

Route Academy

Data
analysis

Chinook Analysis

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♪ Introduction

- Chinook is a digital music store that sells individual tracks and albums from a variety of artists and genres.
- This project aims to analyze the customer base, sales performance, and product patterns using SQL-based data analysis.
- Provide actionable insights to support strategic decisions in marketing, customer retention, and regional targeting



♪ Objectives

- Analyze customer behavior based on geography, spending, and purchase frequency
- Identify top-selling tracks, albums, genres, and artists by revenue and volume
- Understand regional trends to support targeted marketing and product localization
- Evaluate Average Order Value, Average Tenure
- Discover product affinities to support cross-selling and recommendation strategies
- Provide data-driven recommendations for business growth and customer engagement



♪ Data source Over view

- **Customers:** Information such as name, contact details, and country.
- **Invoices & Invoice Lines:** Transaction records and individual track purchases.
- **Tracks & Albums:** Details about songs, albums, and associated metadata
- **Artists & Genres:** Information about music creators and their genre classification.
- **Employees:** Internal team managing customer relationships
- **Media Types:** Format of the track (e.g., MPEG audio, AAC audio).



Sql Queries

Total revenue by MediaType

```
--> Total revenue by MediaType (using joins)
SELECT MediaType.Name AS MediaType, round(SUM(InvoiceLine.UnitPrice * InvoiceLine.Quantity),0)AS totalRevenue
FROM InvoiceLine
JOIN Track ON InvoiceLine.TrackId = Track.TrackId
JOIN MediaType ON Track.MediaTypeId = MediaType.MediaTypeId
GROUP BY MediaType
ORDER BY totalRevenue DESC;
```

Description: Calculates the total revenue for each media type (e.g., MPEG audio, AAC ...).

Expected Result: A table showing all media types with their total sales, sorted from highest to lowest.



♪ Sql Queries

Best selling playlists

↳ Q2) Best selling playlists (using join)

```
SELECT round(SUM(InvoiceLine.UnitPrice * InvoiceLine.Quantity),0)AS totalRevenue,playlist.name  
FROM Track  
JOIN playlisttrack ON Track.trackid = playlisttrack.trackid  
join playlist on playlist.playlistid=playlisttrack.playlistid  
JOIN invoiceLine ON InvoiceLine.TrackId = Track.TrackId  
GROUP BY playlist.name  
ORDER BY totalRevenue DESC;
```

Description: Calculates which playlists generated the highest sales based on their tracks.

Expected Result: A table of playlists with total revenue, with the top playlist ranked first.



SQL Queries

Top 5 customers by total sales

```
-- Q6) Top 5 customers by total sales      (using window)
select concat(customer.firstname, " ", customer.lastname) as fullname, round(SUM(InvoiceLine.UnitPrice * InvoiceLine.Q
dense_rank()over(order by round(SUM(InvoiceLine.UnitPrice * InvoiceLine.Quantity),0) desc) as ranking
from invoice
join customer on customer.customerid=invoice.customerid
join invoiceline on invoice.invoiceid=invoiceline.invoiceid
group by fullname
order by totalsales desc
-- -- -
```

Description: Finds the top 5 customers with the highest total purchases, ranked using a window function.

Expected Result: A table showing customer names, their total sales, and ranking (Top 5).



♪ Sql Queries

Top 10 artists by number of tracks

```
-- Q9) Top 10 artists by no. of tracks (using window)
select artist.name,count(track.trackid) as countTracks,
dense_rank()over(order by count(track.trackid) desc) as ranking
from track
join album on album.albumid =track.albumid
join artist on artist.artistid=album.artistid
group by artist.name
order by countTracks desc
limit 10;
```

Description: Lists the top 10 artists with the largest number of tracks in the database.

Expected Result: A table of artist names, the number of tracks they have, and their rank from 1 to 10.



SQL Queries

Total sales by country

```
-- Q21) Total sales by country (using SubQuery)
with total as (
    select invoicelineid,
           SUM(UnitPrice * Quantity) as totalsales
      from invoiceline
     group by invoicelineid
)
select customer.country,
       round(SUM(total.totalsales),0) as totalsales
  from invoiceline
 join total on total.invoicelineid = invoiceline.invoicelineid
 join invoice on invoice.invoiceid = invoiceline.invoiceid
 join customer on customer.customerid = invoice.customerid
 group by customer.country
order by totalsales desc;
```

Description: Aggregates the total sales revenue for each country using a subquery.

Expected Result: A table of countries with their total sales, sorted from highest to lowest.

