DATAWAVE MUSIC

User subscription analysis

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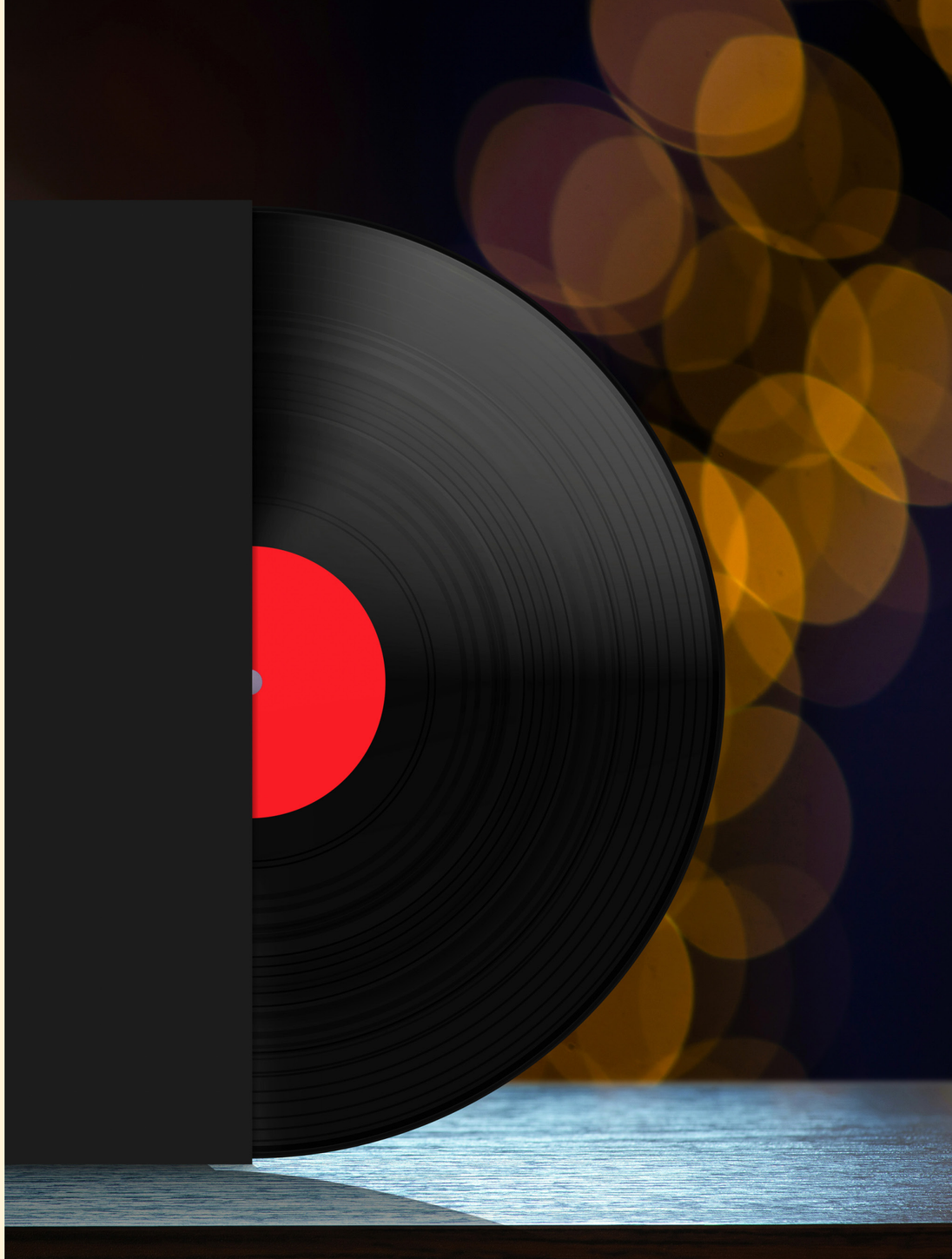
