Enhancement One: Software Design and Engineering

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November 16, 2024

The artifact I am working on to make my program usable for other users involves creating an executable version that can run directly on their systems. This approach builds on a simple program I learned to create in the early stages of my software development courses, where we focused on building basic executables. The program will include all the necessary files for functionality. I chose this method because it is straightforward, a common way to distribute programs, and practical given the limited time I have.

For the database, I am using the IAM dataset, specifically the words dataset from the IAM library. Due to hardware limitations, I cannot process the entire IAM dataset, so I will split it into smaller sections for training. Additionally, I will implement the Lightning Mapping Database, which allows for faster processing and storage efficiency, enabling the machine learning model to train more quickly and accurately (Wicker, 2023). However, the idea of integrating MongoDB will need to be set aside for now as I focus on the primary functionality of the artifact.

Currently, I am working on integrating the different parts of the artifact to ensure they work seamlessly together while aligning with the course outcomes I planned for this project. I remain focused on maintaining a security mindset throughout the process, carefully considering potential vulnerabilities and documenting my findings and insights to share with the audience. This week, I am prioritizing the course outcome of “employing strategies for building collaborative environments that enable diverse audiences to support organizational decision-making in the field of computer science.”

As I enhance and modify the artifact, I have learned several new techniques, such as implementing and using the latest version of TensorFlow (TensorFlow, 2023) and truncating words for image recognition. I’ve also adopted the habit of running Git more frequently to save my progress and spent this week troubleshooting the code to ensure everything runs smoothly. One challenge I faced was an outdated version of TensorFlow provided by Harald Scheidl’s resources. To resolve this, I updated the code to ensure compatibility with the latest version. Additionally, I discovered that my system might not be able to train on the entire IAM words dataset, so I decided to split the dataset into smaller portions for more manageable training.

Overall, I am making steady progress while adapting to challenges, focusing on the main goals of the project, and ensuring the artifact aligns with the course outcomes.

Reference

TensorFlow. (2023, September 26). *TensorFlow v2.17.0 release notes*. GitHub.<https://github.com/tensorflow/tensorflow/releases/tag/v2.17.0>

Wicker, G. (2023). LMDB: Lightning Memory-Mapped Database [liblmdb]. GitHub. Retrieved December 15, 2024, from https://github.com/LMDB/lmdb/tree/mdb.master/libraries/liblmdb