SQL-Based Analysis of Product Sales (Chinook)

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This Project's Motivation:

This project is an SQL-Based Analysis of the Chinook operations.

It aims to answer the following business questions:

1. Top selling products in terms of tracks and albums.
2. Top ten sales generating artists
3. How different genres of music perform
4. How the differing mediatypes and playlisting affects sales performance
5. Revenue by geographical locations in terms of regions, countries, and cities
6. Time-trends analysis of performance in terms of monthly and yearly sales

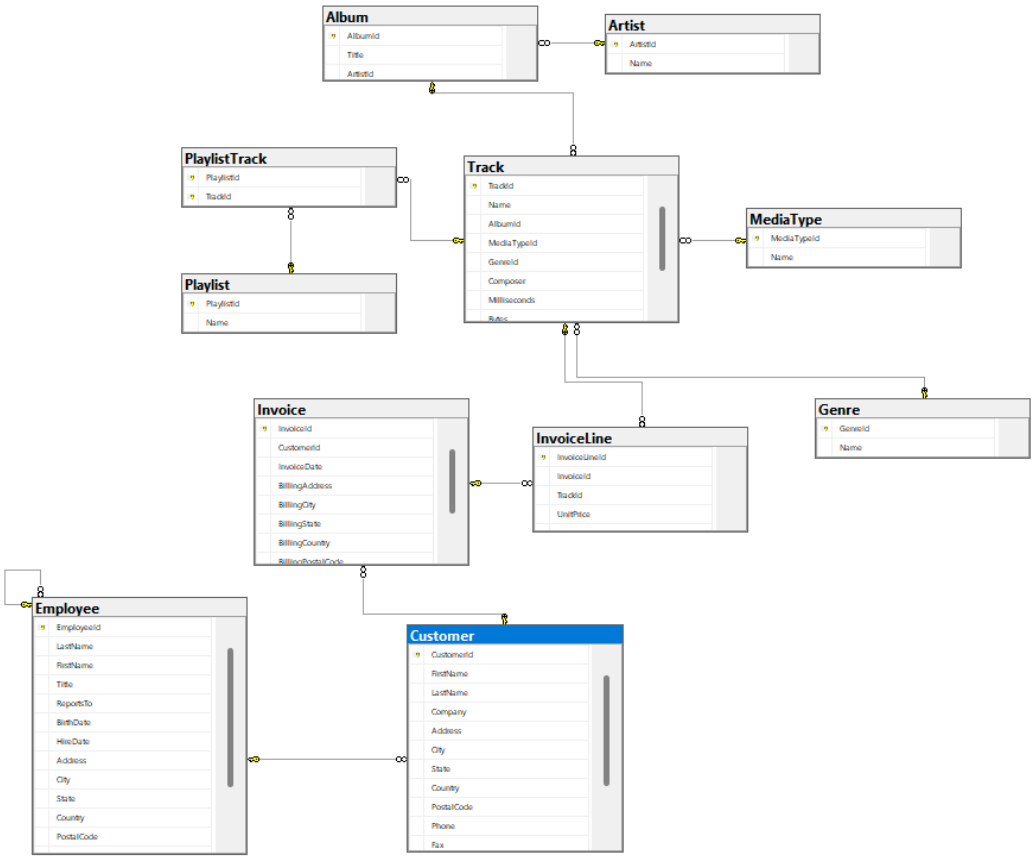
About the Dataset:

The database can be found here: [Chinook Database]

The Chinook database is a sample database that simulates a digital music store (like iTunes). It includes data on artists, albums, tracks (songs), customers, invoices (sales), and more.

The database consists of the following:

-	Albums	347 records	3 columns
-	Artist	275 records	2 columns
-	Customer	59 records	13 columns
-	Employee	8 records	15 columns
-	Genre	25 records	2 columns
-	Invoice	412 records	9 columns
-	InvoiceLine	2240 records	5 columns
-	MediaType	5 records	2 columns
-	Playlist	18 records	2 columns
-	PlaylistTrack	8715 records	2 columns
-	Track	3503 records	9 columns


Album
AlbumId
Title
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Artist
ArtistId
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GenreId
Composer
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Bytes
MediaType
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Name
Playlist
PlaylistId
Name
Invoice
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CustomerId
InvoiceDate
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BillingCity
BillingState
BillingCountry
InvoiceLine
InvoiceLineId
InvoiceId
TrackId
UnitPrice
Genre
GenreId
Name
Employee
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LastName
FirstName
Title
ReportsTo
BirthDate
HireDate
Address
City
State
Country
PostalCode
Customer
CustomerId
FirstName
LastName
Company
Address
City
State
Country
PostalCode
Phone
Fax

Analysis:

Total count of Tracks sold and Invoices

```
SELECT
    (SELECT COUNT(*) FROM Track) AS TotalTracks,
    (SELECT COUNT(*) FROM Invoice) AS TotalInvoices;
```

TotalTracks:	3503
TotalInvoices:	412

The large number of tracks (3,503) compared to invoices (412) suggests a diverse catalog but relatively low sales volume per track, averaging about 5-6 tracks per invoice (assuming typical invoice sizes). This could indicate that customers buy selectively, possibly focusing on popular tracks or playlists.

Total overall sales revenue

```
SELECT
    SUM(Total) AS TotalRevenue
FROM Invoice;
```

TotalRevenue:	2328.60

The total revenue of $2,328.60, spread across 412 invoices, suggests an average invoice value of approximately $5.65, indicating modest purchase sizes.

Total Albums Sold and Unique Albums

```
SELECT
    COUNT(DISTINCT al.AlbumId) AS UniqueAlbums,
    SUM(il.Quantity) AS TotalUnitsSoldFromAlbums
FROM InvoiceLine il
INNER JOIN Track t ON il.TrackId = t.TrackId
INNER JOIN Album al ON t.AlbumId = al.AlbumId;
```

UniqueAlbums:	304
TotalUnitsSoldFromAlbums:	2240

With 304 unique albums contributing to 2,240 track sales, each album averages about 7.4 tracks sold, indicating selective purchasing within albums.