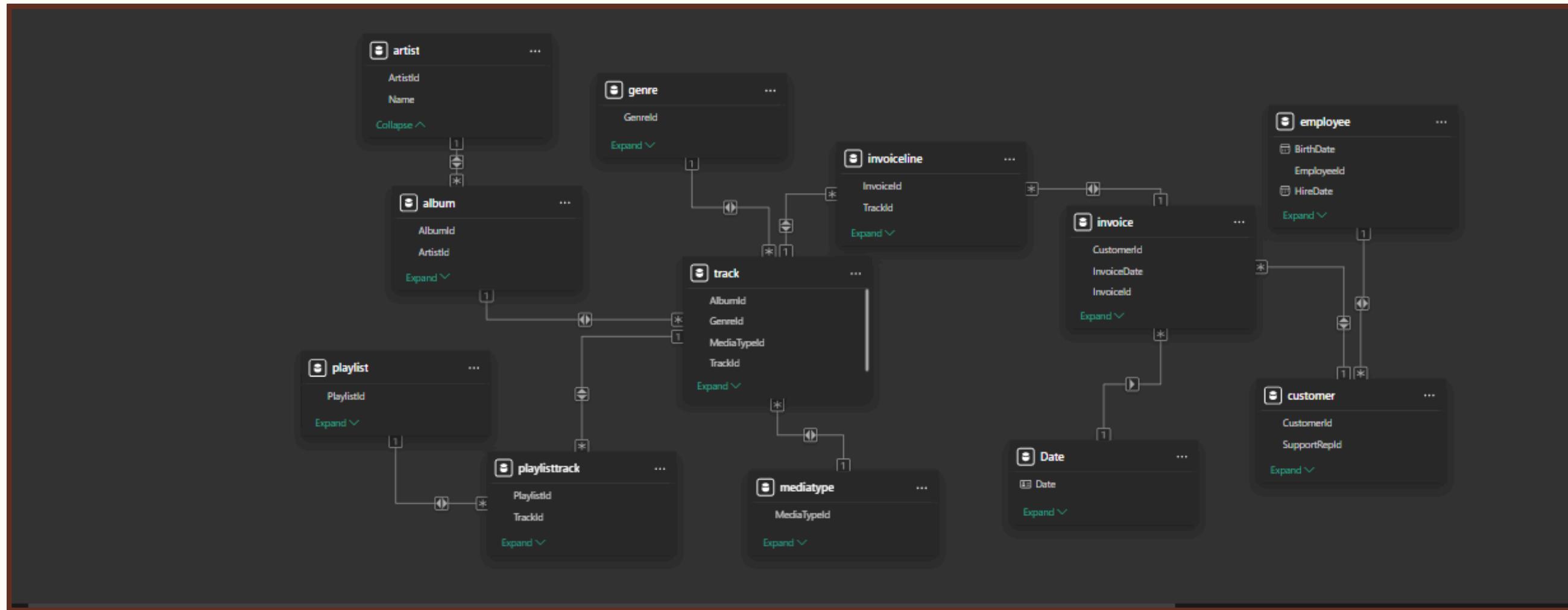
Top 3 Genres by number of tracks

```
-- Q13) Top 3 Genres by # tracks (using Subquery)
SELECT GenreName, NumberOfTracks
FROM (
    SELECT
        Genre.Name AS GenreName,
        COUNT(Track.TrackId) AS NumberOfTracks
    FROM Genre
    JOIN Track ON Genre.GenreId = Track.GenreId
    GROUP BY Genre.GenreId, Genre.Name
    ORDER BY NumberOfTracks DESC
    LIMIT 3) AS TopGenres;
```

Description: Uses a subquery to find the top 3 genres with the highest number of tracks.

Expected Result: A table showing only the 3 most popular genres (e.g., Rock, Latin, Metal) with track counts.

DATA MODELING & KPI DAX



► Chinook Database Data Model

- **Data Model** showing the relationships between the Chinook database tables.
- "Relationships" are built using Primary Keys and Foreign Keys."
- "This model is the foundation for building dashboards and insights (Employees, Customers, Sales...)."

♪ Dashboards &Visuals

We developed **six** interactive dashboards covering key business areas:

Each dashboard provides specific insights:

