**COMP4651 Final Project Report**

**Music Recommendation with Cloud Integration**

Fall 2024 | Group 5

|  |  |  |
| --- | --- | --- |
| KWONG, Hoi Wa  [hwkwong@connect.ust.hk](mailto:hwkwong@connect.ust.hk) | SI TOU, Tin Nok  [tnsitou@connect.ust.hk](mailto:tnsitou@connect.ust.hk) | TONG, Tsun Man  [tmtong@connect.ust.hk](mailto:tmtong@connect.ust.hk) |

**Introduction**

The purpose of our project is to leverage cloud computing to expedite the classification of music genre of any given song, powered by machine learning (ML), based on various features related to the song, such as music title, composer, and more. We have experimented with a multitude of methods, from model architecture to cloud computing deployment strategies, for optimal classification accuracy.

In this project, we make use of the KKBOX WSDM dataset [1], which features over 7 million entries of soundtrack playing history, together with attributes of the pieces, up till September 2017. Based on this dataset, we have engineered a PyTorch-based Feed-Forward Neural Network music genre classifier that consists of multiple fully connected (Dense) layers to identify correlations between the features of the song and its genre. We then deploy the classifier on an AWS EC2 instance for efficient data processing and model training.

**Background**

<content>

**Existing Work**

<if any>

**Proposed Method**

<what makes us different from existing methods>

**Results**

<errr now is about 70% accuracy and I see see if wake up then make some graph lah>

**Code Description**

<content>

**Cloud Deployment**

<content>

**Discussion**

* Architecture of classification model: We have come across various machine learning architectures that can effectively extract relevant features from the dataset and perform genre classification, such as Feed-Forward Neural Network and LSTM (Long Short-Term Memory) models. We have decided to utilise the former for its simplicity and effectiveness in task accomplishment with reasonable demand for computational resources.
* AWS EC2 and ECS: (Having experimented with both deployment methods, we have encountered challenges in running our model on an ECS instance owing to the complexity of our model. Hence, we chose to deploy our model using EC2 due to its reliability and flexibility in scaling.)

**Future work**

<maybe just blow blow mud edge computing ah serverless container those say either student account limitation, time constraint, limited resources then cant do those>

**Conclusion**

<content>

**Reference**

<ref>