M16A-GROUP2

No Premium, Just Play

A Database Blueprint for Local Music Monetisation

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Market Background

Why We Need a New App in Lalaland

Lalaland's Music Market Today

- High music consumption
- But poor monetisation in Lalaland

Sopitify’s Challenges

- Freemium model failed: users unwilling to pay for subscriptions
- Advertising ineffective: no strong collaboration with local merchants

Our Opportunity

- Build a localized, ad-supported platform tailored for Lalaland's unique market

Business Requirements

Supports an ad-funded music platform tailored for Lalaland

Ad Revenue Operations

- Track campaigns, impressions, and revenue
- Ensure advertiser trust and accurate settlement

Content Performance

- Link user interaction to songs and artists
- Support royalty calculation and promotion strategy

User Engagement

- Provide personalised preferences and regional usage

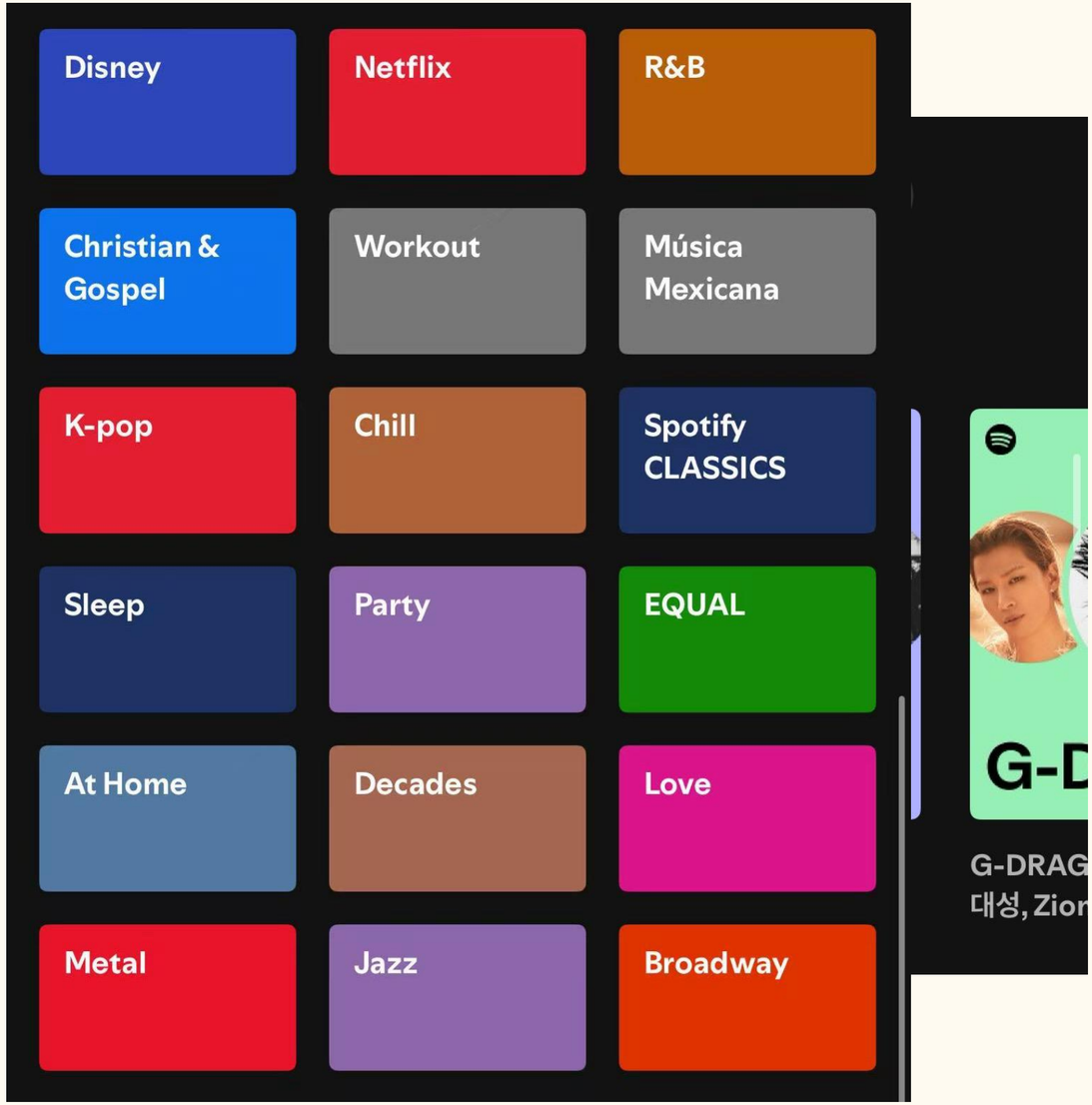
Spotify Analysis

Core Feature of Spotify:

- Many features require the premium to unlock (downloads, ad-free, high audio quality, etc.)
- Recommendations utilising big data creating a personalised recommendation tab
- Podcast Play
- Multi-device playback (laptop/phone)

Problem?