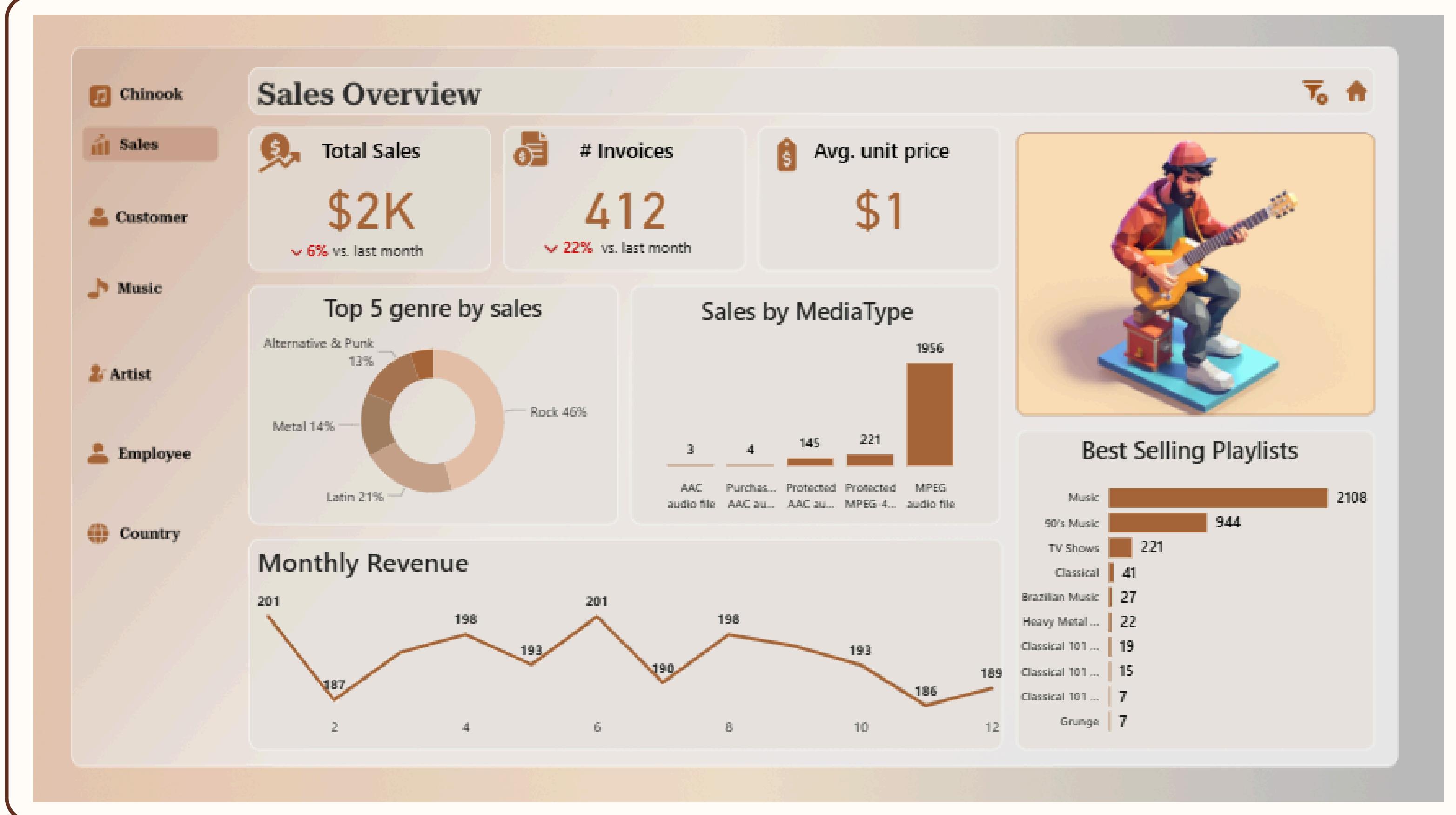
- **Sales Dashboard**→ Provides insights into revenue trends and top-selling products.
- **Customer Dashboard**→ Highlights customer demographics and purchasing behaviour.
- **Music Dashboard** → Analyzes tracks, albums, and genre performance.
- **Artist Dashboard**→ Monitors artist contributions and popularity metrics.
- **Employee Dashboard**→ Tracks employee performance and workload distribution.
- **Country Dashboard**→ Compares sales and customer activity across regions.

In addition, we implemented **two drill-through features** to allow deeper exploration of the data.

For the design, we used **Figma** to create a clean and user-friendly layout before implementing the dashboards.



