Evaluating the performance of digital music store

This report tries to measure and analyze the performance of digital music store by using their internal database in order to evaluate this type of business. Hence, the main objective of the analysis is to review and providing main indicators to decision makers. Therefore, there are many closely related questions which can be divided to two sides. The first side linked to digital store itself such as:-

- *How many numbers of albums in the store? For how many artists?*
- *And how many albums for each artist?*
- *How many numbers of songs for each artist? And what are the types of music?*
- *Which tracks that have the most playlist?*

On the other side which related to distribution of customers from each country and revenue:
- *How many customers deal with the music store?*
- *What is the distribution of customers along all countries?*
- *How much of revenue generated from each country?*
- *What is the most type of music for each country?*

It is crucial of analyzing the first side for knowing the items that already exist in the digital music store. The digital music store contains 347 albums for 275 of artists (appendx no.1), with 25 different type of music such as (rock, jazz, metal….etc) and for five different types of media. From figure 1, the numbers of artists that have many albums are about six artists, who own 21% of total albums. The highest numbers of album are 21(6%) for Iron Maiden, followed by Led Zeppelin who owned 14 (4%) albums, Deep Purple has 11 (3%) albums, Metallica & U2 have 10 albums, and finally Ozzy Osbourne has six albums. The rest of artists have an average 2 albums (appendx no.2).
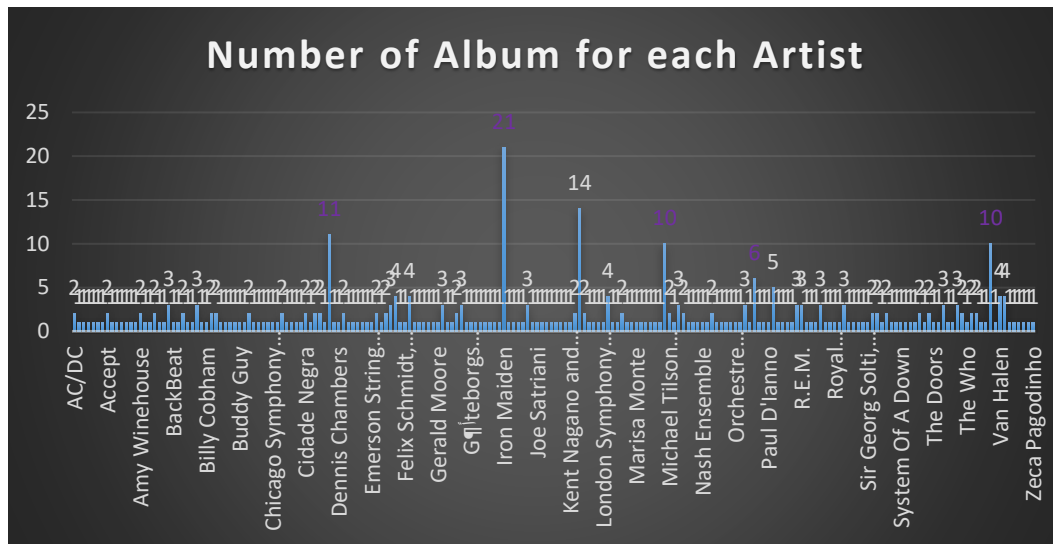
Figure 1: Number of Album for each Artist