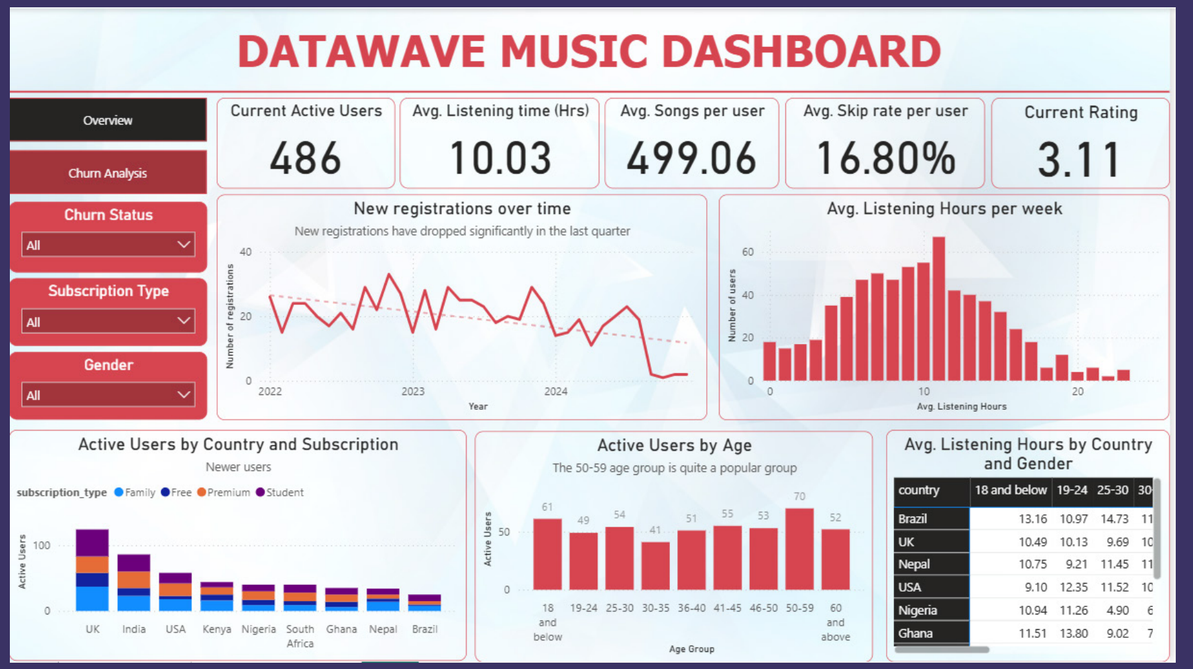
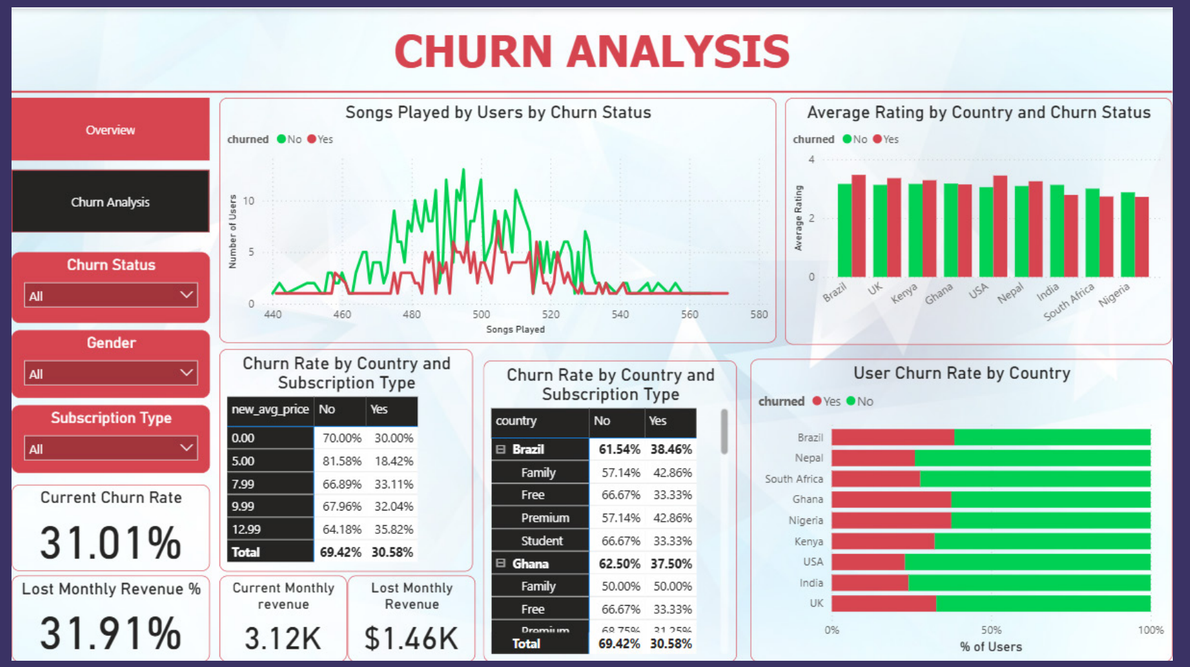
Institute of Analytics (IOA)- Autumn Student Sprint Challenge 2025