Count of artists and albums

```
SELECT
    COUNT(DISTINCT a.ArtistId) AS TotalArtists,
    COUNT(DISTINCT al.AlbumId) AS TotalAlbums
FROM Artist a
LEFT JOIN Album al ON a.ArtistId = al.ArtistId;
```

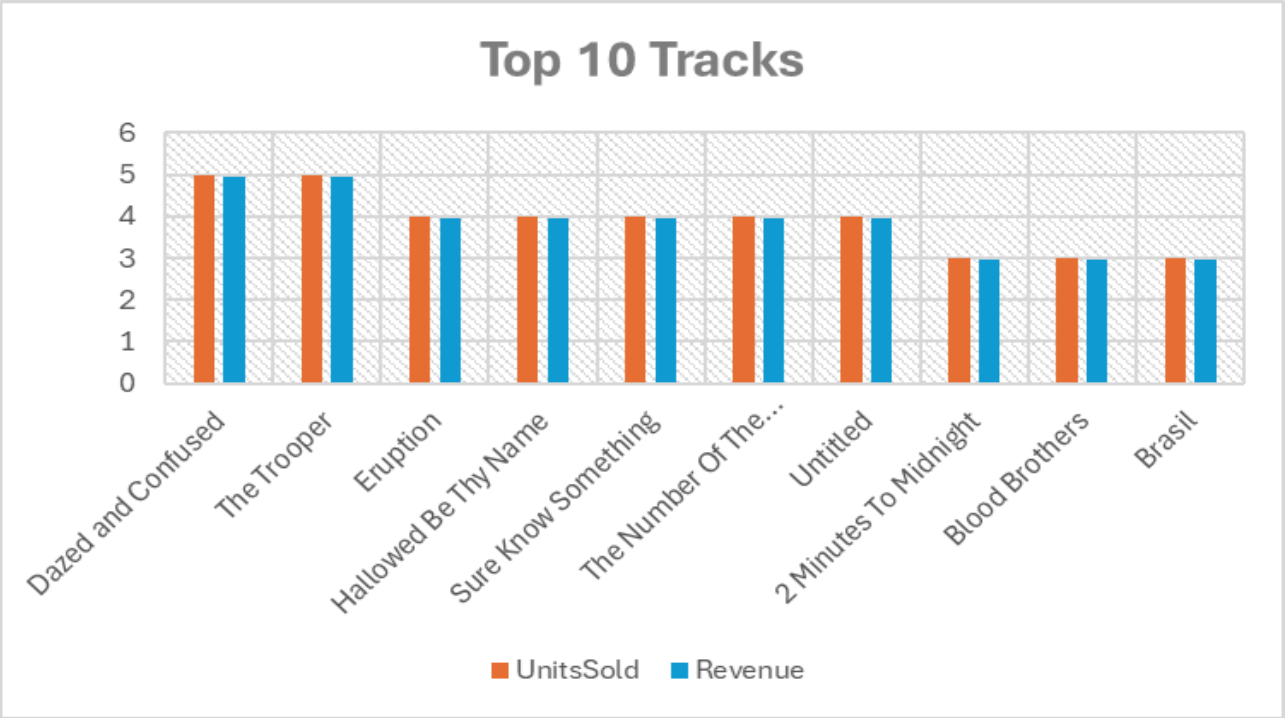
TotalArtists:	275
TotalAlbums:	347

With 275 artists producing 347 albums, each artist averages about 1.26 albums, indicating most artists contribute one or two albums. This suggests a diverse but compact catalog, where focusing on top-selling artists or albums could maximize revenue.

Top 10 Best-Selling Tracks

```
SELECT TOP 10
    t.Name AS TrackName,
    COUNT(il.TrackId) AS UnitsSold,
    SUM(il.UnitPrice * il.Quantity) AS Revenue
FROM InvoiceLine il
INNER JOIN Track t ON il.TrackId = t.TrackId
GROUP BY t.Name
ORDER BY UnitsSold DESC;
```

TrackName	UnitsSold	Revenue
Dazed and Confused	5	4.95
The Trooper	5	4.95
Eruption	4	3.96
Hallowed Be Thy Name	4	3.96
Sure Know Something	4	3.96
The Number Of The Beast	4	3.96
Untitled	4	3.96
2 Minutes To Midnight	3	2.97
Blood Brothers	3	2.97
Brasil	3	2.97



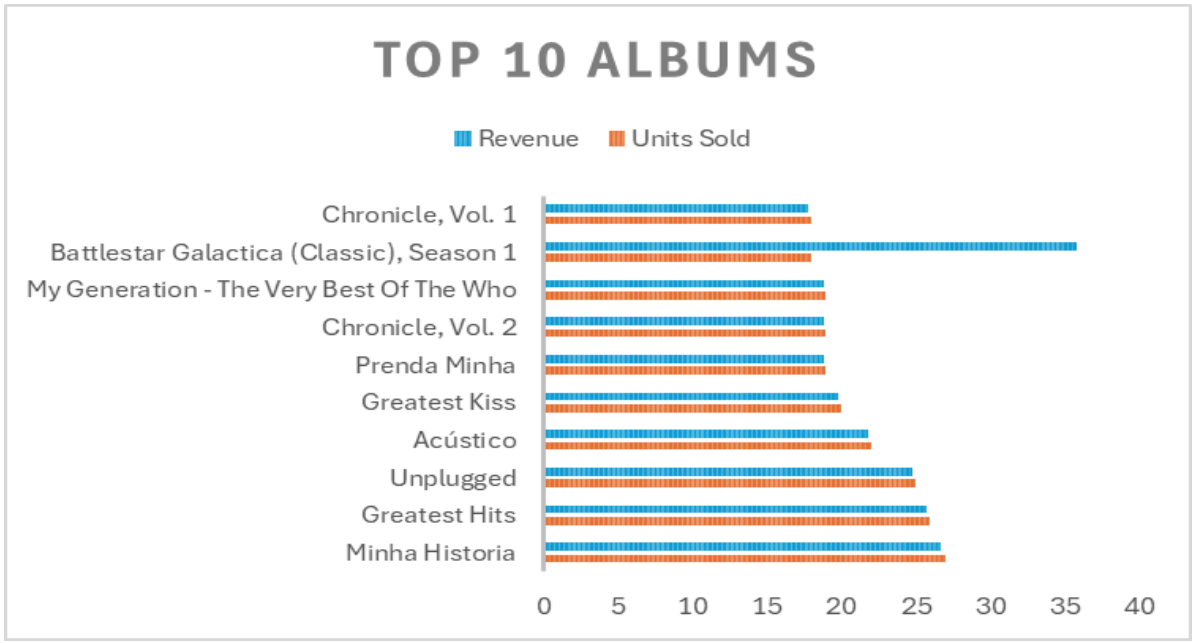
The low units sold (3-5) for top tracks suggest a fragmented market with no single track dominating sales, likely due to the diverse catalog of 3,503 tracks. Most tracks have a standard price of ~$0.99, as seen in consistent revenue-to-units ratios.