Figure 2 represent number of songs for each artist. The total number of songs 3503 songs that distributed among artists. In addition, the number of songs differ from artist to another based on number of albums. The artist who owned many albums also has a lot of songs. The details revealed that Iron Maiden has the highest number of songs 213 (6%), followed by U2 has 135 (4%) songs; Led Zeppelin has 114(3.3%) songs, Metallica 112(3.2%). This means that 25% of total songs owned to six artists only (appendix no.3).
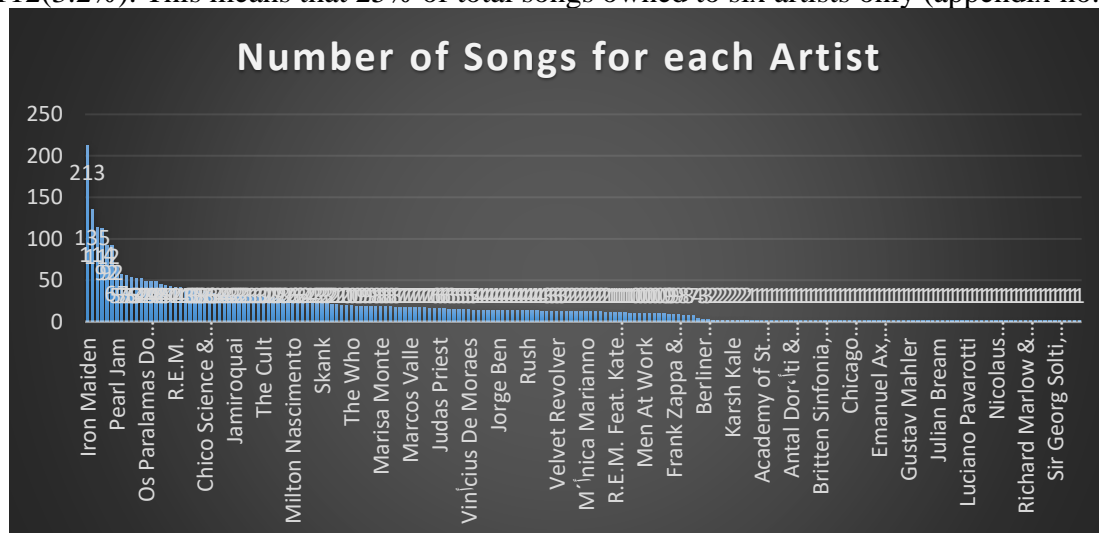

Figure 2: number of songs for each Artist

Figure 3 represent the distribution of music types in the digital store. the details revealed that there are many different music types that are playing and the most types are for rock songs 1261 (36%), 638 (18%) for latin songs, and 336 (10%) for metal songs, 215 for Alternative & Punk (6%). These types of music songs represent 70% from the total types.
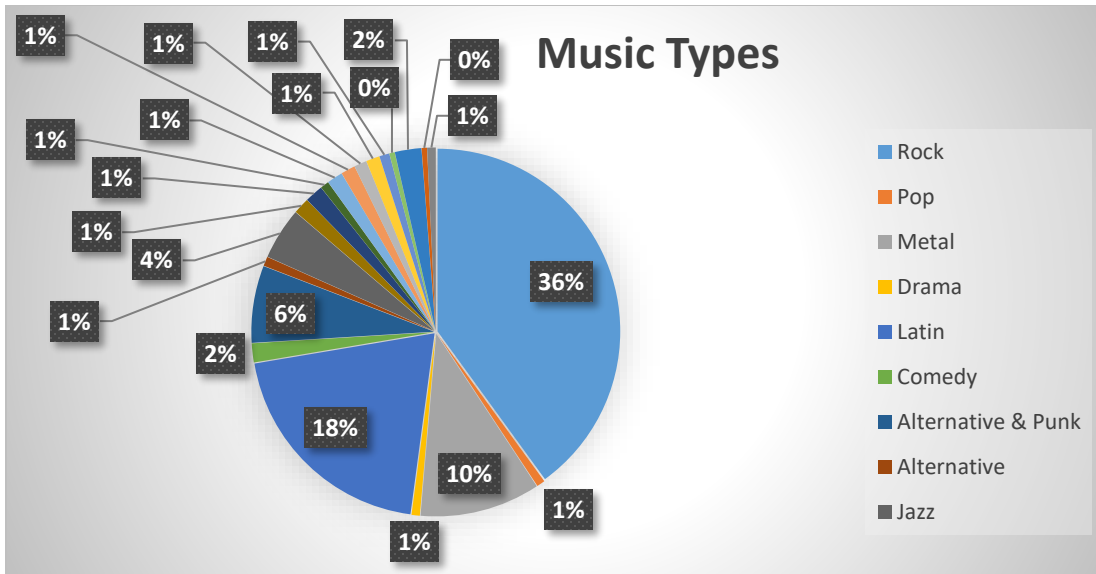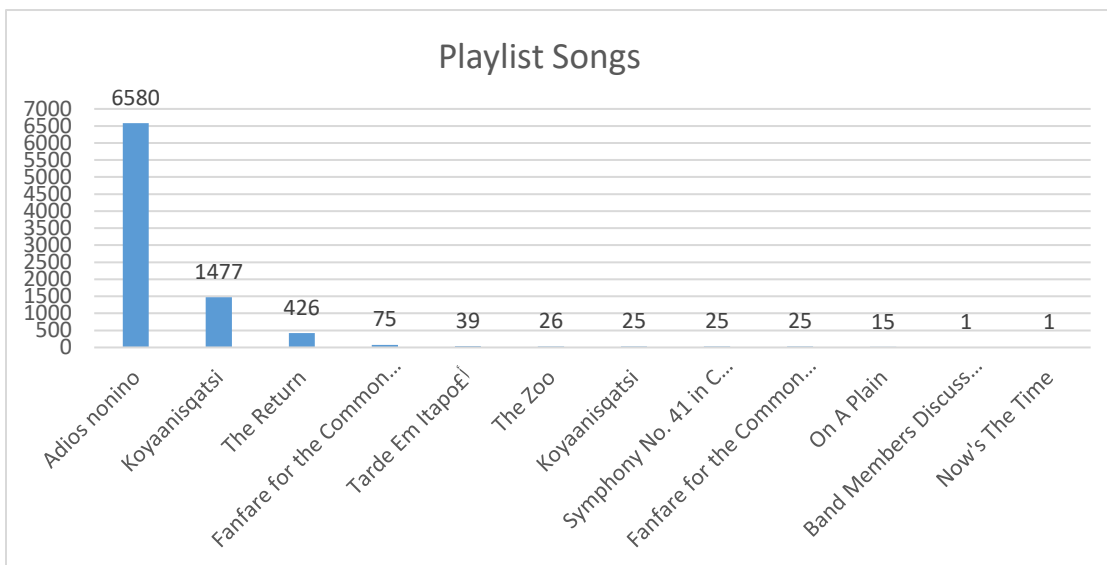
Figure 3: Music types