Key Information

- **Objective:** Analyse the user base of Datawave Music and identify key insights that can help growth
- **Dataset:** Information on users who have subscribed to Datawave's platform
- **Source:** IOA Student Autumn Data Challenge



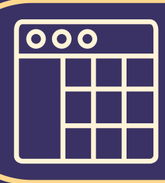


Data Quality

1. **Missing Values**:
   a. Gender (Imputed using KNN Imputer)
   b. Satisfaction Score (Imputed using KNN Imputer)
   c. Monthly Fee - Subscription type fee estimated and used
2. **Duplicate** User ID's were removed
3. For **Blank User ID's,** a new ID was created by combining country, age and gender and was included in the dataset
4. **Mis-spelt** and inconsistent **Country names** and **Subscription types** were cleaned and standardised
5. **Join Dates** were jumbled with MM/DD and DD/MM formats. This was fixed using 'try_otherwise' on Power Query (M Code)
6. **Monthly Fee** had some values with text which were replaced.
7. **Churned** had mixed values so 0 and 1 were replaced with No and Yes respectively
8. **Skip Rate** had some values as whole numbers, some as percentage and some as decimals. This was standardised.

Key Data quality concern: There is no consistency between monthly fee's and subscription types. This needs to be investigated

Data Cleaning Steps



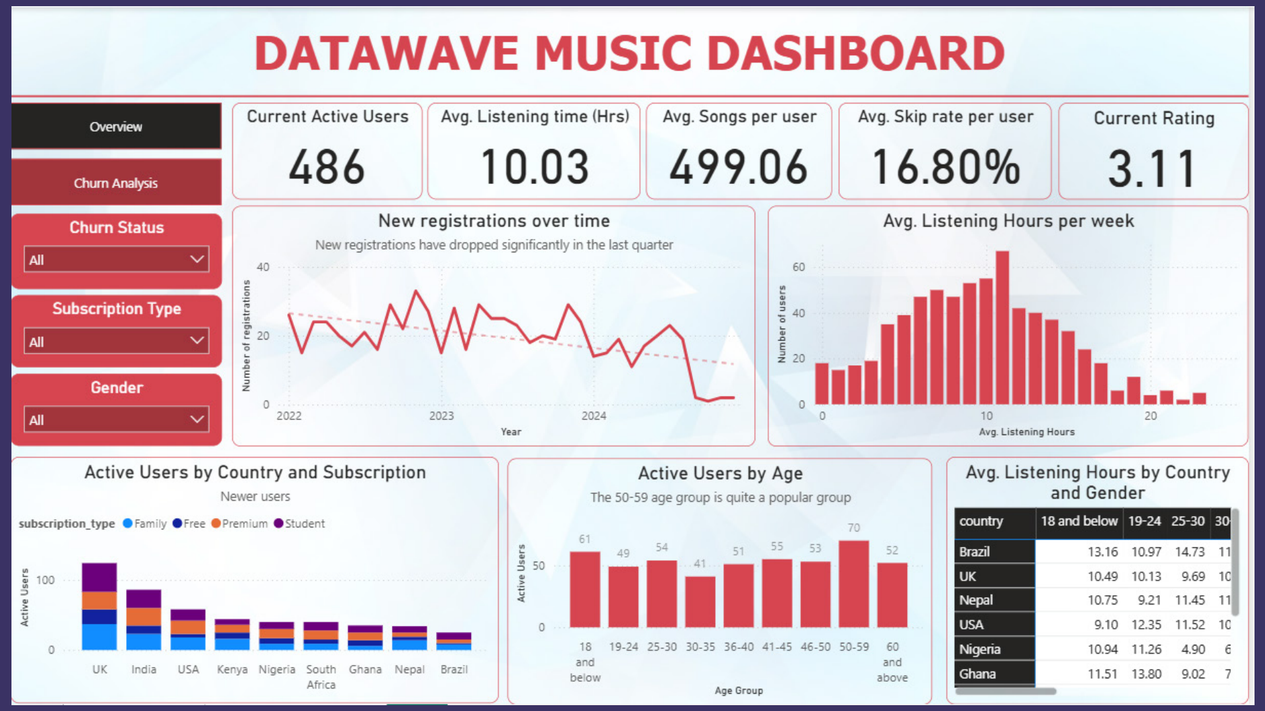
Original Dataset in **Excel** format

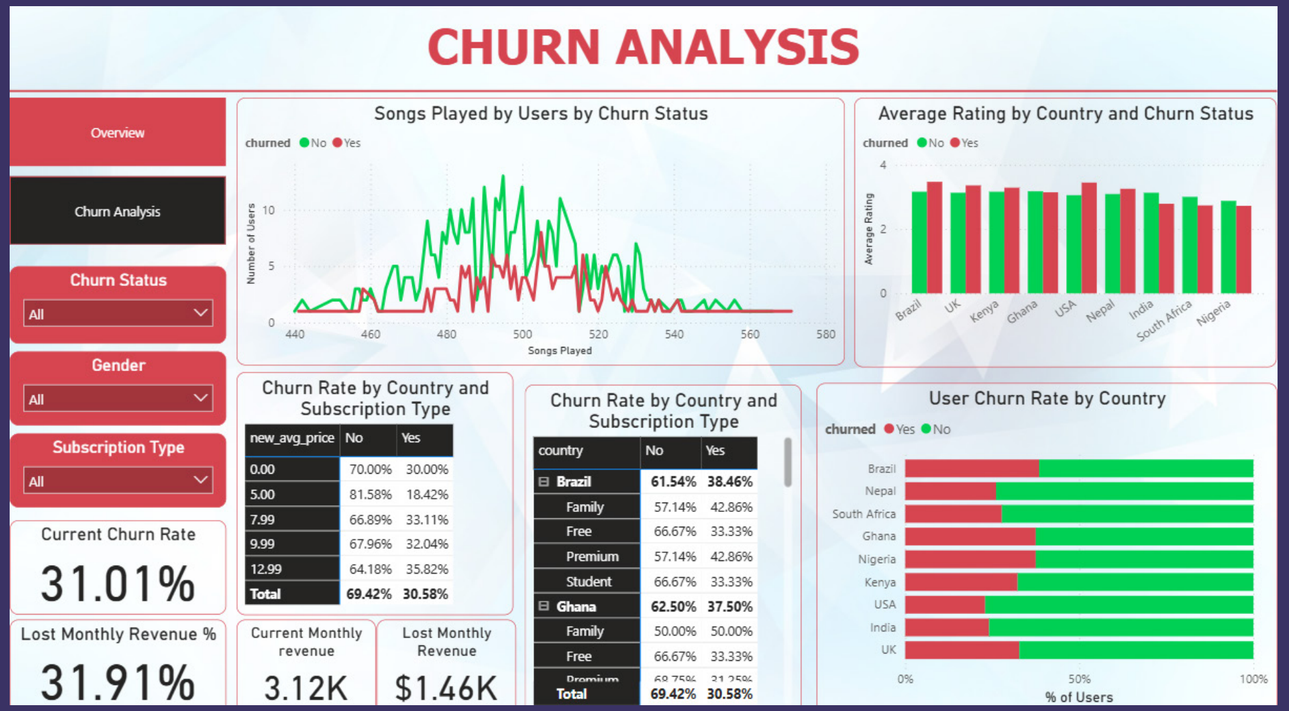
Basic Cleaning (Items 2-8) done on **Power Query**, and data saved as a table on Excel