- Over-reliance on Premium
- No comment function (communication)
- Limited local content



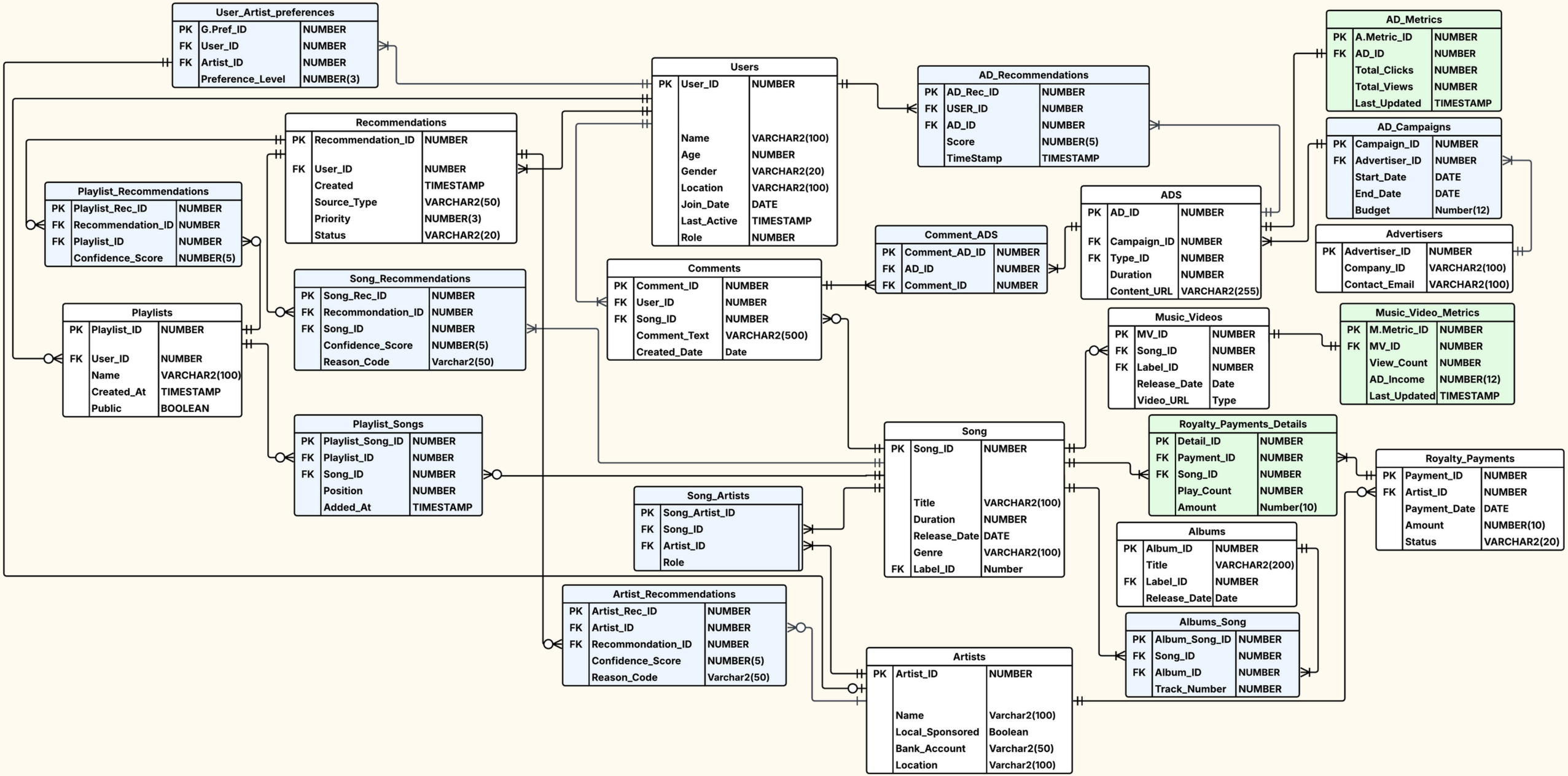
Spotify V.S. OUR APP

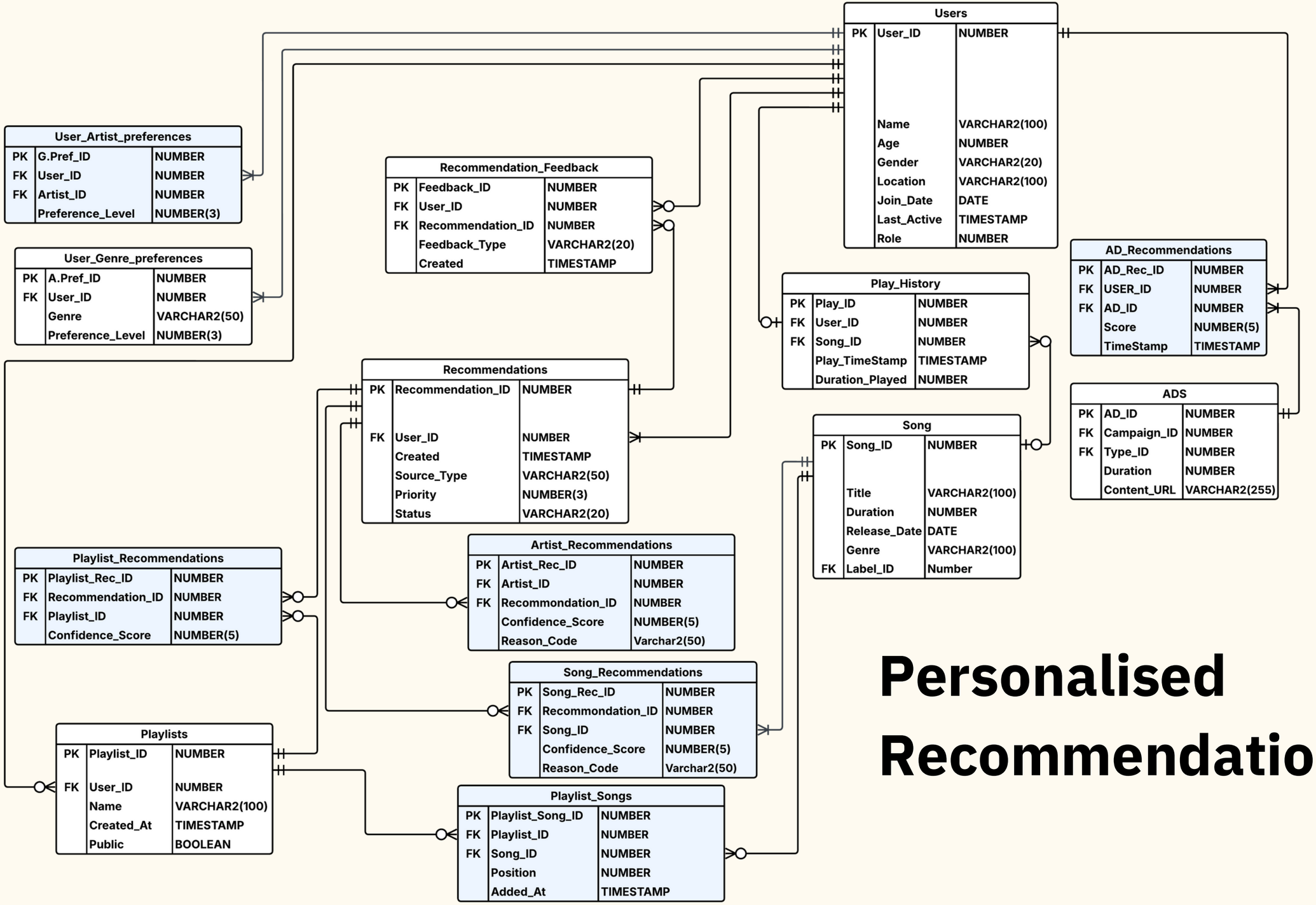
	Spotify	Our App
Strategic Differences :		
Revenue Model	Free tier + Paid subscription (Premium)	**Fully ad-supported; no paid tier**
Localization	Global focus (Minimal localization)	**High local integration with regional advertisers & artists**
Function Differences :		
Ad Placement	Between songs during playback	**Ads across multiple formats**