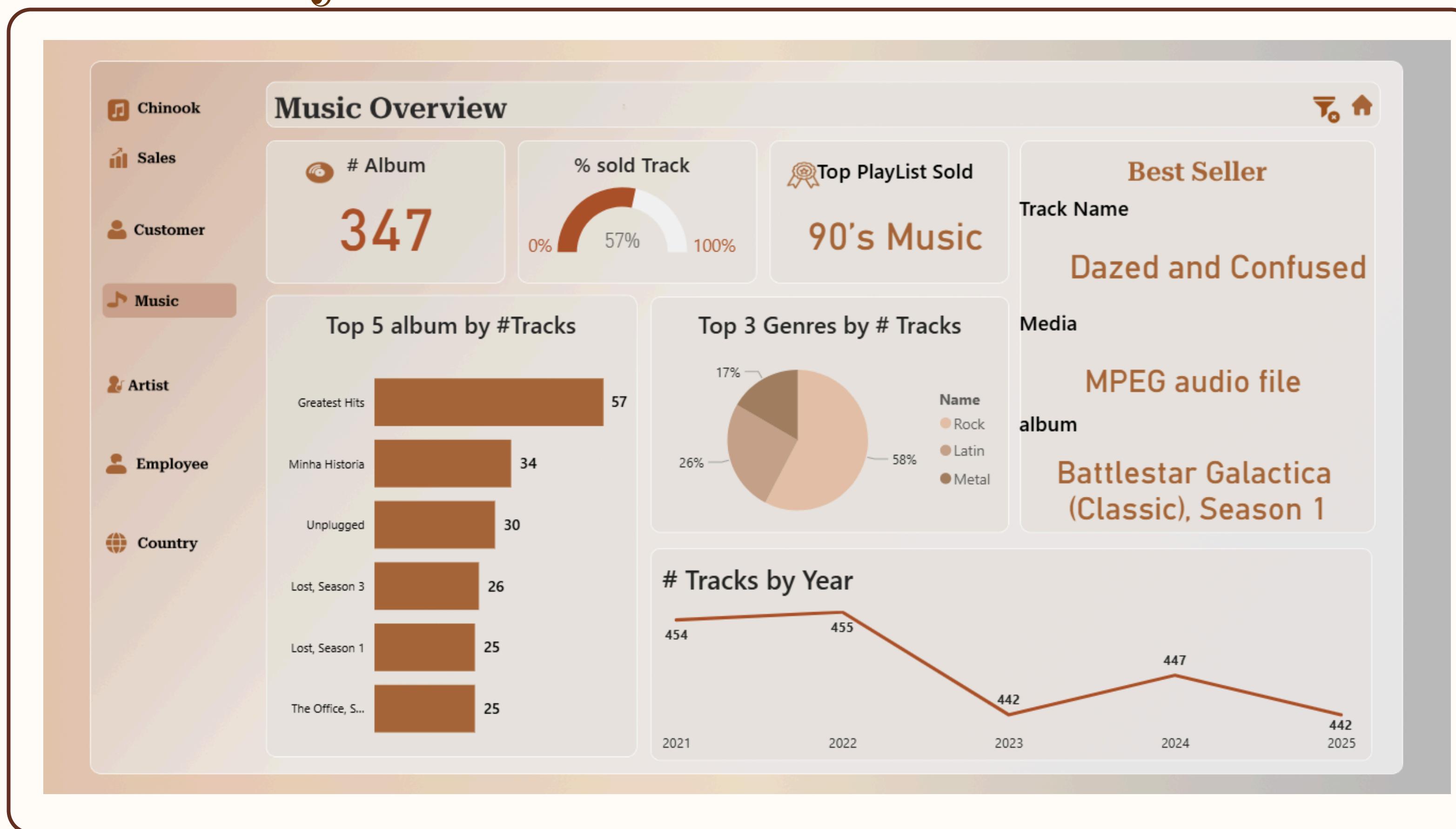
-sales OverView Dashboard



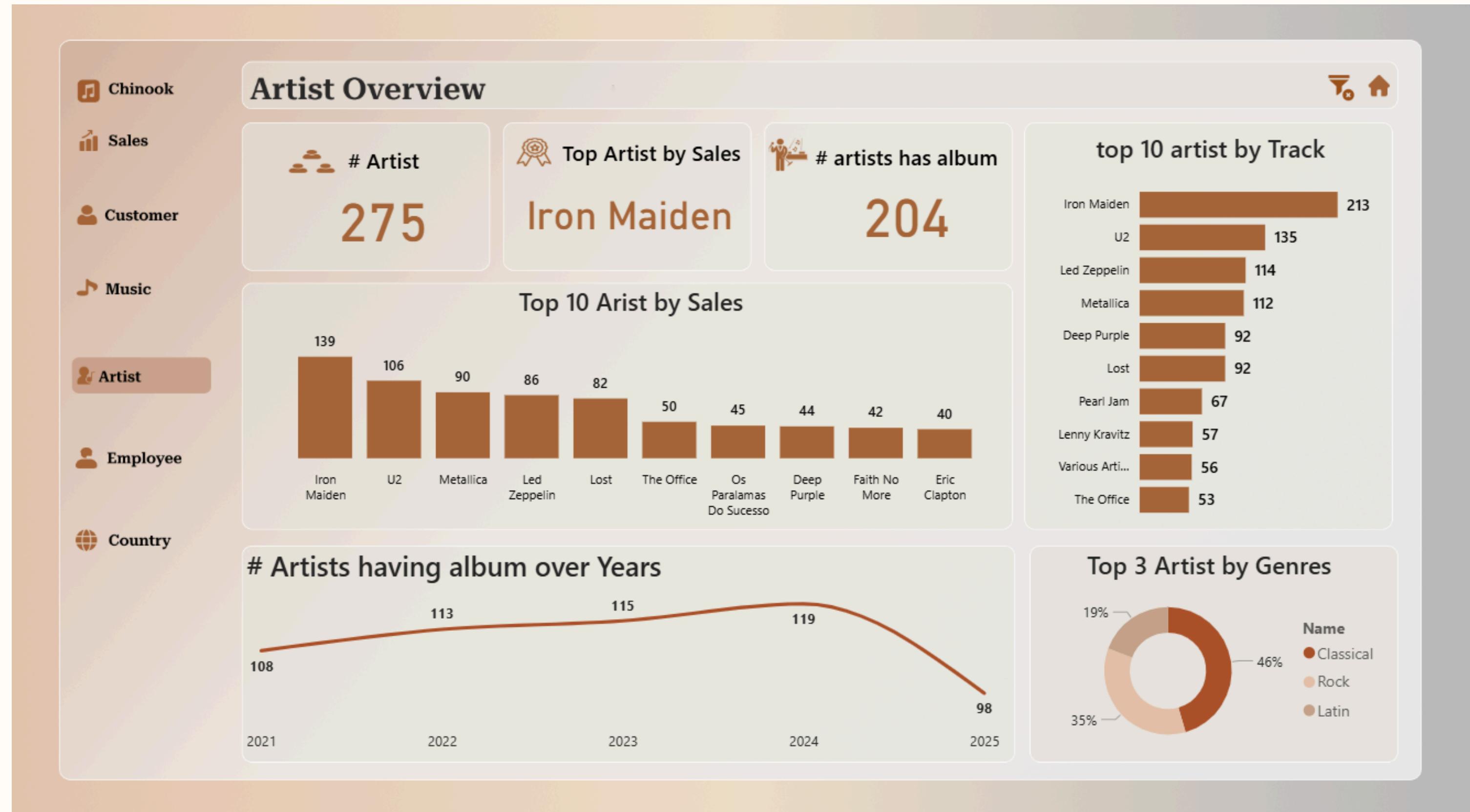
Customer OverView Dashboard



Music OverView Dashboard



Artist OverView Dashboard



Employee OverViewDashboard

Chinook

Sales

Customer

Music

Artist

Employee