Clustering and Missing value imputation (Using KNN Imputer) done on **Python** after data was transformed using Ordinal Encoding and Standard Scaler

Visualisations and insights developed on **Power BI** for quality and simplicity

Summary Insights

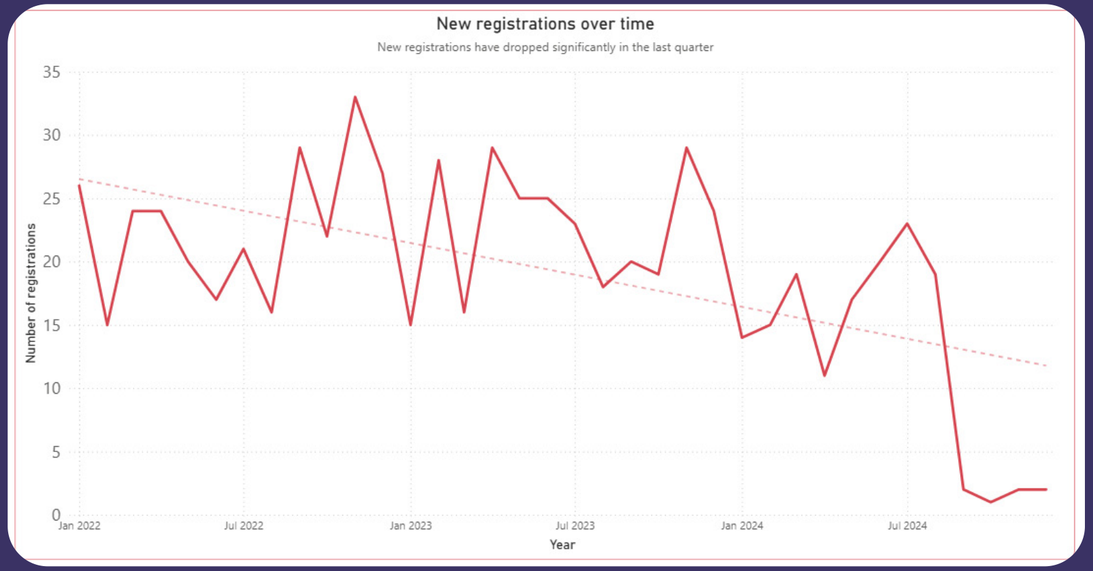


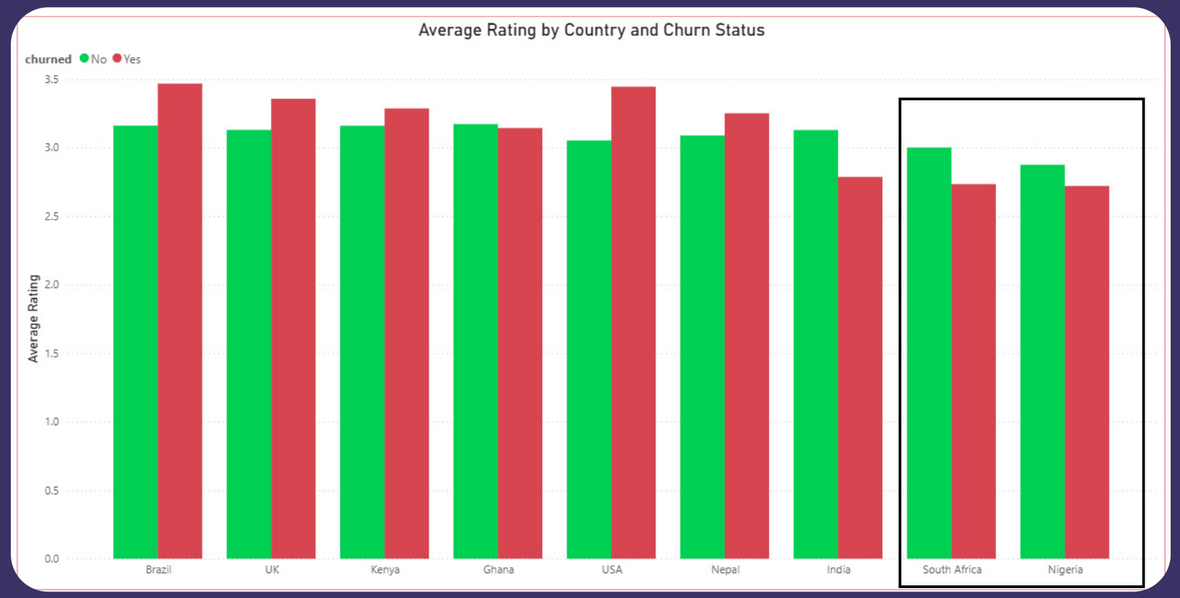


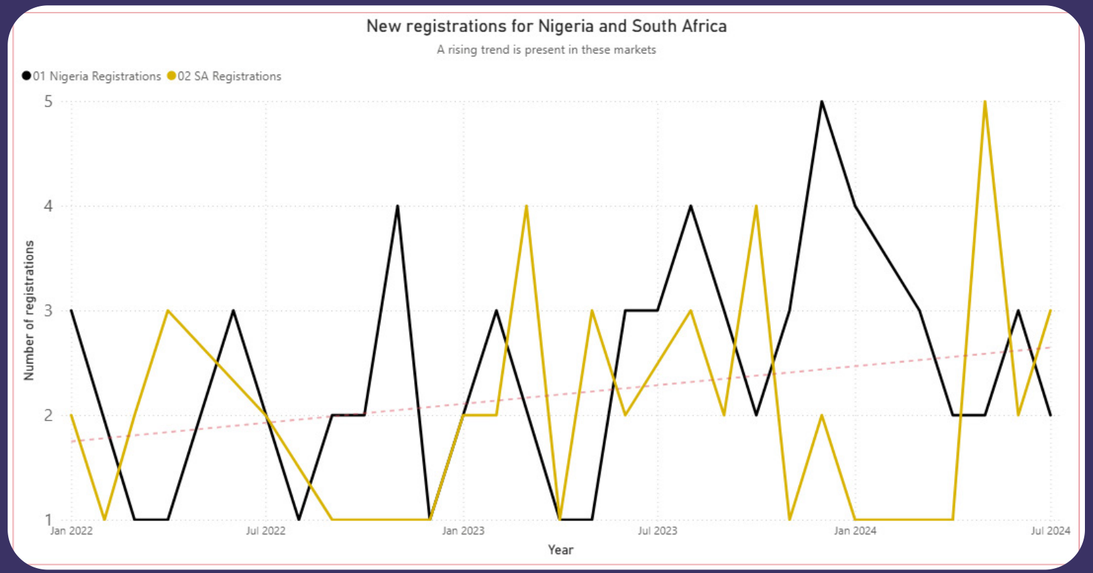
Scan to download the interactive dashboard on my Github

Registrations trend

- Overall new registrations for users is falling
- However, Nigeria and South Africa have more new registrations coming up (rising trend)
- Despite this, Nigeria and SA have the lowest ratings (average of 2.82 and 2.93 respectively).
- This means that these markets show growth, but can be under threat if the ratings do not go up with time

