

# 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

- **MRR score:** Model performance will be evaluated using mean reciprocal rank metric (see [1] for further information).
- **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](https://arxiv.org/abs/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](https://github.com/shenyangHuang/TGB/blob/main/tgb/datasets/dataset_scripts/tgbn-genre.py), 2023. Accessed May 14, 2024.