 – 41,330
- 41,330 – 54,840
- 54,840 – 70,750
- 70,750 – 102,480
- 102,480 – 138,480
- No data

Gross national income per capita ranking table based on the World Bank Atlas method and purchasing power parity (PPP).

Figure 4

Source: ChartsBin.com : http://chartsbin.com/view/43624

According to the map in Figure 4, it is clear that USA has a high GNI per capita and due to this reason, the total revenue from USA is high, as more users spend on purchasing games since their disposable income is high.

As China has the highest population in the world, there are many gaming users and thus total revenue from China is high.

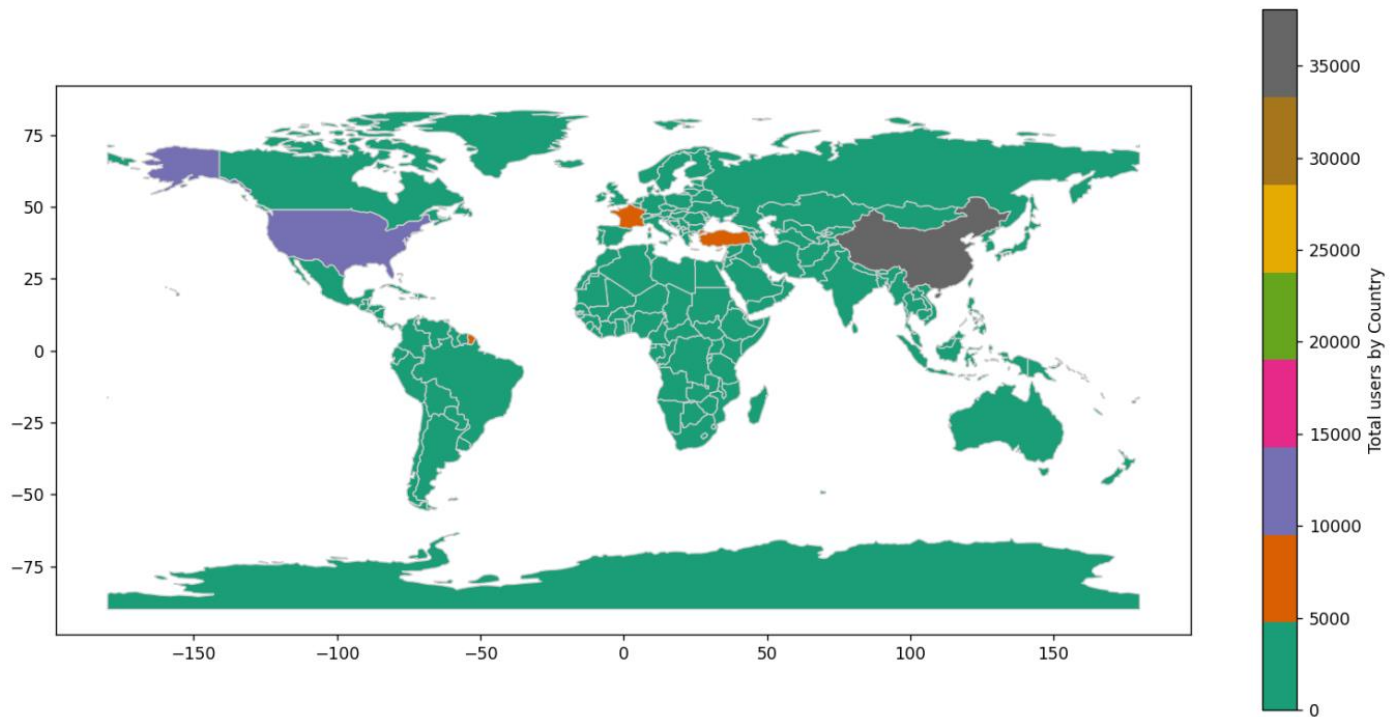The geographic split of the users is shown in figure 5.

As explained earlier, China has the highest number of users due to high population. Therefore, it surpasses USA from the number of users. Turkey and France have the next highest number of users distinctively from other countries where the distribution is more or less in a similar range.

The average revenue per market per user is given by Table 1.