Music Download Access	Premium-only	**Watch ad to unlock download**
Artist Promotion	Focus on global/mainstream artists	**Spotlight on emerging local artists**
Comments	Don’t have comment function	**Support communication by enabling comments to be posted**

Business Strategy

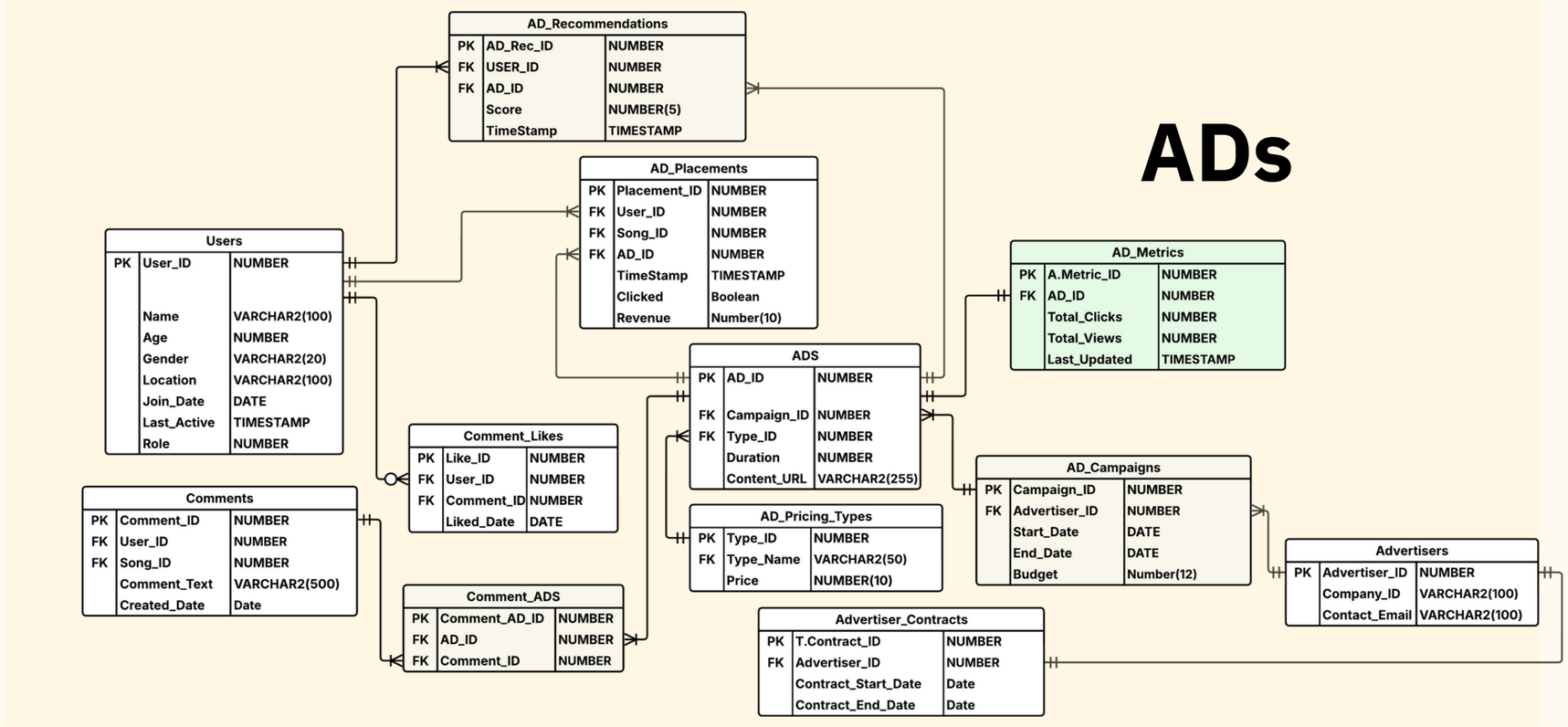
Our app replaces the premium system with ad-driven access, offering users more features while focusing on local content and interaction to build sustainable, market-aligned revenue.