Top 10 Best-Selling Albums

```
SELECT TOP 10
    al.Title AS AlbumTitle,
    a.Name AS ArtistName,
    COUNT(il.TrackId) AS UnitsSold,
    SUM(il.UnitPrice * il.Quantity) AS Revenue
FROM InvoiceLine il
INNER JOIN Track t ON il.TrackId = t.TrackId
INNER JOIN Album al ON t.AlbumId = al.AlbumId
INNER JOIN Artist a ON al.ArtistId = a.ArtistId
GROUP BY al.Title, a.Name
ORDER BY UnitsSold DESC;
```

AlbumTitle	ArtistName	Units Sold	Revenue
Minha Historia	Chico Buarque	27	26.73
Greatest Hits	Lenny Kravitz	26	25.74
Unplugged	Eric Clapton	25	24.75
Acústico	Titãs	22	21.78
Greatest Kiss	Kiss	20	19.80
Prenda Minha	Caetano Veloso	19	18.81
Chronicle, Vol. 2	Creedence Clearwater Revival	19	18.81
My Generation - The Very Best Of The Who	The Who	19	18.81
Battlestar Galactica (Classic), Season 1	Battlestar Galactica (Classic)	18	35.82
Chronicle, Vol. 1	Creedence Clearwater Revival	18	17.82

The dominance of albums like "Minha Historia" (27 units, $26.73) and "Greatest Hits" (26 units, $25.74) suggests strong demand for compilation or popular albums, while "Battlestar Galactica (Classic), Season 1" stands out with higher revenue ($35.82) due to higher-priced video tracks. This indicates customers prefer well-known artists or hits, but video content can drive higher revenue per unit.



Sales by Artist

```
SELECT
    a.Name AS Artist,
    COUNT(il.TrackId) AS UnitsSold,
    SUM(il.UnitPrice * il.Quantity) AS Revenue
FROM InvoiceLine il
INNER JOIN Track t ON il.TrackId = t.TrackId
INNER JOIN Album al ON t.AlbumId = al.AlbumId
INNER JOIN Artist a ON al.ArtistId = a.ArtistId
GROUP BY a.Name
ORDER BY Revenue DESC;
```

Artist	UnitsSold	Revenue
Iron Maiden	140	138.60
U2	107	105.93
Metallica	91	90.09
Led Zeppelin	87	86.13
Lost	41	81.59
The Office	25	49.75
Os Paralamas Do Sucesso	45	44.55
Deep Purple	44	43.56
Faith No More	42	41.58
Eric Clapton	40	39.60
R.E.M.	39	38.61
Queen	37	36.63
Creedence Clearwater Revival	37	36.63
Battlestar Galactica (Classic)	18	35.82
Guns N' Roses	36	35.64
Titãs	34	33.66
Green Day	33	32.67
Pearl Jam	32	31.68
Kiss	31	30.69
Van Halen	29	28.71

Iron Maiden and U2 dominate sales, reflecting strong demand for rock genres, but Battlestar Galactica's high revenue ($35.82 from 18 units) indicates video tracks (~$1.99 each) outperform audio tracks (~$0.99) in revenue per unit. This suggests promoting high-margin video content or popular rock artists could boost revenue.

Sales by Genre

```
SELECT
    g.Name AS Genre,
    COUNT(il.TrackId) AS UnitsSold,
    SUM(il.UnitPrice * il.Quantity) AS Revenue
FROM InvoiceLine il
INNER JOIN Track t ON il.TrackId = t.TrackId
INNER JOIN Genre g ON t.GenreId = g.GenreId
GROUP BY g.Name
ORDER BY Revenue DESC;
```

Genre	UnitsSold	Revenue
Rock	835	826.65
Latin	386	382.14
Metal	264	261.36
Alternative & Punk	244	241.56
TV Shows	47	93.53
Jazz	80	79.20
Blues	61	60.39
Drama	29	57.71
R&B/Soul	41	40.59
Classical	41	40.59
Sci Fi & Fantasy	20	39.80
Reggae	30	29.70
Pop	28	27.72
Soundtrack	20	19.80
Comedy	9	17.91
Hip Hop/Rap	17	16.83
Bossa Nova	15	14.85
Alternative	14	13.86
World	13	12.87
Science Fiction	6	11.94
Heavy Metal	12	11.88
Electronica/Dance	12	11.88
Easy Listening	10	9.90
Rock And Roll	6	5.94

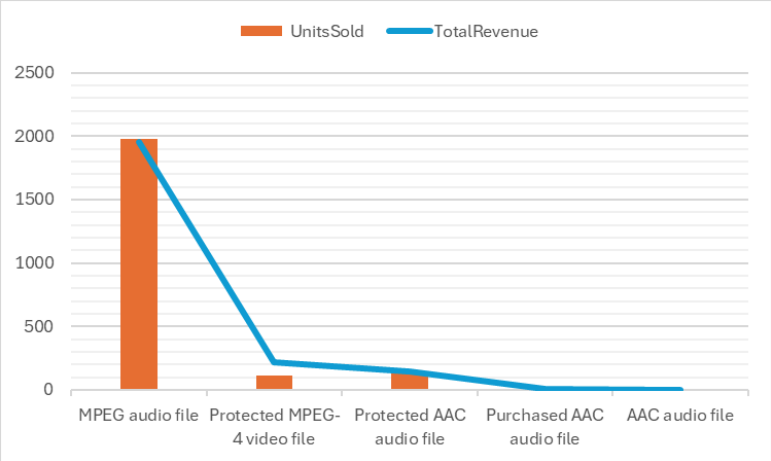
Rock dominates with over a third of total revenue, indicating strong customer preference for this genre, while Latin and Metal also contribute significantly. TV Shows and Drama genres, with higher revenue per unit due to video content pricing (~$1.99), suggest niche but lucrative markets.