Figure 4. Playlist Songs

From the above figure, it is clear that the first rank of song that is playing in the playlist for Adios nonino by 6580 times. The second rank is Koyaanisqatsi by 1477 times, followed by in the third rank, The Return by 426. The rest of songs have similar average of playing (appendix no.4).

Let's dive deeper into the second side to get a full picture of the digital music business. The total number of customers that deal with digital music store is about 59 clients.
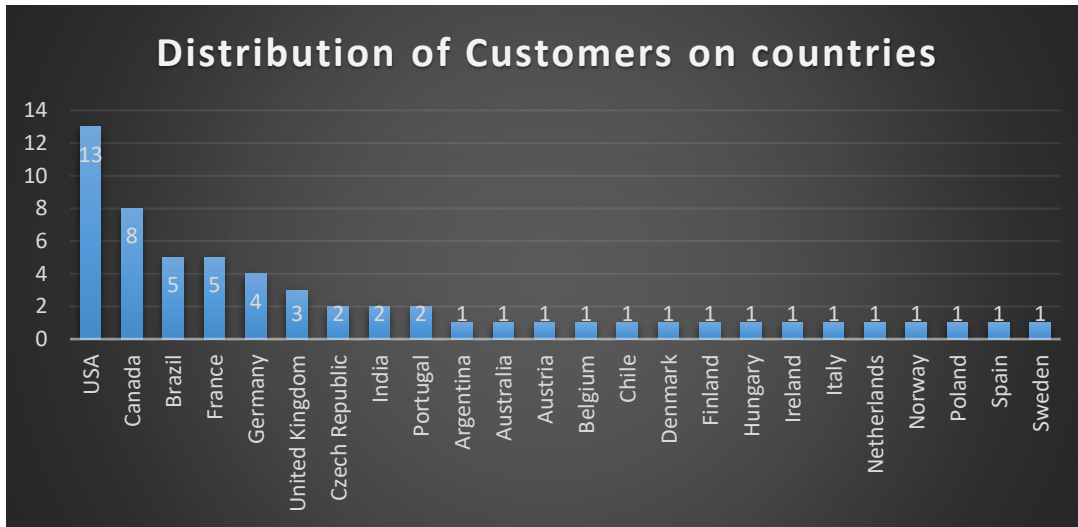
Figure 5. Distribution of Customers on Countries