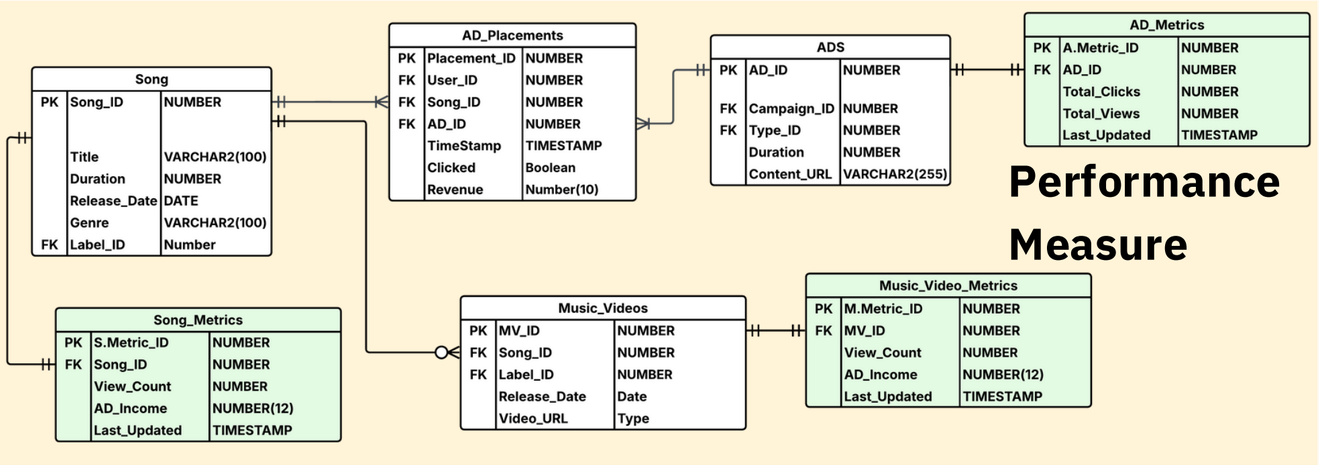
Child & Composite Entities

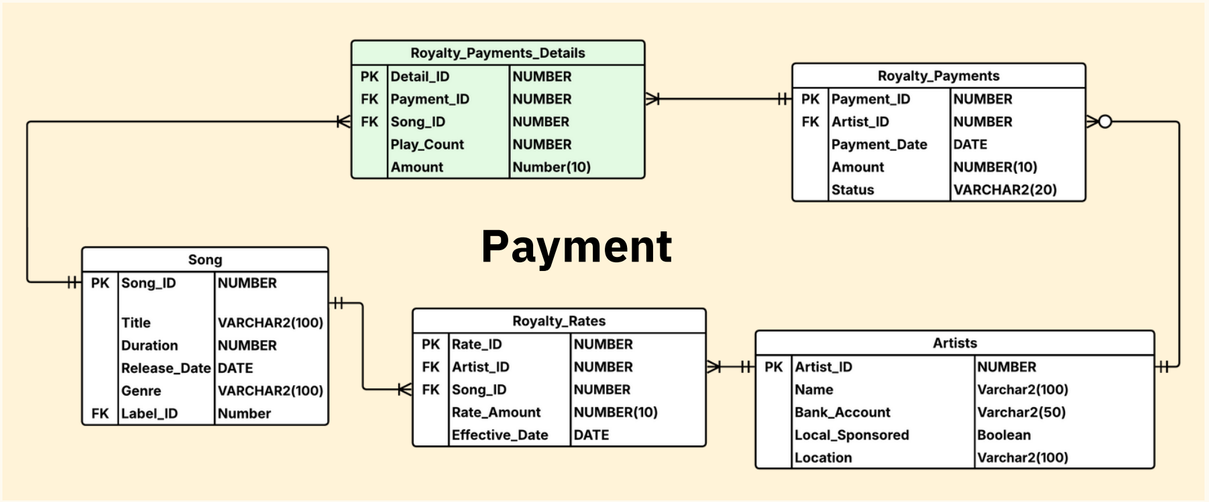




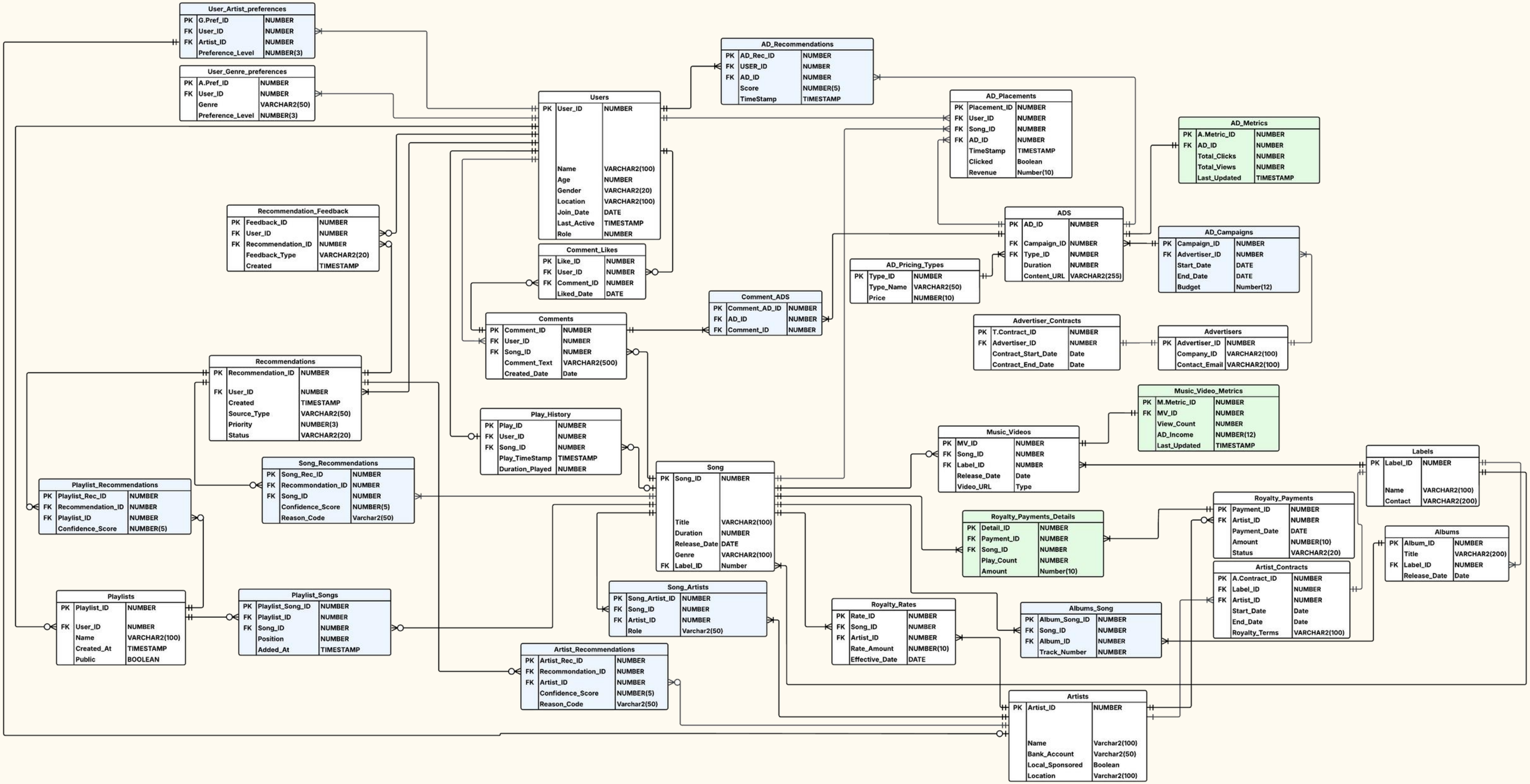
Personalised Recommendations


ADs
AD_Recommendations
PK AD_Rec_ID NUMBER
FK USER_ID NUMBER
FK AD_ID NUMBER
Score NUMBER(5)
TimeStamp TIMESTAMP
AD_Placements
PK Placement_ID NUMBER
FK User_ID NUMBER
FK Song_ID NUMBER
FK AD_ID NUMBER
TimeStamp TIMESTAMP
Clicked Boolean
Revenue Number(10)
Users
PK User_ID NUMBER
Name VARCHAR2(100)
Age NUMBER
Gender VARCHAR2(20)
Location VARCHAR2(100)
Join_Date DATE
Last_Active TIMESTAMP
Role NUMBER
AD_Metrics
PK A.Metric_ID NUMBER
FK AD_ID NUMBER
Total_Clicks NUMBER
Total_Views NUMBER
Last_Updated TIMESTAMP
ADS
PK AD_ID NUMBER
FK Campaign_ID NUMBER
FK Type_ID NUMBER
Duration NUMBER
Content_URL VARCHAR2(255)
Comment_Likes
PK Like_ID NUMBER
FK User_ID NUMBER
FK Comment_ID NUMBER
Liked_Date DATE
AD_Campaigns
PK Campaign_ID NUMBER
FK Advertiser_ID NUMBER
Start_Date DATE
End_Date DATE
Budget Number(12)
Comments
PK Comment_ID NUMBER
FK User_ID NUMBER
FK Song_ID NUMBER
Comment_Text VARCHAR2(500)
Created_Date Date
AD_Pricing_Types
PK Type_ID NUMBER