Sales Performance by Media Type

```
SELECT
    mt.Name AS MediaType,
    COUNT(il.TrackId) AS UnitsSold,
    SUM(il.UnitPrice * il.Quantity) AS TotalRevenue
FROM InvoiceLine il
INNER JOIN Track t ON il.TrackId = t.TrackId
INNER JOIN MediaType mt ON t.MediaTypeId = mt.MediaTypeId
GROUP BY mt.Name
ORDER BY TotalRevenue DESC;
```

MediaType	UnitsSold	TotalRevenue
MPEG audio file	1976	1956.24
Protected MPEG-4 video file	111	220.89
Protected AAC audio file	146	144.54
Purchased AAC audio file	4	3.96
AAC audio file	3	2.97

MPEG audio files lead with 1,976 units sold and $1,956.24 in revenue, while Protected MPEG-4 video files generate $220.89 from 111 units, and other types like AAC audio files have minimal sales.



MPEG audio files dominate due to their high volume (1,976 units), likely reflecting customer preference for unprotected MP3s (~$0.99 each) for compatibility. Protected MPEG-4 video files, despite fewer units, contribute significant revenue due to higher pricing (~$1.99), suggesting a lucrative niche.

Sales for Tracks in Playlists vs. Not in Playlists

```
WITH TrackPlaylistCount AS (
    SELECT
        t.TrackId,
        COUNT(pt.PlaylistId) AS PlaylistCount
    FROM Track t
    LEFT JOIN PlaylistTrack pt ON t.TrackId = pt.TrackId
    GROUP BY t.TrackId
)
SELECT
    CASE
        WHEN tpc.PlaylistCount > 0 THEN 'In Playlists'
        ELSE 'Not in Playlists'
    END AS PlaylistStatus,
    COUNT(DISTINCT tpc.TrackId) AS UniqueTracks,
    SUM(il.Quantity) AS UnitsSold,
    SUM(il.UnitPrice * il.Quantity) AS TotalRevenue
FROM TrackPlaylistCount tpc
LEFT JOIN InvoiceLine il ON tpc.TrackId = il.TrackId
GROUP BY
    CASE
        WHEN tpc.PlaylistCount > 0 THEN 'In Playlists'
        ELSE 'Not in Playlists'
    END;
```

PlaylistStatus	UniqueTracks	UnitsSold	TotalRevenue
In Playlists	3503	2240	2328.60

The absence of tracks in the "Not in Playlists" category suggests that all tracks in the Chinook database are included in at least one playlist. The 2,240 units sold across 3,503 tracks indicate that playlisting may drive sales, as all sales come from playlisted tracks.

Sales by Number of Playlists a Track is In

```
WITH TrackPlaylistCount AS (
    SELECT
        t.TrackId,
        COUNT(pt.PlaylistId) AS PlaylistCount
    FROM Track t
    LEFT JOIN PlaylistTrack pt ON t.TrackId = pt.TrackId
    GROUP BY t.TrackId
)
SELECT
    tpc.PlaylistCount,
    COUNT(DISTINCT tpc.TrackId) AS UniqueTracks,
    SUM(il.Quantity) AS UnitsSold,
    SUM(il.UnitPrice * il.Quantity) AS TotalRevenue,
    AVG(il.Quantity) AS AvgUnitsPerTrack
FROM TrackPlaylistCount tpc
LEFT JOIN InvoiceLine il ON tpc.TrackId = il.TrackId
GROUP BY tpc.PlaylistCount
ORDER BY tpc.PlaylistCount DESC;
```

PlaylistCount	UniqueTracks	Units Sold	TotalRevenue	AvgUnitsPerTrack
5	41	24	23.76	1
4	70	37	36.63	1
3	1446	946	936.54	1
2	1946	1233	1331.67	1

The results show tracks in 5 playlists (41 tracks, 24 units sold, $23.76 revenue), 4 playlists (70 tracks, 37 units, $36.63), 3 playlists (1,446 tracks, 946 units, $936.54), and 2 playlists (1,946 tracks, 1,233 units, $1,331.67). Tracks in fewer playlists (2-3) account for the majority of sales (2,179 units, ~$2,268 revenue). The low average units per track (1 across all groups) indicates even playlisted tracks sell modestly.

Top Playlists by Sales Contribution

```
SELECT
    p.Name AS PlaylistName,
    COUNT(il.TrackId) AS UnitsSold,
    SUM(il.UnitPrice * il.Quantity) AS TotalRevenue
FROM InvoiceLine il
INNER JOIN PlaylistTrack pt ON il.TrackId = pt.TrackId
INNER JOIN Playlist p ON pt.PlaylistId = p.PlaylistId
GROUP BY p.Name
ORDER BY TotalRevenue DESC;
```

PlaylistName	UnitsSold	TotalRevenue
Music	4258	4215.42
90’s Music	954	944.46
TV Shows	222	441.78
Classical	41	40.59
Brazilian Music	27	26.73
Heavy Metal Classic	22	21.78
Classical 101 - Deep Cuts	19	18.81
Classical 101 - Next Steps	15	14.85
Classical 101 - The Basics	7	6.93
Grunge	7	6.93

