Chinook Sales Reporting

 Database: Chinook (Music Store Demo DB)

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1. Scope
This framework provides a top-down approach to analyze and report sales performance in the Chinook database. It focuses on:

- Sales Value (USD) – computed as UnitPrice * Quantity from InvoiceLine

- Units Sold – total quantity from invoice lines

- Geographic distribution of sales

- Time-based sales trends

2. Focus Areas
The analysis is limited to high-level sales reporting, avoiding deeper segmentation. Specifically:

- **Included:** Country, State, City rankings (Top 5); Annual, Quarterly, Monthly trends (where relevant)

- **Excluded:** Physical store hierarchy, customer profiling, product-level segmentation (genre, album, track), marketing KPIs, multi-currency considerations

3. Key Assumptions

- All values are assumed USD (Chinook lacks currency codes).

- Sales Value = SUM(UnitPrice * Quantity).

- Nulls in BillingState limit state-level analysis.

- Rankings exclude countries/states/cities with fewer than 5 invoices.

4. Points Often Missed

- Invoice vs. InvoiceLine: invoice carries customer/location/date; invoice line holds item pricing.

- Invoice.Total includes line totals + taxes, but totals are recomputed for flexibility.

- Geographic grouping uses BillingCountry/State/City.

- Time trends are derived from InvoiceDate (SQLite syntax: strftime).

- Many states are NULL, limiting depth.

5. Reporting Flow

1. Total Sales Overview

2. Geographic Performance – Country → State → City (Top/Bottom performers)

3. Time Trends – Annual → Quarterly → Monthly

4. Combined Views – Yearly sales by country, YoY growth by geography

6. Tables Used
- **Invoice:** InvoiceId, InvoiceDate, BillingCountry, BillingState, BillingCity

- **InvoiceLine:** InvoiceId, UnitPrice, Quantity

7. Limitations
- No currency conversion

- No tax handling

- No returns/refunds

- No product-level detail

8. Recommendations
For real-world deployment: add currency codes, track net-of-returns, include tax breakdowns, link to product hierarchy, and enable customer segmentation.

Insights
1. Global Sales Overview
- Total Value: **$2328.6**

- Total Units Sold: **2240 tracks**

2. Geographic Breakdown
2.1 By Country
- **Top by Total Sales:** USA, Canada, France, Brazil, Germany dominate due to high invoice volumes. Average unit values are baseline (~$1.00–1.06).

- **Top by Avg Sale per Unit:** Chile, Hungary, Ireland, Czech Republic, Austria stand out. Example: Chile averages ~$1.23 per track vs. USA's ~$1.06.

- **Top by Avg Sale per Invoice:** Same countries appear, reflecting high unit prices and multiple track purchases per invoice. Chile leads at ~$6.66 per invoice vs. USA's $5.75.

2.2 By State
- State-level data exists only for USA, Canada, Brazil, Australia. Many other countries have NULL states or only one (e.g., Ireland, Italy).

- Insights are therefore restricted to USA, Canada, Brazil.

Global Observations:
- California (USA) and São Paulo (Brazil) lead in total sales ($115 each), but per-unit pricing is baseline ($1.01–1.02). These are **workhorse states** – volume-driven, not margin-driven.

- Texas (USA), Dublin (Ireland), Illinois, Utah, Wisconsin (USA) lead in per-unit and per-invoice averages (~$1.15–1.25/unit; ~$6.2–6.8/invoice). These are **premium states**, smaller but high-value niches.

- In the USA, state diversity is high (CA and FL dominate volume; TX, IL, UT drive pricing). Canada shows more balance across provinces. Brazil is heavily

concentrated in São Paulo.

2.3 By City
- Scope refined to countries with at least 3 billing cities (to avoid single-city bias).

- **Top Cities Globally:** Prague (Czech Republic), Paris (France), Berlin (Germany), London (UK), Mountain View (USA), São Paulo (Brazil).

- **Premium Hubs:** Prague, Budapest, Santiago, Dublin appear with high invoice and per-unit averages, even though their countries do not lead in total sales.

- **Patterns:** Most countries are dominated by one city (e.g., Austria/Vienna, Belgium/Brussels). Larger markets like Brazil, Canada, France, Germany, and the USA show distributed demand across multiple cities.

- **State-level city breakdowns:** confirm intra-state leaders (São Paulo > São José dos Campos; Toronto vs. Montréal; Paris vs. Dijon/Bordeaux; Berlin vs. Frankfurt). Adds value only in multi-city states; elsewhere mirrors country results.

3. Time Trends
3.1 Yearly Sales Trend (2009–2013)
- **2010:** Peak year ($481, +7.1% YoY). Growth was invoice-driven: invoice values rose from $5.42 (2009) to $5.80.

- **2011–2012:** Plateau years. Invoice counts flat (83), with modest lift in SalesPerInvoice ($5.66–5.75).

- **2013:** Dip to $451 (–5.6% YoY). Both invoice count (80 vs. 83) and SalesPerInvoice ($5.63 vs. $5.75) declined. First dual weakness year.

Comparisons:
- 2009 vs 2010: Same invoices (83), but higher per-invoice value drove +7% growth.

- 2011–2012: Maintenance years; steady invoice counts, small per-invoice gains.

- 2013: Regression; both invoices and per-invoice values declined, pulling sales back to 2009 levels.

Takeaway: Growth is less about per-track pricing (flat ~$1) and more about invoice counts and invoice sizes. When both slip, as in 2013, contraction follows.
Scope Note: Monthly breakdown adds no incremental value. Patterns by month align with annual/quarterly averages, with no seasonality detected.
4. Geography + Trend (2009–2013)
4.1 Narrative
- **Workhorses (USA, Canada, Brazil, France, Germany):** Consistent, high-volume contributors. Sales growth aligned with invoice counts, not higher pricing.

- **Premiums (Hungary, Ireland, Czech Republic, Austria):** Appeared sporadically (2010–2012). Small volume but high-value invoices (~$10–12). Boosted averages during their active years.

- **2010–2012:** Premiums active, lifting market averages.

- **2013:** Premiums largely disappeared (only Czech Republic remained). Combined with US slowdown, sales contracted.

4.2 Yearly Highlights
- **2009:** Pure workhorse year; USA, Canada, Germany led at baseline pricing (~$1/unit).

- **2010:** Hungary entered with $1.31/unit and $10.9/invoice. Premium contribution lifted averages globally.

- **2011:** Ireland and Czech Republic added premium purchases. USA remained strong at $103. Germany and France nudged above baseline ($1.09–1.13/unit).

- **2012:** Peak year. USA highest at $128, with premium support from Czech Republic, Austria, Hungary. Both volume and premium tickets aligned.

- **2013:** Weak year. Only Czech Republic provided premium spend. Workhorses softened, particularly USA ($85 vs. $128 in 2012).

4.3 Strategic Implications
- Workhorses = foundation: steady volumes but price-sensitive. Best suited for bundling, catalog pushes, volume campaigns.

- Premiums = amplifiers: niche but high-value customers. Best suited for premium releases, loyalty targeting, high-margin offers.

- 2012 illustrates the ideal scenario: both engines active. 2013 highlights risk when premiums vanish and workhorses soften.

Scope Note: State- and city-level drilldowns are unnecessary beyond this. Many premiums are one country = one state = one city. Invoice counts are too small to add further insight. Focus should remain on sustaining workhorses and nurturing premium niches.