Most of the customers are from USA 13(22%), 8(13.6) customers from Canada, and the music store has the same number of customers 5(8.5%) from Brazil and Germany (appendix no.5).
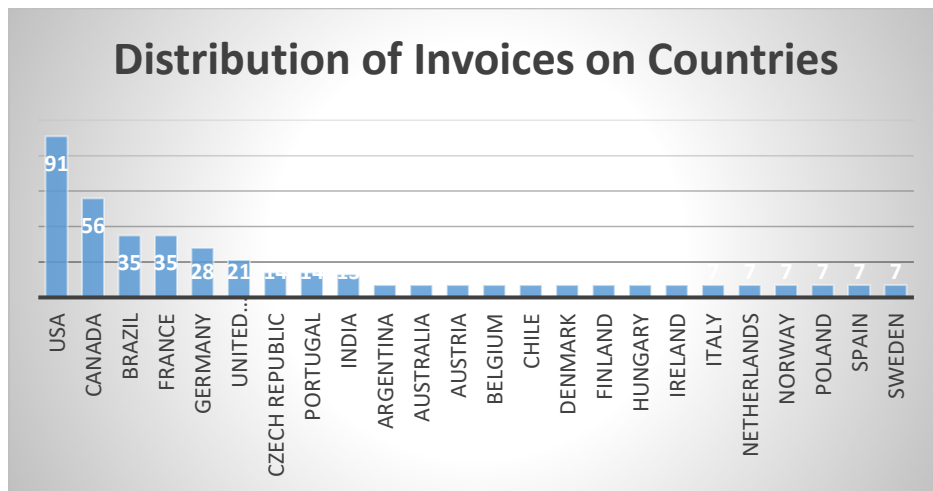

Figure 6. Distribution of Invoices on Countries

Also, It's clear from the above figure that the distribution of invoices among countries have the same frequency of number of customers on each countries. Hence, the most invoices number 91 are from USA, followed by 56 invoices from Canada, and 35 invoices for each Brazil and France (appendix no.6).
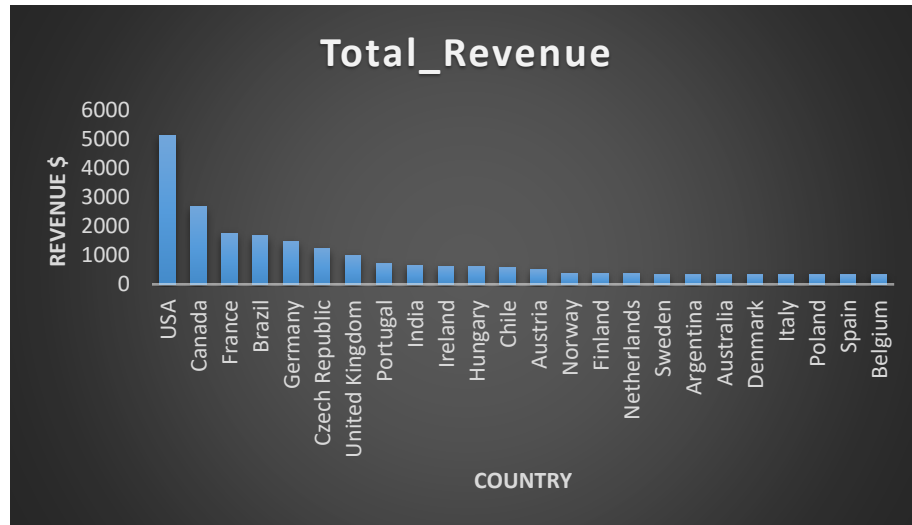
Figure 7. Total Revenue