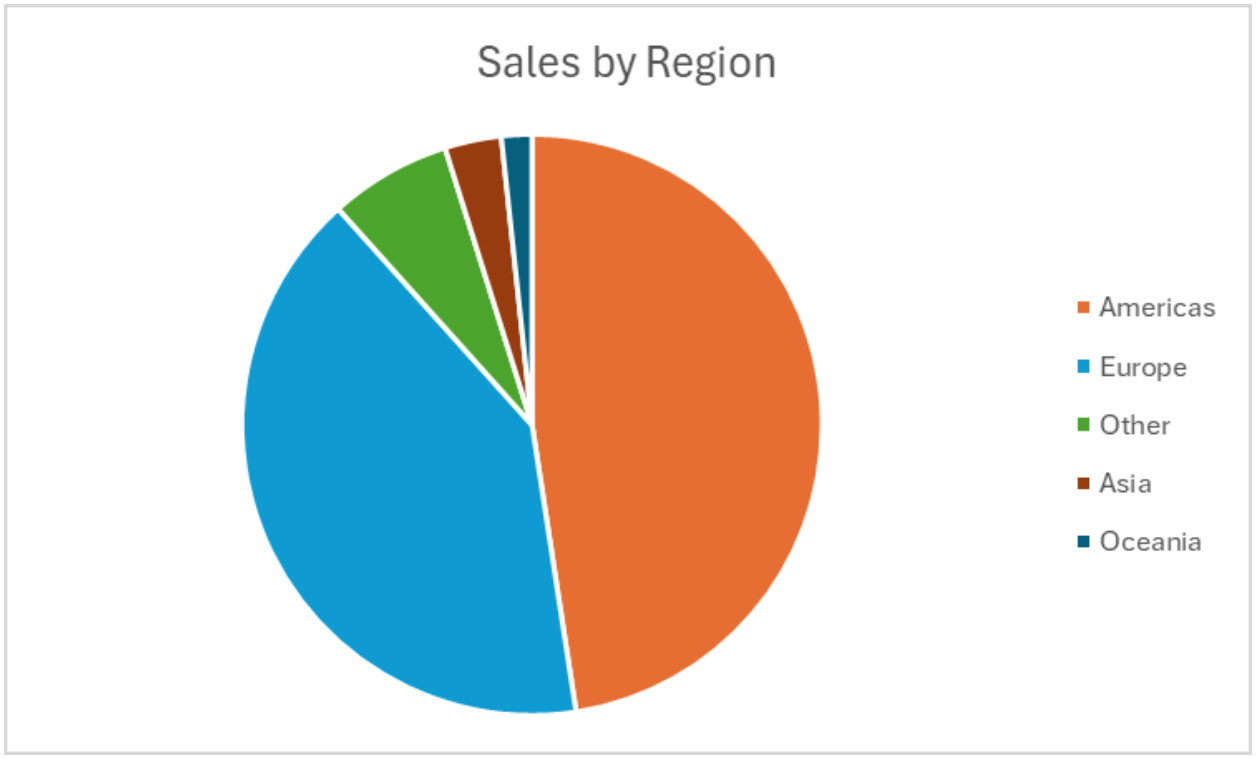
The "Music" playlist dominates sales due to its broad inclusion of most tracks, but its high revenue ($4,215.42) exceeds the total database revenue ($2,328.60), suggesting tracks appear in multiple playlists, inflating counts. Niche playlists like "90’s Music" and "TV Shows" contribute significantly, with TV Shows likely boosted by higher-priced video content (~$1.99). Focusing marketing on popular playlists like "90’s Music" or expanding curated niche playlists could drive targeted sales growth.

Sales Performance by Derived Region (Continent/Group)

```
SELECT
    CASE
        WHEN c.Country IN ('USA', 'Canada', 'Brazil', 'Argentina',
'Chile') THEN 'Americas'
        WHEN c.Country IN ('Germany', 'France', 'UK', 'Norway', 'Czech
Republic', 'Belgium', 'Denmark', 'Finland', 'Ireland', 'Italy',
'Netherlands', 'Poland', 'Portugal', 'Spain', 'Sweden', 'Austria') THEN
'Europe'
        WHEN c.Country IN ('Australia') THEN 'Oceania'
        WHEN c.Country IN ('India') THEN 'Asia'
        ELSE 'Other'
    END AS Region,
    COUNT(i.InvoiceId) AS NumberOfSales,
    SUM(i.Total) AS TotalRevenue
FROM Invoice i
INNER JOIN Customer c ON i.CustomerId = c.CustomerId
GROUP BY
    CASE
        WHEN c.Country IN ('USA', 'Canada', 'Brazil', 'Argentina',
'Chile') THEN 'Americas'
        WHEN c.Country IN ('Germany', 'France', 'UK', 'Norway', 'Czech
Republic', 'Belgium', 'Denmark', 'Finland', 'Ireland', 'Italy',
'Netherlands', 'Poland', 'Portugal', 'Spain', 'Sweden', 'Austria') THEN
'Europe'
        WHEN c.Country IN ('Australia') THEN 'Oceania'
        WHEN c.Country IN ('India') THEN 'Asia'
        ELSE 'Other'
    END
ORDER BY TotalRevenue DESC;
```

Region	NumberOfSales	TotalRevenue
Americas	196	1101.36
Europe	168	955.88
Other	28	158.48
Asia	13	75.26
Oceania	7	37.62

The Americas and Europe dominate sales, contributing ~$2,057 of the $2,328.60 total revenue, indicating these regions are key markets. The low sales in Oceania and Asia (20 sales combined) suggest limited customer bases or market penetration in these areas.



Sales Performance by Country

```
SELECT
    c.Country,
    COUNT(i.InvoiceId) AS NumberOfSales,
    SUM(i.Total) AS TotalRevenue,
    (SUM(i.Total) * 100.0 / (SELECT SUM(Total) FROM Invoice)) AS
RevenuePercentage
FROM Invoice i
INNER JOIN Customer c ON i.CustomerId = c.CustomerId
GROUP BY c.Country
ORDER BY TotalRevenue DESC;
```

Country	NumberOfSales	TotalRevenue	RevenuePercentage
USA	91	523.06	22.462423
Canada	56	303.96	13.053336
France	35	195.10	8.378424
Brazil	35	190.10	8.163703
Germany	28	156.48	6.719917
United Kingdom	21	112.86	4.846688
Czech Republic	14	90.24	3.875289
Portugal	14	77.24	3.317014
India	13	75.26	3.231984
Chile	7	46.62	2.002061
Ireland	7	45.62	1.959117
Hungary	7	45.62	1.959117
Austria	7	42.62	1.830284
Finland	7	41.62	1.787340
Netherlands	7	40.62	1.744395
Norway	7	39.62	1.701451
Sweden	7	38.62	1.658507
Spain	7	37.62	1.615562
Poland	7	37.62	1.615562
Italy	7	37.62	1.615562
Belgium	7	37.62	1.615562
Argentina	7	37.62	1.615562
Australia	7	37.62	1.615562
Denmark	7	37.62	1.615562

The USA and Canada account for over 35% of total revenue, indicating they are primary markets, while European countries like France and Germany also contribute significantly. The consistent 7 sales across many countries (e.g., Australia, Denmark) suggest a uniform but low customer base in these regions.

Sales Performance by City (Top 10)

```
SELECT TOP 10
    c.City,
    c.Country,
    COUNT(i.InvoiceId) AS NumberOfSales,
    SUM(i.Total) AS TotalRevenue
FROM Invoice i
INNER JOIN Customer c ON i.CustomerId = c.CustomerId
GROUP BY c.City, c.Country
ORDER BY TotalRevenue DESC;
```

City	Country	NumberOfSales	TotalRevenue
Prague	Czech Republic	14	90.24
Paris	France	14	77.24
Mountain View	USA	14	77.24
São Paulo	Brazil	14	75.24
Berlin	Germany	14	75.24
London	United Kingdom	14	75.24
Fort Worth	USA	7	47.62
Santiago	Chile	7	46.62
Budapest	Hungary	7	45.62
Dublin	Ireland	7	45.62

Prague's high revenue ($90.24) from 14 sales suggests a concentrated, high-spending customer base, , followed by cities like Paris and Mountain View, each with 14 sales but slightly lower revenue ($77.24), while cities like São Paulo and Berlin also show strong sales. The consistent 14 sales across top cities indicate similar transaction volumes, but revenue variations reflect differing purchase sizes.