Country

Employee Overview



#Employee

8



No.of JobTitle

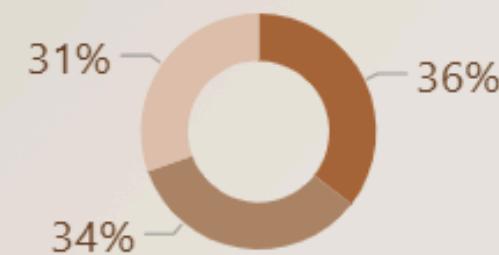
5



Avg Tenure

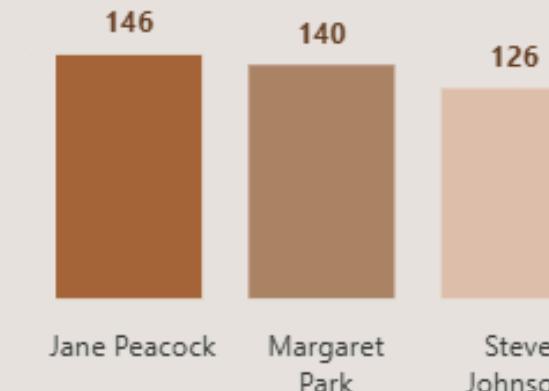


Customer-to-Support Employee Ratio



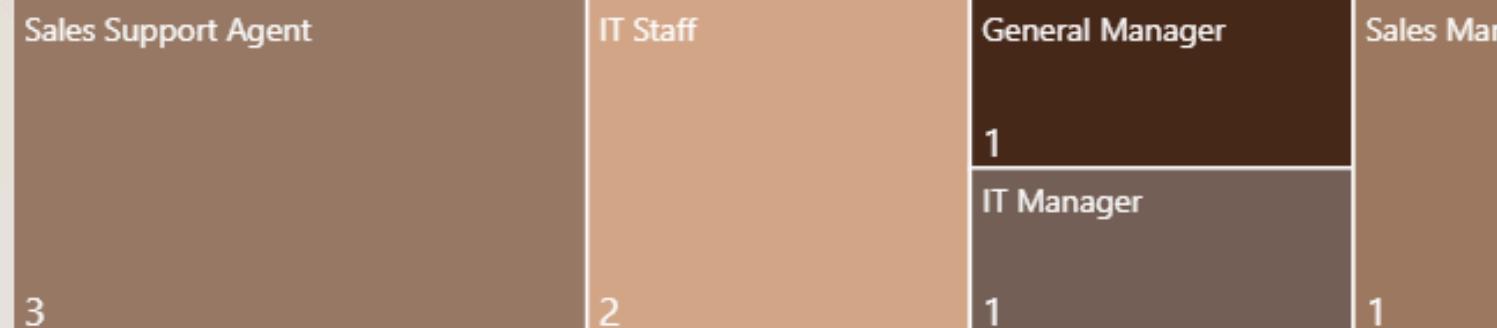
Jane Peacock Margaret Park Steve Johnson

