# GRAPHICAL (THINK OF A BETTER TITLE)

## DATASET

• `tgbn-genre` [4]. Paraphrasing [3] (`https://tgb.complexdatalab.com/docs/nodeprop/#tgbn-genre`): a bipartite and weighted interaction network between users and music genres, representing users and music genres as nodes, where an interaction denotes a user listening to a music genre at a given time. Edge weights indicate the percentage of a song belonging to a specific genre. The dataset is derived by linking songs from the LastFM-song-listens dataset with music genres from the million-song dataset.

## INDUSTRY VALUE

• **Improved recommendation systems:** We aim to enhance recommendation systems for streaming services like Spotify, Netflix, and YouTube. By predicting which set of music/movie/content genres a user will interact with the most, we can personalize recommendations, improve user experience, and increase user engagement and retention.

## KEY STAKEHOLDERS

• Spotify, Netflix, YouTube, and similar streaming services.
• End users (listeners and viewers).

## KEY PERFORMANCE INDICATORS

• **NDCG@10:** Model performance will be evaluated using mean normalized discounted cumulative gain of the top 10 items (see [1]).
• **Leaderboard:** Does the model perform well enough to earn a place on the relevant TGB leaderboard (see [3]).
• **User engagement:** [Hypothetical.] User engagement metrics such as time spent on platform, number of interactions, feedback, etc.
• **Retention rate:** [Hypothetical.] Impact of personalized recommendations on user retention and satisfaction.
• **Business impact:** [Hypothetical.] Increased subscriptions, ad revenue, customer loyalty, etc.

## PROPOSAL OVERVIEW

• **Objective:** Develop a machine learning model to predict user interactions with music genres over the next week.
• **Approach:** Use advanced graph-based algorithms to model user behavior patterns and preferences.
• **Expected outcome:** A scalable and well-performing prediction system that enhances existing recommendation algorithms and drives business growth for streaming platforms.

## CONCLUSION

Enhancing recommendation systems through predictive analytics can revolutionize the user experience in the streaming industry. By leveraging the `tgbn-genre` dataset [4], we aim to create actionable insights and strategic recommendations that empower businesses to deliver personalized content and stay ahead in a competitive market.

## REFERENCES

[1] Huang, S., et al. "Temporal Graph Benchmark for Machine Learning on Temporal Graphs." Preprint. `arXiv:2307.01026`, 2023.

[2] Huang, S., et al. "TGB." GitHub Repository. `https://github.com/shenyangHuang/TGB`, 2023. Accessed May 14, 2024.

[3] Huang, S., et al. "Temporal Graph Benchmark." `https://tgb.complexdatalab.com/`, 2023. Accessed May 14, 2024.

[4] Huang, S., et al. "`tgbn-genre` dataset." `https://github.com/shenyangHuang/TGB/blob/main/tgb/datasets/dataset_scripts/tgbn-genre.py`, 2023. Accessed May 14, 2024.