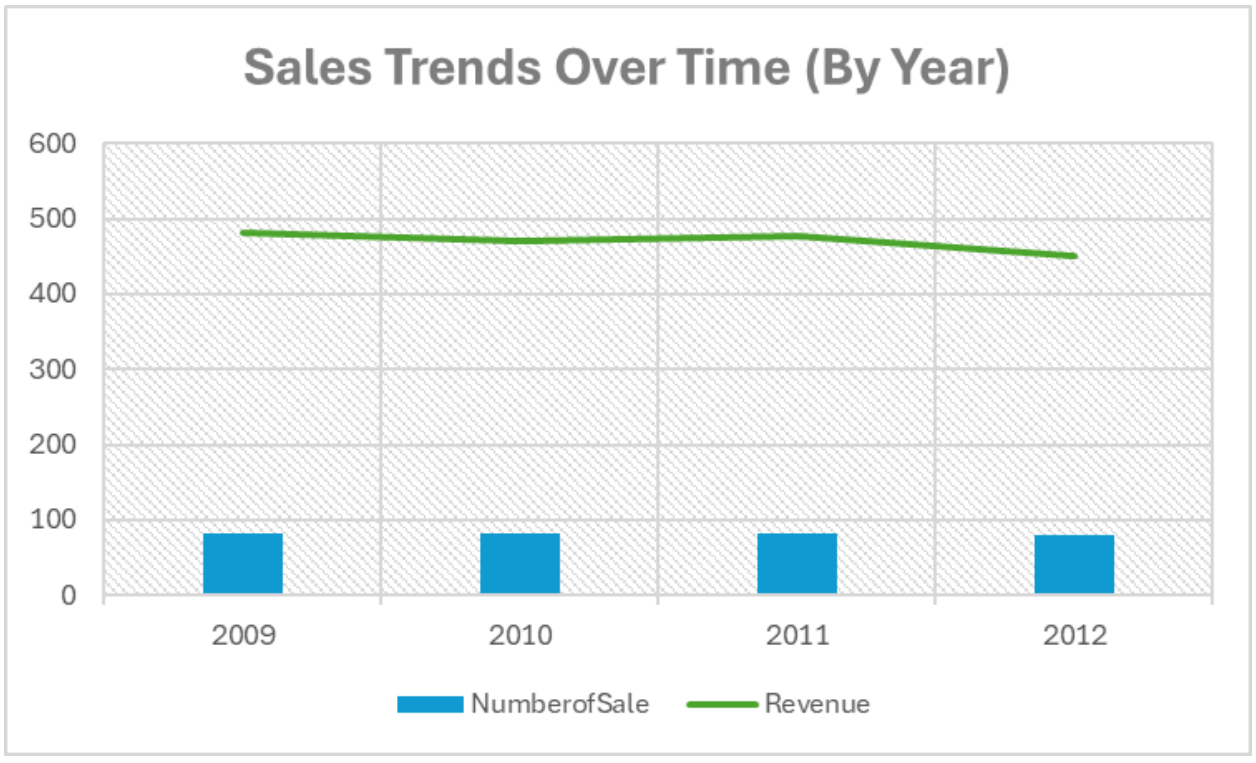
Sales Trends Over Time (By Year)

```
SELECT
    YEAR(i.InvoiceDate) AS SaleYear,
    COUNT(i.InvoiceId) AS NumberOfSales,
    SUM(i.Total) AS Revenue
FROM Invoice i
GROUP BY YEAR(i.InvoiceDate)
ORDER BY SaleYear;
```

SaleYear	NumberOfSales	Revenue
2009	83	449.46
2010	83	481.45
2011	83	469.58
2012	83	477.53
2013	80	450.58

The results show consistent sales volumes of 83 invoices per year from 2009 to 2012, with a slight drop to 80 in 2013. Revenue peaks in 2010 at $481.45 and fluctuates slightly, ranging from $449.46 (2009) to $477.53 (2012).

The stable number of sales (80-83 annually) suggests consistent customer activity, but the revenue peak in 2010 ($481.45) indicates a year of higher-value purchases. The slight revenue dip in 2013 ($450.58) could reflect smaller average invoices or fewer high-priced items sold.



Monthly Revenue and Sales Count

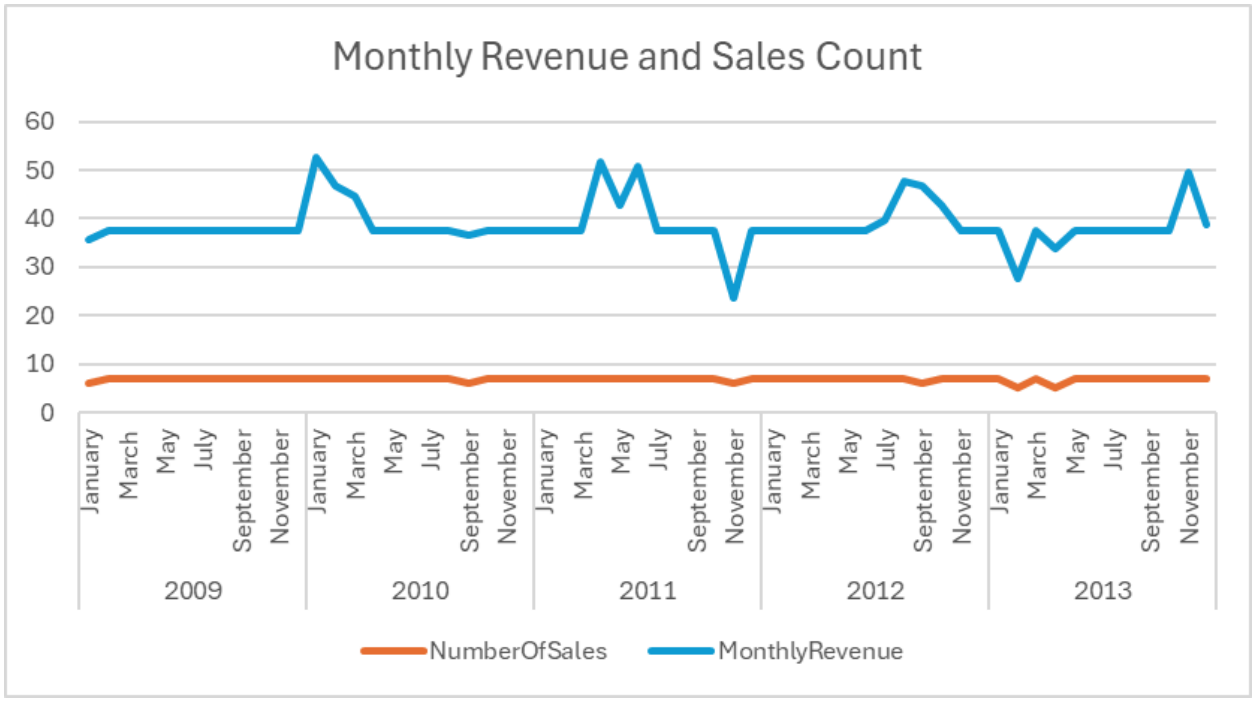
```
SELECT
    YEAR(i.InvoiceDate) AS Year,
    MONTH(i.InvoiceDate) AS Month,
    COUNT(i.InvoiceId) AS NumberOfSales,
    SUM(i.Total) AS MonthlyRevenue
FROM Invoice i
GROUP BY YEAR(i.InvoiceDate), MONTH(i.InvoiceDate)
ORDER BY Year, Month;
```