According to the calculation of the revenue of each country, it is also obvious that the distribution of revenue has the same frequency of number of customer and their invoices. The total amount of revenue is $22416 and based on figure 7, most of revenue $5128.2(23%) is from USA, followed by Canada $2680.9(12%) then France by $1768.3(8%) (appendix no.7).
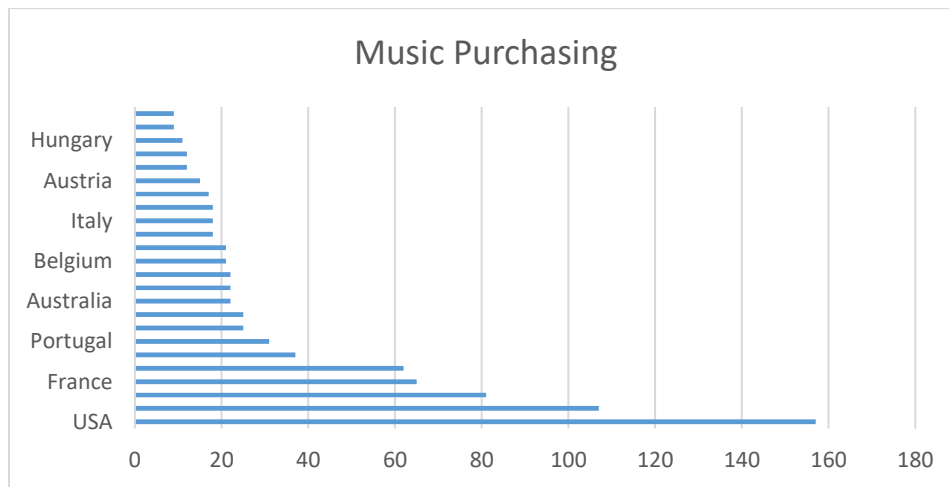

Figure 8. Music Purchasing

The most type of music that purchase from the digital store is rock and USA is the most country that purchase this type as it clear from the above graph (appendix no.8).

Appendices (SQL Code)

(1) For getting the total number of Album: 347 rows

```
SELECT AlbumID, Album.Title,
Artist.Name
FROM Album
JOIN Artist
ON Album.Artistid = Artist.ArtistId;
```

OR:

```
SELECT COUNT(*) FROM (SELECT
Album.Title, Artist.Name
FROM Artist
JOIN Album
ON Artist.ArtistId = Album.Artistid);
```

(1) For getting the total number of Artist

```
SELECT COUNT(artistid)
FROM Artist
```

(2) For getting number of albums for each artist

```
SELECT a.name, count(b.albumid)
FROM Artist a
JOIN Album b
ON a.artistid = b.artistid
GROUP BY a.name
ORDER BY count(b.albumid) DESC
```

(3) For getting number of songs for each artist

```
SELECT a.artistid, a.name, count(t.trackid)
FROM Artist a
JOIN Album b
ON a.artistid = b.artistid
JOIN Track t
ON b.albumid = t.albumid
JOIN genre g
ON g.genreid = t.genreid
GROUP BY a.name
ORDER BY count(t.trackid) DESC
```

(4) For getting most songs playing in playlist

```
SELECT count(t.trackid), t.name, pl.name
```

```
FROM Track t
JOIN PlaylistTrack p
ON t.trackid = p.trackid
JOIN Playlist  pl
ON p.playlistid = pl.playlistid
GROUP By pl.name
ORDER BY Count(t.trackid) DESC
```

(5) For getting the distribution of customers among countries

```
SELECT  country, count(customerid)
FROM Customer
GROUP by country
ORDER by count(customerid)DESC;
```

(6) For getting the number of invoices for each country

```
SELECT billingcountry, count(invoiceid)
FROM Invoice
GROUP by billingcountry
ORDER by count(invoiceid) DESC;
```

(7) For getting total revenue for each country

```
SELECT billingcountry, SUM(total*UnitPrice)
Total_Revenue
FROM Invoice I
JOIN InvoiceLine IL
ON I.Invoiceid = IL.invoiceid
GROUP BY billingcountry
Order By Total_Revenue DESC;
```

(8) For getting the most music purchases

```
SELECT MAX(Purchases) AS Purchases, Country, Name
FROM (SELECT SUM(lL.Quantity) AS Purchases, i.BillingCountry Country, g.Name Name
FROM Genre g
JOIN Track t
ON g. GenreId = t.GenreId
JOIN InvoiceLine lL
ON t.TrackId = lL.TrackId
JOIN Invoice i
ON lL.InvoiceId = i.InvoiceId
GROUP BY 2, 3) AS sub
GROUP BY 2
ORDER BY 1 DESC;
```