FK Type_Name VARCHAR2(50)
Price NUMBER(10)
Advertisers
PK Advertiser_ID NUMBER
Company_ID VARCHAR2(100)
Contact_Email VARCHAR2(100)
Comment_ADS
PK Comment_AD_ID NUMBER
FK AD_ID NUMBER
FK Comment_ID NUMBER
Advertiser_Contracts
PK T.Contract_ID NUMBER
FK Advertiser_ID NUMBER
Contract_Start_Date Date
Contract_End_Date Date


Performance Measure
Song
PK Song_ID NUMBER
Title VARCHAR2(100)
Duration NUMBER
Release_Date DATE
Genre VARCHAR2(100)
FK Label_ID Number
AD_Placements
PK Placement_ID NUMBER
FK User_ID NUMBER
FK Song_ID NUMBER
FK AD_ID NUMBER
TimeStamp TIMESTAMP
Clicked Boolean
Revenue Number(10)
ADS
PK AD_ID NUMBER
FK Campaign_ID NUMBER
FK Type_ID NUMBER
Duration NUMBER
Content_URL VARCHAR2(255)
AD_Metrics
PK A.Metric_ID NUMBER
FK AD_ID NUMBER
Total_Clicks NUMBER
Total_Views NUMBER
Last_Updated TIMESTAMP
Song_Metrics
PK S.Metric_ID NUMBER
FK Song_ID NUMBER
View_Count NUMBER
AD_Income NUMBER(12)
Last_Updated TIMESTAMP
Music_Videos
PK MV_ID NUMBER
FK Song_ID NUMBER
FK Label_ID NUMBER
Release_Date Date
Video_URL Type
Music_Video_Metrics
PK M.Metric_ID NUMBER
FK MV_ID NUMBER
View_Count NUMBER
AD_Income NUMBER(12)
Last_Updated TIMESTAMP


Payment