Employee Invoice Distribution



Jane Peacock Margaret Park Steve Johnson

Employee Count by Job Title



Support Employees Count:

3

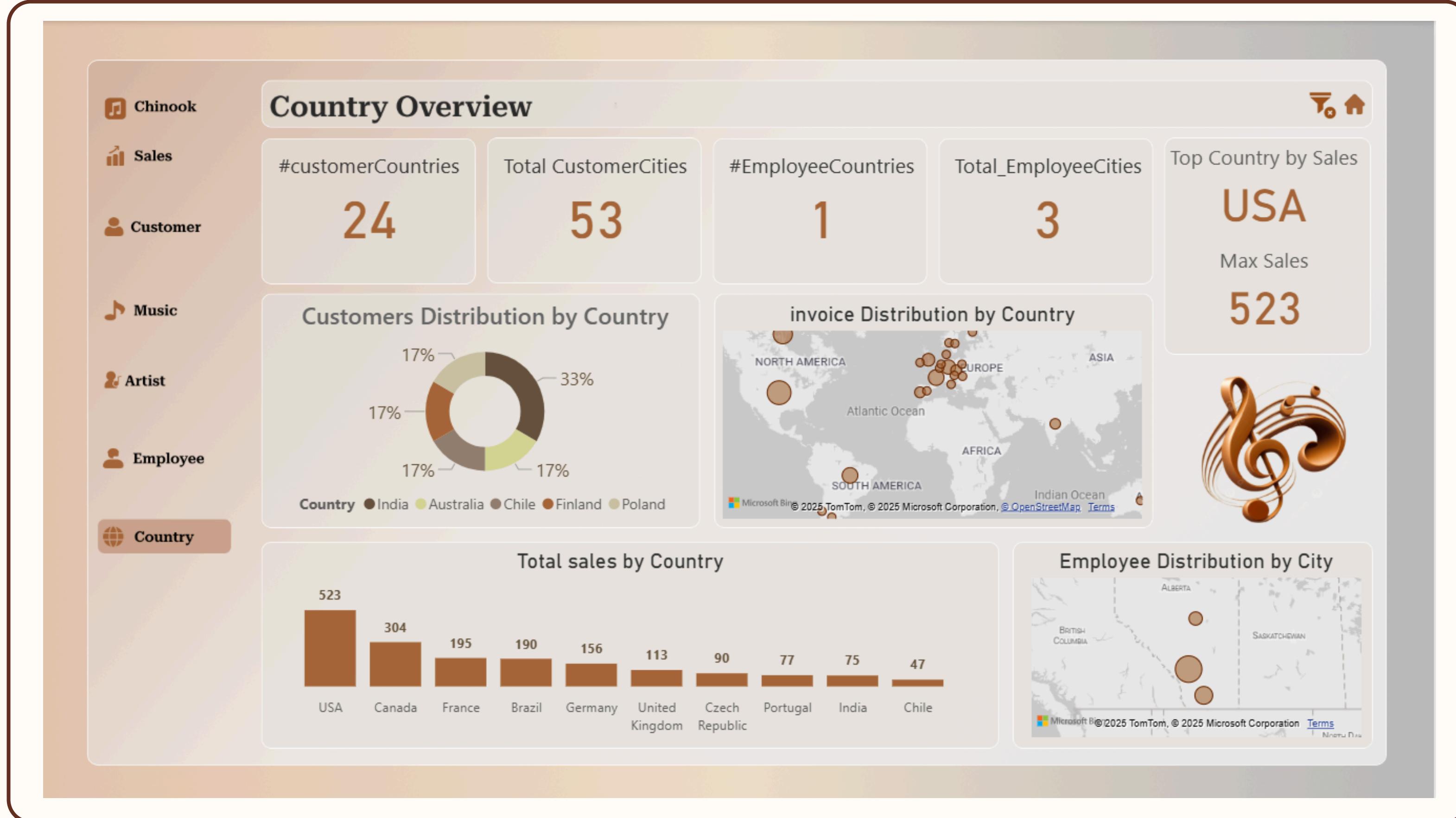
Most Experienced Employee:
Steve Johnson

Years : 23

Workforce Experience Level

Title	Avg Tenure
General Manager	23
Sales Manager	23
Sales Support Agent	22
IT Manager	22
IT Staff	21
Total	22

Country OverView Dashboard



Customer Drill Through

Chinook

Sales

Customer

Music

Artist

Employee

Country

Drill Through Customer

Top Purchasing Customer

Total Sales

Invoices

Country

AOV

Frank

\$2K

412

Canada

6

Full name	Total sales	# invoice	# Tracks
Aaron Mitchell	38	7	38
Alexandre Rocha	38	7	38
Astrid Gruber	43	7	38
Bjørn Hansen	40	7	38
Camille Bernard	39	7	38
Daan Peeters	38	7	38
Dan Miller	40	7	38
Diego Gutiérrez	38	7	38
Dominique Lefebvre	39	7	38
Eduardo Martins	38	7	38
Total	2329	412	3503

Customer info.