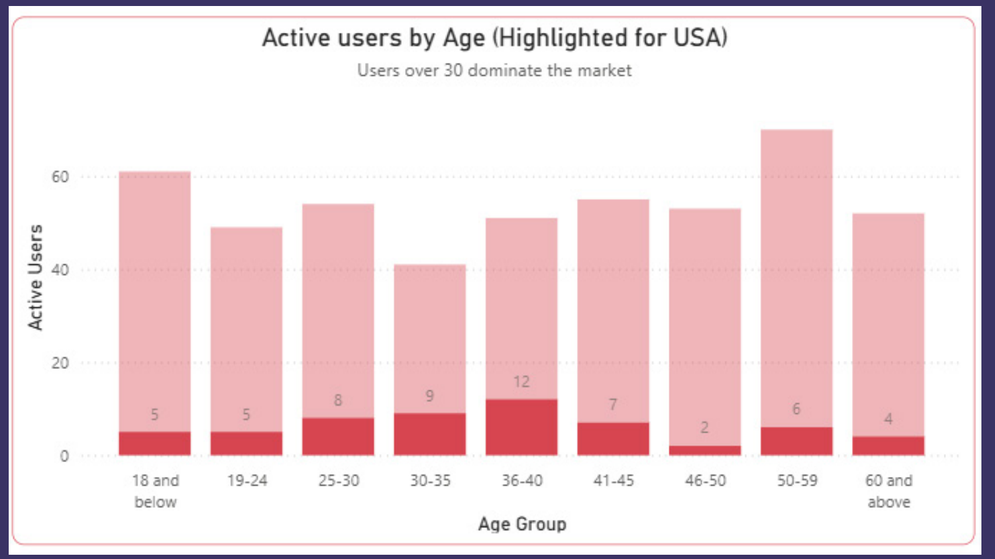


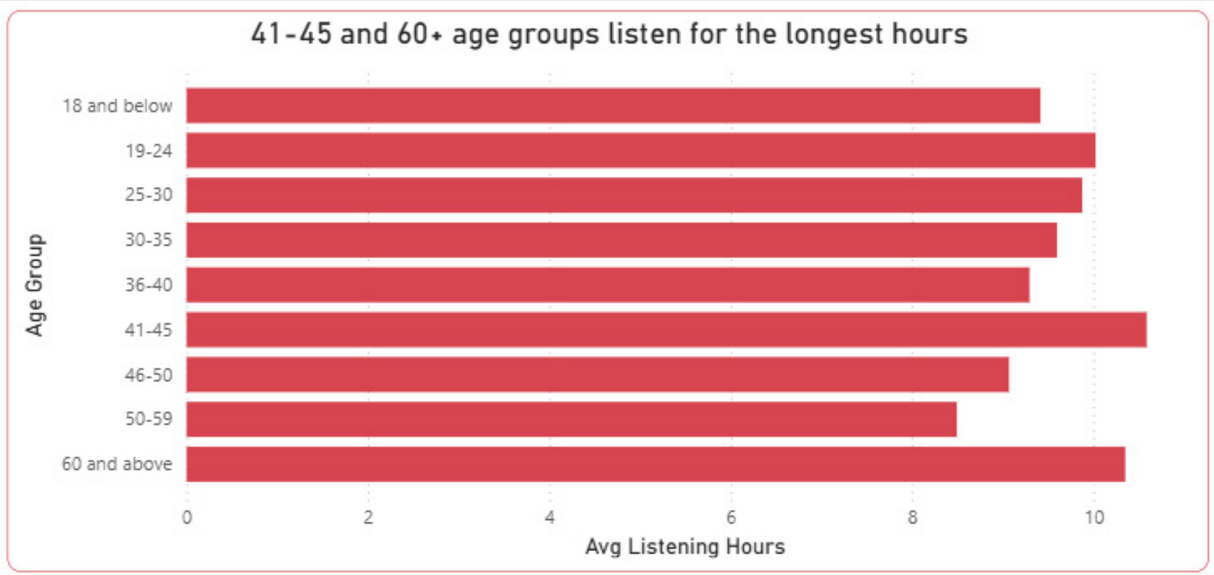


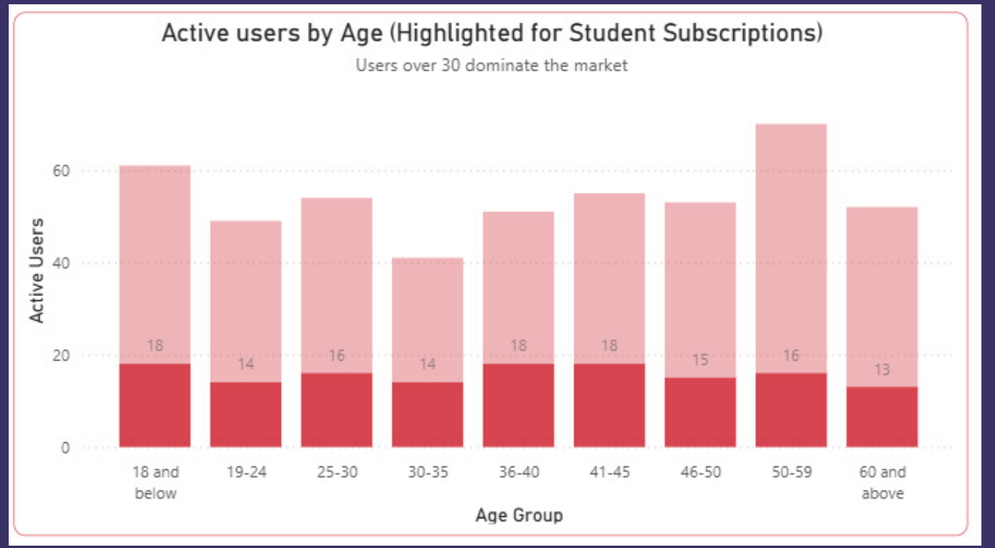


Subscriber Age Market Analysis

- Overall audience ages are spread across but in USA, users over 30 years are the largest clientele, suggesting a gap in the youth exists
- 66% of student subscriptions are aged over 30. This might be leading to lost revenues.
- Users between 41-45 and 60+ seem to be the longest listeners, despite it being an assumption that youth have more free time. We may need to have content for these users