Royalty_Payments_Details
PK Detail_ID NUMBER
FK Payment_ID NUMBER
FK Song_ID NUMBER
Play_Count NUMBER
Amount Number(10)
Royalty_Payments
PK Payment_ID NUMBER
FK Artist_ID NUMBER
Payment_Date DATE
Amount NUMBER(10)
Status VARCHAR2(20)
Song
PK Song_ID NUMBER
Title VARCHAR2(100)
Duration NUMBER
Release_Date DATE
Genre VARCHAR2(100)
FK Label_ID Number
Royalty_Rates
PK Rate_ID NUMBER
FK Artist_ID NUMBER
FK Song_ID NUMBER
Rate_Amount NUMBER(10)
Effective_Date DATE
Artists
PK Artist_ID NUMBER
Name Varchar2(100)
Bank_Account Varchar2(50)
Local_Sponsored Boolean
Location Varchar2(100)

Entity Relationship Diagram



Advertising revenue

- Revenue = base price + additional revenue
- Base price depends on the location of the ad
- Additional revenue is dependent on ad views and clicks
- Ads are shown until the campaign's budget is met and/or the contract with advertisers reaches its end date

TYPE_NAME	PRICE
Banner	100
Pre-roll	150
Mid-roll	200
Post-roll	120
Sidebar	80
Interactive	250
Sponsored Content	300
Native	180
Audio	220
Video Overlay	170
Mobile Banner	90
Interstitial	230
Sponsored Playlist	280
Artist Promotion	350
Featured Song	320