Year	Month	NumberOfSales	MonthlyRevenue
2009	1	6	35.64
2009	2	7	37.62
2009	3	7	37.62
2009	4	7	37.62
2009	5	7	37.62
2009	6	7	37.62
2009	7	7	37.62
2009	8	7	37.62
2009	9	7	37.62
2009	10	7	37.62
2009	11	7	37.62
2009	12	7	37.62
2010	1	7	52.62
2010	2	7	46.62
2010	3	7	44.62
2010	4	7	37.62

2010	5	7	37.62
2010	6	7	37.62
2010	7	7	37.62
2010	8	7	37.62
2010	9	6	36.63
2010	10	7	37.62
2010	11	7	37.62
2010	12	7	37.62
2011	1	7	37.62
2011	2	7	37.62
2011	3	7	37.62
2011	4	7	51.62
2011	5	7	42.62
2011	6	7	50.62
2011	7	7	37.62
2011	8	7	37.62
2011	9	7	37.62
2011	10	7	37.62
2011	11	6	23.76
2011	12	7	37.62
2012	1	7	37.62
2012	2	7	37.62
2012	3	7	37.62
2012	4	7	37.62
2012	5	7	37.62

2012	6	7	37.62
2012	7	7	39.62
2012	8	7	47.62
2012	9	6	46.71
2012	10	7	42.62
2012	11	7	37.62
2012	12	7	37.62
2013	1	7	37.62
2013	2	5	27.72
2013	3	7	37.62
2013	4	5	33.66
2013	5	7	37.62
2013	6	7	37.62
2013	7	7	37.62
2013	8	7	37.62
2013	9	7	37.62
2013	10	7	37.62
2013	11	7	49.62
2013	12	7	38.62

Revenue peaks, such as those in mid-2010 and mid-2012 align with increased sales counts, indicating periods of higher customer spending or larger transactions. The consistent low sales count suggests stable but limited customer engagement, with revenue fluctuations driven by purchase value rather than volume.



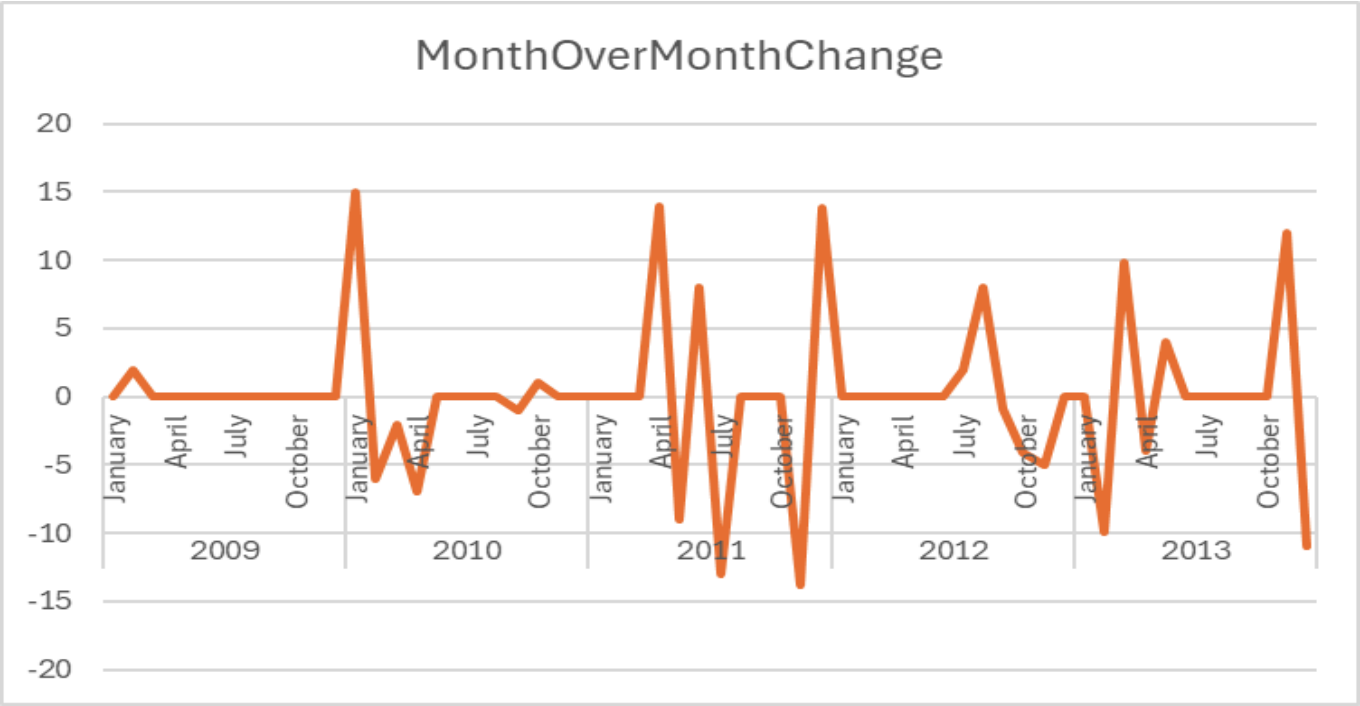
Monthly Revenue with Year-Over-Year Comparison

```
WITH MonthlyData AS (
    SELECT
        YEAR(i.InvoiceDate) AS Year,
        MONTH(i.InvoiceDate) AS Month,
        SUM(i.Total) AS MonthlyRevenue
    FROM Invoice i
    GROUP BY YEAR(i.InvoiceDate), MONTH(i.InvoiceDate)
)
SELECT
    Year,
    Month,
    MonthlyRevenue,
    LAG(MonthlyRevenue) OVER (ORDER BY Year, Month) AS
PreviousMonthRevenue,
    (MonthlyRevenue - LAG(MonthlyRevenue) OVER (ORDER BY Year, Month)) AS
MonthOverMonthChange
FROM MonthlyData
ORDER BY Year, Month;
```