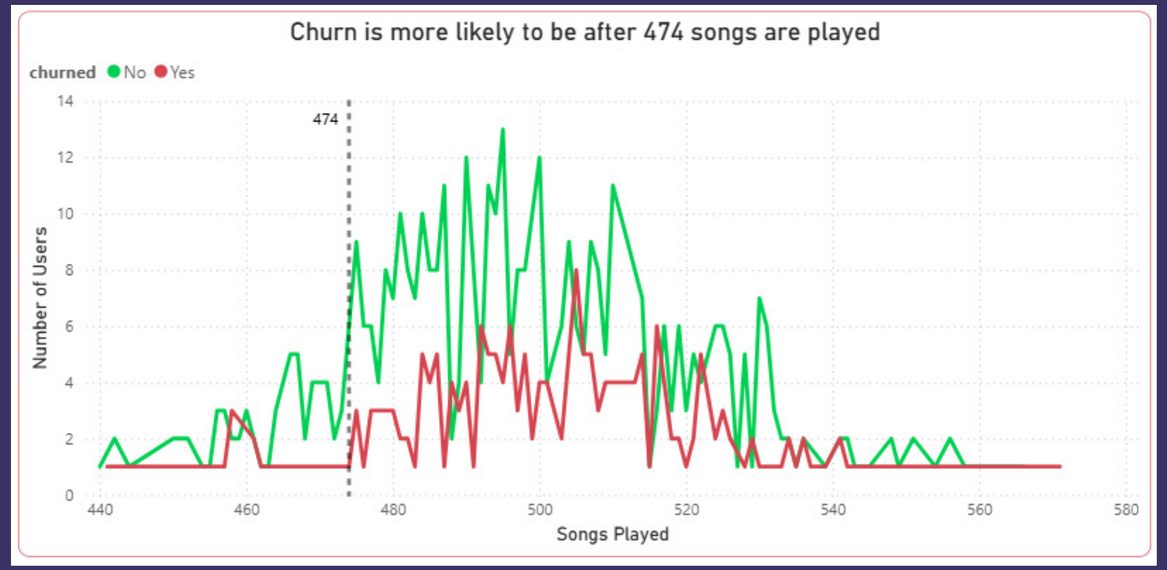






Metrics leading to higher churn

- Users are churning out mostly after 474 songs. This means users know at this point if they want to stick with Datawave.
- Introducing offers for users who are between their 470th-490th song such as discounts would be useful in improving retention



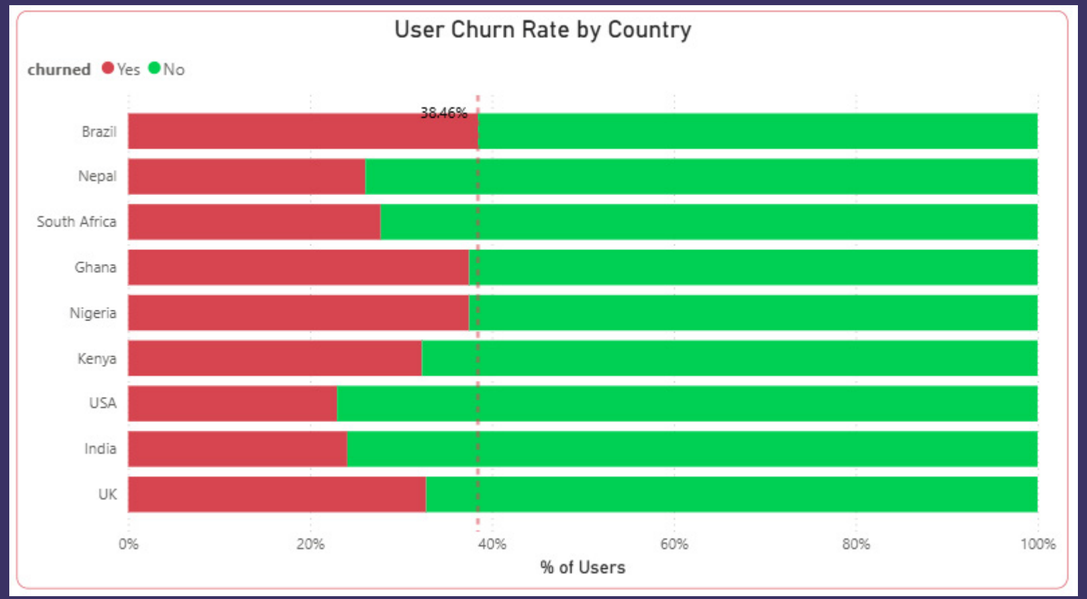
Churn Rate by Pricing

new_avg_price	No	Yes
0.00	70.00%	30.00%
5.00	81.58%	18.42%
7.99	66.89%	33.11%
9.99	67.96%	32.04%
12.99	64.18%	35.82%
Total	**69.42%**	**30.58%**

- Customers seem to be quite price sensitive
- The price base of 12.99 has the highest churn rate suggesting this might be too high of a price
- The price of 5.00 seems to be really optimum. While not sustainable for all plans, price consistency should be introduced and 5.00 plans set for student deals

Analysing Churn in different markets

- USA, India and Nepal have the lowest churn rates, suggesting a stable base. But new registrations are still dropping. Marketting focus in these markets needs to be in registering new people to join the platform.