Revenue Calculation

```sql
SELECT
    a.AD_ID,
    apt.TYPE_NAME,
    apt.PRICE AS BASE_TYPE_COST,
    NVL(SUM(
        CASE
            WHEN ap.IS_CLICKED = 1 THEN 0.0075
            WHEN ap.IS_CLICKED = 0 THEN 0.0025
            ELSE 0
        END
    ), 0) +
    NVL((SELECT 0.0075 * am.TOTAL_CLICKS + 0.0025 * am.TOTAL_VIEWS FROM AD_METRICS am WHERE am.AD_ID = a.AD_ID), 0) AS ADDITIONAL_REV,
    apt.PRICE +
    NVL(SUM(
        CASE
            WHEN ap.IS_CLICKED = 1 THEN 0.0075
            WHEN ap.IS_CLICKED = 0 THEN 0.0025
            ELSE 0
        END
    ), 0) +
    NVL((SELECT 0.0075 * am.TOTAL_CLICKS + 0.0025 * am.TOTAL_VIEWS FROM AD_METRICS am WHERE am.AD_ID = a.AD_ID), 0) AS TOTAL_REV
FROM
    ADS a
    JOIN AD_PRICING_TYPES apt ON a.AD_TYPE_ID = apt.TYPE_ID
    LEFT JOIN AD_PLACEMENTS ap ON a.AD_ID = ap.AD_ID
```

Royalty Payments

- Each song has 2 payments for each song/album
- Use of NVL function to replace NULL values with 0
- Data + NULL = NULL
- Amount = Total revenue * (artist/label) royalty

	PAYMENT_ID	ARTIST_ID	LABEL_ID	PAYMENT_DATE	AMOUNT	STATUS
1	1	1	(null)	01/02/22	20.6	Completed
2	2	2	(null)	01/03/22	24.72	Completed
3	3	3	(null)	01/04/22	28.83	Completed
4	4	4	(null)	01/05/22	16.48	Completed
5	5	5	(null)	01/06/22	20.6	Completed
6	6	6	(null)	01/07/22	22.66	Completed
7	7	7	(null)	01/08/22	26.77	Completed
8	8	8	(null)	01/09/22	18.54	Completed
9	9	9	(null)	01/10/22	28.83	Completed
10	10	10	(null)	01/11/22	20.6	Completed
11	11	11	(null)	01/12/22	24.72	Completed
12	12	12	(null)	01/01/23	28.83	Completed
13	13	13	(null)	01/02/23	16.48	Completed
14	14	14	(null)	01/03/23	20.6	Completed
15	15	15	(null)	01/04/23	22.66	Pending
16	16	(null)	1	15/02/22	41.19	Completed
17	17	(null)	2	15/03/22	51.49	Completed
18	18	(null)	3	15/04/22	32.95	Completed
19	19	(null)	4	15/05/22	39.13	Completed
20	20	(null)	5	15/06/22	45.31	Completed
21	21	(null)	6	15/07/22	30.89	Completed
22	22	(null)	7	15/08/22	53.55	Completed
23	23	(null)	8	15/09/22	43.25	Completed
24	24	(null)	9	15/10/22	49.43	Completed
25	25	(null)	10	15/11/22	37.07	Completed
26	26	(null)	11	15/12/22	35.01	Completed
27	27	(null)	12	15/01/23	47.37	Completed
28	28	(null)	13	15/02/23	41.19	Completed
29	29	(null)	14	15/03/23	28.83	Completed

Royalty Calculation

ARTIST_ID	SONG_ID	RATE_AMOUNT	EFFECTIVE_DATE
1	1	0.005	01/01/22
2	2	0.006	01/02/22
3	3	0.007	01/03/22
4	4	0.004	01/04/22
5	5	0.005	01/05/22
6	6	0.0055	01/06/22
7	7	0.0065	01/07/22
8	8	0.0045	01/08/22
9	9	0.007	01/09/22
10	10	0.005	01/10/22
11	11	0.006	01/11/22
12	12	0.007	01/12/22
13	13	0.004	01/01/23
14	14	0.005	01/02/23
15	15	0.0055	01/03/23

```
(
    select total_revenue_sum from TOTALS
)
*
NVL((
    SELECT rr.RATE_AMOUNT
    FROM ROYALTY_RATES rr
    WHERE rr.ARTIST_ID = rp.ARTIST_ID
    AND rr.SONG_ID = (
        SELECT MIN(s.SONG_ID)
        FROM SONGS s
        JOIN SONG_ARTISTS sa ON s.SONG_ID = sa.SONG_ID
        WHERE sa.ARTIST_ID = rp.ARTIST_ID
    )
), 0)
```

Song Performance = Engagement + Monetization

Which Songs Keep Listeners Engaged and Make Us Money?

SQL Logic Used

- JOINS: SONGS, PLAY_HISTORY, COMMENTS, AD_PLACEMENTS.
- AVG(DURATION_PLAYED / SONG.DURATION)
  → **Completion %**
- COUNT(AD_PLACEMENTS)
  → **Monetization potential**
- COUNT(COMMENTS)
  → **User engagement**

Insights

- Some songs are **not just popular**, they're **profitable.**
- **High play counts + high completion = loyal audience.**
- Add **ad placements** → prime targets for **premium sponsorship.**

💡 Strategy Use

- Recommend songs for branded playlists or prioritize in ad bundles.

SONG_ID	TITLE	TOTAL_PLAYS	COMPLETION_RATE_DISPLAY	TOTAL_COMMENTS	TOTAL_AD_PLACEMENTS
5	Echoes	4	100%	2	1
2	Moonlight Groove	4	100%	2	1
7	Rhythm Nation	4	100%	2	1
1	Sunrise Anthem	4	97.62%	2	1

Songs That Boost Ad Engagement

Are there songs that improve ad performance?