Table 1

Country	User count	Average revenue per user
CO	1	45860
AT	1	28471
CH	9	20308
TR	20	9666
KR	72	6437
NZ	1	6093
CA	42	6059
US	248	5301
JP	3	4680
ES	5	3516
SE	5	3284
SA	10	3209
DE	32	2956
KW	1	2954

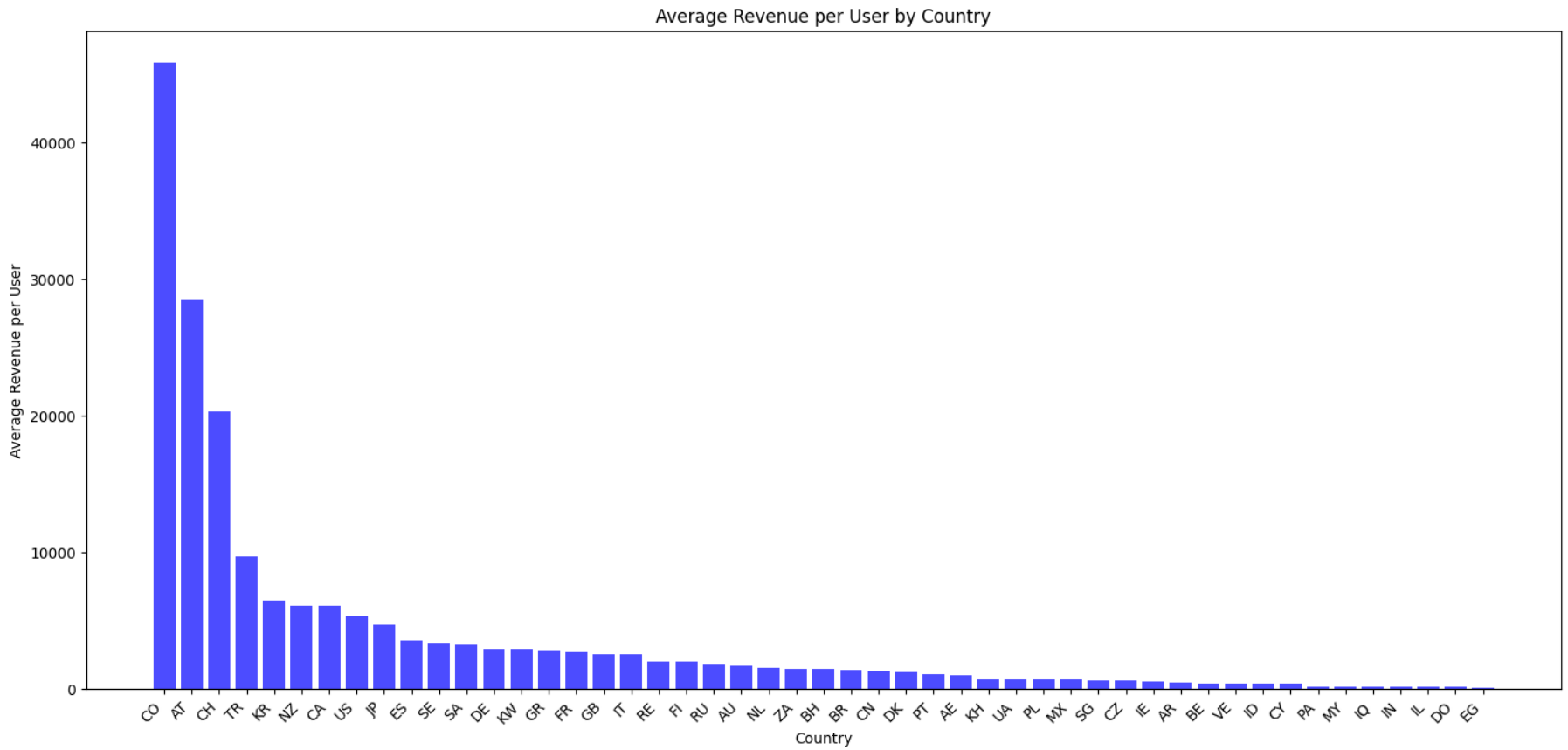|		
GR	2	2771
FR	56	2727
GB	57	2545
IT	6	2538
RE	1	2033
FI	2	2030
RU	17	1770
AU	26	1733
NL	5	1519
ZA	1	1478
BH	1	1475
BR	6	1433
CN	872	1303
DK	4	1244
	2	1198
PT	2	1105
AE	2	976
KH	1	738
UA	2	736
PL	2	699
MX	9	696
SG	2	645
CZ	2	644
IE	1	552
AR	2	460
BE	3	430
VE	1	369
ID	1	368
CY	1	368
PA	1	184
MY	1	184
IQ	2	184
IN	1	184
IL	1	184
DO	1	184
EG	1	110

Figure 6

The highest revenue per user by country is from Columbia, Austria and Switzerland in order significantly outstanding from the rest as the number of users from these countries are low, resulting in a higher average.