Year	Month	MonthlyRevenue	PreviousMonthRevenue	MonthOverMonthChange
2009	1	35.64	NULL	NULL
2009	2	37.62	35.64	1.98
2009	3	37.62	37.62	0.00
2009	4	37.62	37.62	0.00
2009	5	37.62	37.62	0.00
2009	6	37.62	37.62	0.00
2009	7	37.62	37.62	0.00
2009	8	37.62	37.62	0.00
2009	9	37.62	37.62	0.00
2009	10	37.62	37.62	0.00
2009	11	37.62	37.62	0.00
2009	12	37.62	37.62	0.00
2010	1	52.62	37.62	15.00
2010	2	46.62	52.62	-6.00
2010	3	44.62	46.62	-2.00
2010	4	37.62	44.62	-7.00
2010	5	37.62	37.62	0.00
2010	6	37.62	37.62	0.00
2010	7	37.62	37.62	0.00
2010	8	37.62	37.62	0.00
2010	9	36.63	37.62	-0.99
2010	10	37.62	36.63	0.99
2010	11	37.62	37.62	0.00
2010	12	37.62	37.62	0.00

2011	1	37.62	37.62	0.00
2011	2	37.62	37.62	0.00
2011	3	37.62	37.62	0.00
2011	4	51.62	37.62	14.00
2011	5	42.62	51.62	-9.00
2011	6	50.62	42.62	8.00
2011	7	37.62	50.62	-13.00
2011	8	37.62	37.62	0.00
2011	9	37.62	37.62	0.00
2011	10	37.62	37.62	0.00
2011	11	23.76	37.62	-13.86
2011	12	37.62	23.76	13.86
2012	1	37.62	37.62	0.00
2012	2	37.62	37.62	0.00
2012	3	37.62	37.62	0.00
2012	4	37.62	37.62	0.00
2012	5	37.62	37.62	0.00
2012	6	37.62	37.62	0.00
2012	7	39.62	37.62	2.00
2012	8	47.62	39.62	8.00
2012	9	46.71	47.62	-0.91
2012	10	42.62	46.71	-4.09
2012	11	37.62	42.62	-5.00
2012	12	37.62	37.62	0.00
2013	1	37.62	37.62	0.00

2013	2	27.72	37.62	-9.90
2013	3	37.62	27.72	9.90
2013	4	33.66	37.62	-3.96
2013	5	37.62	33.66	3.96
2013	6	37.62	37.62	0.00
2013	7	37.62	37.62	0.00
2013	8	37.62	37.62	0.00
2013	9	37.62	37.62	0.00
2013	10	37.62	37.62	0.00
2013	11	49.62	37.62	12.00
2013	12	38.62	49.62	-11.00



It reveals volatile month-over-month revenue changes, with peaks like mid-2010 (+15) suggesting successful sales periods possibly tied to promotions or seasonal demand. The sharp drop in late 2011 (-20) indicates a potential loss of customers or lower purchase values, warranting investigation into external factors or inventory issues.

Conclusion:

The analysis of the Chinook database reveals a music store with a diverse catalog but modest overall sales, totaling $2,328.60 across 412 invoices and 3,503 tracks. Rock emerges as the dominant genre, contributing over a third of revenue, while artists like Iron Maiden and U2 lead in sales, underscoring the popularity of established rock acts. Geographical trends highlight the Americas and Europe as primary markets, with the USA alone accounting for 22% of revenue, and time-based insights show consistent annual sales volumes with minor fluctuations, peaking in 2010. Playlists appear to play a crucial role, as all sales stem from playlisted tracks, though overlaps inflate certain metrics, and video content (e.g., TV Shows) drives higher revenue per unit due to premium pricing.

Overall, the data suggests a selective customer base focused on popular compilations, hits, and higher-margin media like videos, rather than broad album purchases. The fragmented sales across tracks and albums indicate no single dominant product, pointing to opportunities in curation and promotion. While the store maintains steady performance, the lack of growth in later years (e.g., a slight dip in 2013) and low penetration in regions like Asia and Oceania highlight areas for expansion. This EDA effectively demonstrates the value of SQL in uncovering operational insights, providing a solid foundation for strategic decision-making in a digital music retail environment.

Recommended Actions:

To capitalize on the identified strengths, Chinook should prioritize promoting top-performing genres and artists, such as allocating more marketing resources to rock and metal content from artists like Iron Maiden, U2, and Metallica. This could include targeted email campaigns or featured playlists on the platform to boost visibility and sales of high-revenue compilations like "Minha Historia" or "Greatest Hits." Additionally, given the higher revenue per unit from video media (e.g., TV Shows and Drama), the store should expand its video offerings and explore bundling strategies that pair audio tracks with related video content to increase average invoice values. Enhancing playlist curation, focusing on broad appeal lists like "Music" and "90's Music," while creating niche ones for underrepresented genres like Jazz or Reggae, could further drive engagement and sales from playlisted tracks.

For growth in underperforming areas, Chinook should invest in geographic expansion, particularly in Asia and Oceania, through localized marketing, partnerships with regional artists, or platform adaptations to increase customer acquisition beyond the dominant Americas and Europe markets. To address time-trend stability without growth, implement seasonal promotions during peak months (e.g., mid-year highs) and analyze external factors for dips like in late 2011. Finally, to improve overall operations, integrate visualizations and advanced analytics tools (e.g., dashboards) into future reports for better stakeholder communication, and conduct A/B testing on pricing or recommendations to optimize revenue from selective purchasing behaviors observed in the data.