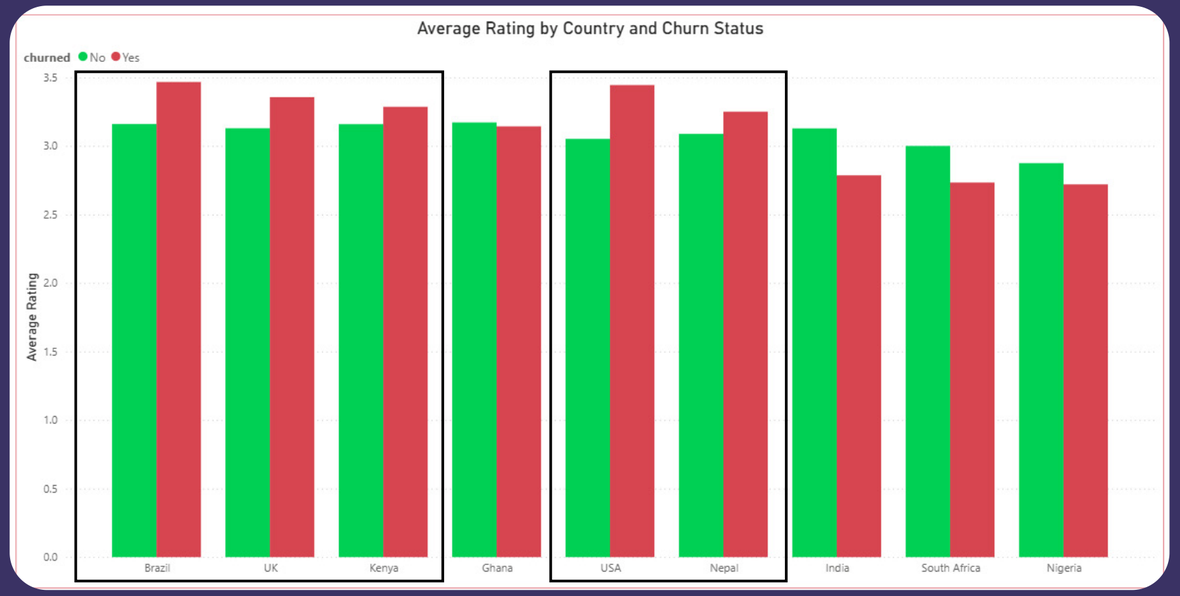
Avg. Listening Hours by Country

country	02 Average Listening Hours
Brazil	11.72
UK	10.34
Nepal	10.18
USA	10.12
Nigeria	9.94
Ghana	9.64
India	9.63
Kenya	9.57
South Africa	9.33
Total	**10.03**

- Brazil has the highest churn rate of 38.46%, and the lowest number of active users, yet its users have the longest listening hours on average (11.72). This suggests a loyal customer base in Brazil that needs to be identified and used to promote the platform

Analysing Churn in different markets

- In Brazil, UK, Kenya, USA and Nepal, customers who have churned out seemed to give a higher rating than those still subscribing to Datawave. This means current customers are dissatisfied and are under threat, which suggests an upcoming wave of churned customers



Churn Rate by Country and Subscription Type

country	No	Yes
Brazil	**61.54%**	**38.46%**
Family	57.14%	42.86%
Free	66.67%	33.33%
Premium	57.14%	42.86%
Student	66.67%	33.33%
Ghana	**62.50%**	**37.50%**
Family	50.00%	50.00%
Free	66.67%	33.33%
Premium	68.75%	31.25%
Student	62.50%	37.50%
India	**75.89%**	**24.11%**
Family	74.19%	25.81%
Free	92.31%	7.69%
Premium	68.57%	31.43%
Student	78.79%	21.21%
Kenya	**67.69%**	**32.31%**
Family	66.67%	33.33%
Free	100.00%	
Premium	64.71%	35.29%
Student	53.33%	46.67%
Nepal	**73.91%**	**26.09%**
Family	73.68%	26.32%
Free	83.33%	16.67%
Premium	75.00%	25.00%
Student	69.23%	30.77%
Total	**69.42%**	**30.58%**

country	No	Yes
Nigeria	**62.50%**	**37.50%**
Family	64.29%	35.71%
Free	66.67%	33.33%
Premium	65.00%	35.00%
Student	55.56%	44.44%
South Africa	**72.22%**	**27.78%**
Family	64.29%	35.71%
Free	60.00%	40.00%
Premium	92.86%	7.14%
Student	68.75%	31.25%
UK	**67.22%**	**32.78%**
Family	67.27%	32.73%
Free	70.00%	30.00%
Premium	60.98%	39.02%
Student	70.37%	29.63%
USA	**77.03%**	**22.97%**
Family	75.00%	25.00%
Free	83.33%	16.67%
Premium	73.08%	26.92%
Student	83.33%	16.67%
Total	**69.42%**	**30.58%**

- The lowest churn for free customer is in Kenya and India. It might be advisable to encourage registrations here and hook them onto the platform
- Premium users in South Africa have the lowest churn so driving more premium sales in SA will be a revenue driver

Key Recommendations

Overall Market

1. Pricing is inconsistent between different plans, this needs to be standardised
2. Limit the student plan to users under 30 years to save potential lost revenues
3. Highest churn occurs after 474 songs so offer discounts and subscription deals when users are playing their 470th-490th song
4. The 12.99 Price is too high, resulting in the most churn. Review this price and determine if the max price can be set at 9.99
5. Limited customer feedback is available on why they left the platform or why they like the platform. Try engage in customer surveys to determine customer preferences

Market Specific

1. **Nigeria and South Africa** are the 2 markets showing growth. Replicate the registration specific marketing strategies here to other markets in decline.
2. **Both** these markets have the lowest ratings. This implies potential decline in future subscriptions. Review customer feedback to bring back the ratings up.
3. **USA** and other top countries have older users using the platform more. Try create marketing content relevant for younger audiences and advertise to them since they may bring in more revenues.
4. **Brazil** seems to have the longest listening users. Delve deeper into the specific music types they are listening to and timings of activity to determine why, capitalise on this and bring in more Brazilian local artists on the platform to reverse the decline of new registrations here.
5. India, Nepal and USA have the lowest churns. Analysis by age, gender, clusters, subscription type or skip rate provided no insight. It may be useful to get more data from these markets.