SQL Logic Used

- JOINS SONGS, AD_PLACEMENTS WITH CTR LOGIC PER SONG.
- CTR per song = SUM(IS_CLICKED = 1) / COUNT(PLACEMENTS)
- Orders results by CTR, highlighting songs with the highest ad interaction.

Insights

- Some songs consistently **increase ad click-through rates (CTR).**
- These tracks are ideal for:
  - **Premium ad slots**
  - **Brand collaborations**
  - **Sponsored playlists**

Strategy Use

- **Bundle high-CTR songs** in advertising packages to boost ROI.
- **Match ad themes to high-performing songs** to maximize user engagement.

SONG_ID	TITLE	TOTAL_ADS_PLAYED	TOTAL_CLICKS	SONG_AD_CTR
3	Starfall	1	1	1
10	Groove On	1	0	0

Artist Cost Efficiency – Not Just Stream Counts

Do our top-streamed artists deliver the best value per royalty payout?

SQL Logic Used

- JOIN: ARTISTS, SONG_ARTISTS, PLAY_HISTORY, ROYALTY_PAYMENTS.
- SUM(ROYALTY) / COUNT(SONGS)
  → **Royalty Cost per Song**
- SUM(ROYALTY) / COUNT(PLAYS)
  → **Royalty Cost per Play**

Insights

- Some artists **earn more per song/play**, even with **fewer streams**.
- High-ROI artists are ideal for:
  - **Premium ad partnerships, front-page placement, exclusive content deals**.
- Large catalogs with low returns = candidates for contract optimization
- Helps decide who to promote, feature, or renegotiate with.

Strategy Use

- Target **cost-efficient artists** for promotion and front-page features.
- Supports **targeted promotions** and **fair payouts**

ARTIST_ID	ARTIST_NAME	TOTAL_SONGS	TOTAL_PLAYS	ROYALTY_PER_SONG	ROYALTY_PER_PLAY
9	Beat Squad	1	1	78.26	78.26
12	Vibe Tribe	1	1	76.2	76.2
15	Bassline Crew	1	1	73.33	73.33

Artist Cost Efficiency by Region

Which locations provide the best value per payout?

SQL Logic Used

Grouped by ARTISTS.LOCATION, then analyzed same as Slide 2.

Insights

- Artists from smaller towns may deliver stronger engagement per dollar spent.
- Identifying **regions with low royalty-per-play costs** helps optimize sponsorships and regional ad targeting.

Strategy Use

- Prioritize promotion of **cost-efficient regions** to maximize content ROI.
- Support data-driven expansion into untapped markets.

LOCATION	ARTIST_ID	ARTIST_NAME	TOTAL_SONGS	TOTAL_PLAYS	ROYALTY_PER_SONG	CALCULATED_ROYALTY_PER_PLAY
Lalaland Village	9	Beat Squad	1	1	78.26	78.26
Lalaland Village	12	Vibe Tribe	1	1	76.2	76.2
Lalaland Village	15	Bassline Crew	1	1	73.33	73.33
Lalaland Town	8	Melody Lane	1	1	61.79	61.79
Lalaland Village	3	The Comets	1	1	61.78	61.78
Lalaland Town	11	Pulse Wave	1	1	59.73	59.73
Lalaland City	13	Tune Smiths	1	1	57.67	57.67

Ad Format Performance — Which Types Work?

What Ad Formats Actually Drive Revenue?

SQL Logic Used

- Aggregated from: AD_METRICS, AD_PLACEMENTS, AD_PRICING_TYPES
- Grouped by: TYPE_NAME
- CTR = TOTAL_CLICKS / TOTAL_VIEWS
- Revenue pulled from previously calculated ad data.

Insights

- **High CTR ≠ High Revenue**: Some formats drive strong engagement but earn less due to low base pricing or weak monetization.
- **Hidden High Performers**: Low-volume formats with high average revenue reveal untapped scaling opportunities.

Strategy Use

- **Scale high-ROI ad types** to improve margins and maximize per-slot value.
- **Optimize or retire low-performing formats** to reduce inefficiency and ad fatigue.

TYPE_NAME	NUM_ADS	TOTAL_CLICKS	TOTAL_VIEWS	AVG_CTR	TOTAL_BASE_COST	TOTAL_METRIC_REVENUE	TOTAL_PLACEMENT_REVENUE	TOTAL_REVENUE_TYPE
Featured Song	1	2600	31000	0.0839	320	97	0.01	417.01
Artist Promotion	1	1700	21000	0.081	350	65.25	0	415.25
Sponsored Content	1	1600	20000	0.08	300	62	0.01	362.01

What Sets Our App Apart

- Ad-first revenue model tailored to Lalaland, unlike Spotify
- Data-driven insights into song, artist, and ad performance
- Smart targeting via metrics like:
  - Completion Rate
  - Royalty per Song
  - CTR by Song & Ad Type
- Flexible schema supporting both internal ops & user-facing app

Strategic Business Value

- Promote high-ROI artists and songs
- Optimise ad formats based on performance
- Enable location-based A&R decisions
- Build advertiser confidence with performance-linked metrics

Let’s Open the Floor to Questions