Customers Distribution

The map displays the geographical distribution of customers. Concentric circles of varying sizes represent the number of customers in different regions. Labels indicate major continents: NORTH AMERICA, EUROPE, ASIA, AFRICA, SOUTH AMERICA, and AUSTRALIA. Oceans are also labeled: Atlantic Ocean, Indian Ocean, and Pacific Ocean. The size of the bubbles corresponds to the number of customers in each region.

Microsoft Bing

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Country Drill Through

Chinook

Sales

Customer

Music

Artist

Employee

Country

Drill Through Country



Country

USA

Total Sales

\$523

Invoices

91

Customers

13

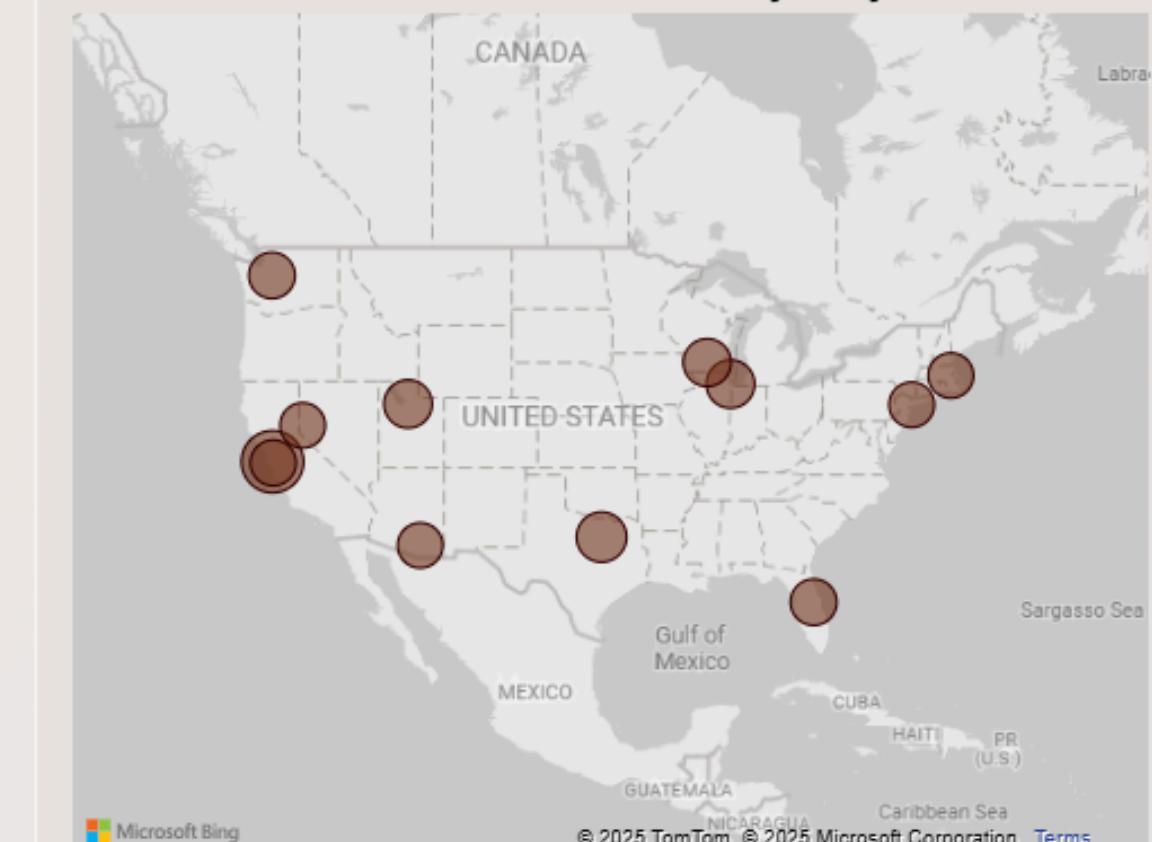
Employees

3

Customer Info

FirstName	Country	Total sales	AOV	# Tracks
Dan	USA	40	6	38
Frank	USA	81	6	76
Heather	USA	40	6	38
Jack	USA	40	6	38
John	USA	38	5	38
Julia	USA	44	6	38
Kathy	USA	38	5	38
Michelle	USA	38	5	38
Patrick	USA	38	5	38
Richard	USA	48	7	38
Tim	USA	39	6	38
Victor	USA	43	6	38
Total		523	6	486

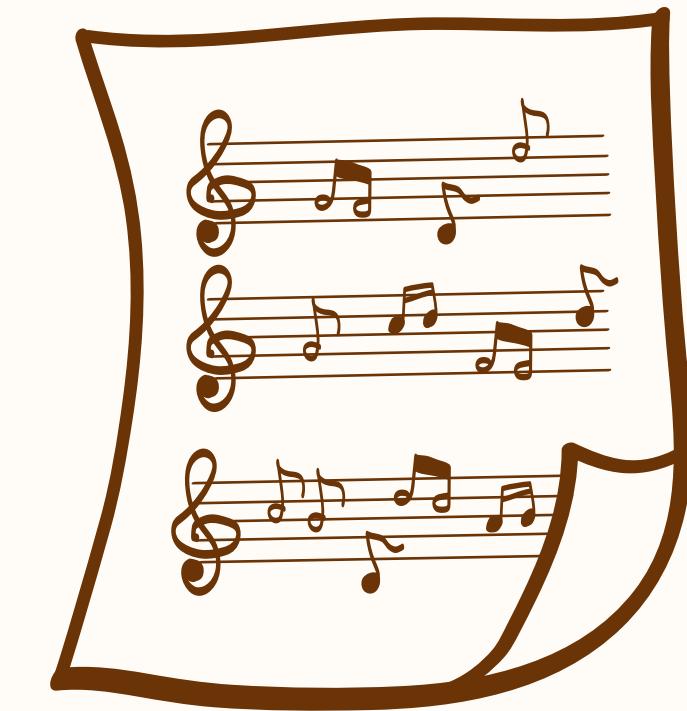
sales Distribution by City



♪ Insights & Results

Key Insights:

- 💰 **Total Sales:** 2,000
- 📄 **Number of Invoices:** 412
- 👤 **Number of Customers:** 59
- 🏆 **Top Purchasing Customer:** HelenaHoly
- 🎵 **Total Albums:** 347
- 🎧 **Top Playlist:** 90's Music
- 🎶 **Best Track:** Dazed and Confused
- 💿 **Best Album:** Battle Star



♪ Insights&Results...

Key Insights:

- 🎤 **Top Artist by Sales:** Iron Maiden
- 👤 **Total Artists:** 275
- 👤 **Employees:** 8
- 🤝 **Support Employees:** 3
- 📅 **Average Experience (Years):** 22
- 🌐 **Customer Countries:** 24
- 🏢 **Employee Countries:** 1 (3 Cities)
- 🥇 **Top Country by Sales:** USA



♩ Recommendation

- **Focus on USA Market:** Since USA is the top country by sales, strengthen marketing campaigns and partnerships there.
- **Expand Customer Base:** Current customers are only 59; launch loyalty programs and promotions to attract new customers.
- **Leverage Top Customer (HelenaHoly):** Use personalized offers and VIP programs to retain and increase spending from top customers.
- **Promote Popular Content:** Highlight best-selling albums (Battle Star), playlists (90's Music), and artists (Iron Maiden) in marketing campaigns.
- **Increase Employee Diversity:** Employees come from only one country; consider hiring from other regions to bring wider perspectives.
- **Enhance Support Team:** Only 3 support employees – expanding this team can improve customer satisfaction.
- **Utilize Experienced Staff:** With an average of 22 years of experience, invest in knowledge-sharing programs to train new hires.
- **Target New Countries:** Since customers already span 24 countries, explore localized marketing to grow in underperforming regions.

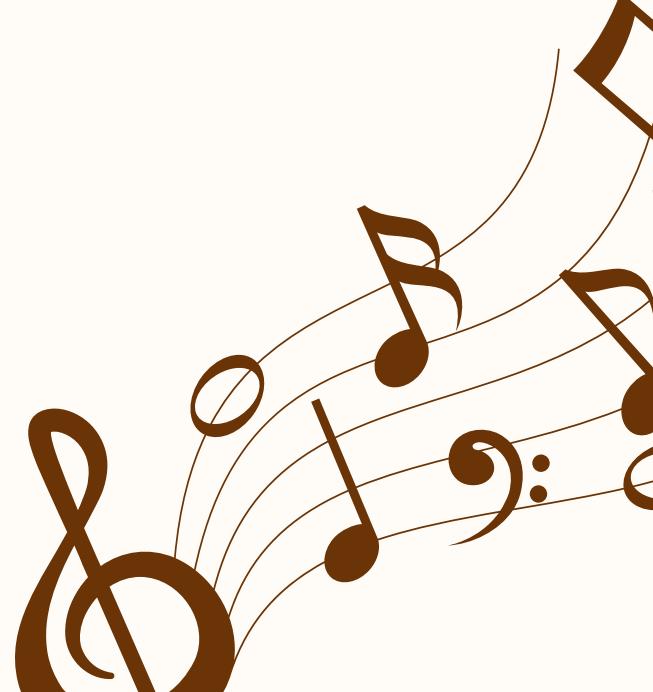


Questions & Discussions





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Thank you!

