***Cyber Shield***

03/14/2025 - 03/28/2025

**Morgan State University**

**Friday 28th 2025**

Activity Report

Introduction

During this period, the focus was on advancing technical proficiency in machine learning, deep learning, and data analytics. Additionally, emphasis was placed on refining programming skills and exploring version control systems. The goal was to further strengthen the technical foundation while ensuring seamless integration of acquired knowledge into project tasks within Cyber Shield initiative.

METHODOLOGY

A structured learning approach was followed, involving self-paced courses, hands-on implementation, and continuous documentation. Skills gained were reinforced through practical exercises and project contributions, with a focus on refining workflows and enhancing collaboration.

Tasks Completed:

* Deep Learning Course Completion: Successfully completed the Kaggle deep learning course, covering key concepts such as neural networks, optimization, backpropagation.
* Advance Python and Pandas Practice: Engaged in hands-on exercises involving data manipulation, aggregation, and visualization using the Pandas library to analyze real-world datasets.
* Version Control: Explored and practiced Git and GitHub workflows, including branching, merging and resolving conflicts to enhance team collaboration.
* Comprehensive Review of GitHub Resources: Watched and studied all available and assigned GitHub-related videos, reinforcing knowledge of repositories, pull requests, and best practices.

System Characteristics:

1. Jupyter Notebook: Used for data analysis, model experimentation, machine learning experiments and deep learning tasks.
2. VS Code: Integrated development environment for Python coding and GitHub version control.
3. Kaggle Platform: Utilized for deep learning and machine learning course completion.
4. GitHub: Employed for version control, repository management, and team collaboration.

Accomplishment(s):

1. Successfully completed a deep learning course, strengthening knowledge of neural networks and model training.
2. Gained proficiency in Pandas for advanced data analytics and preprocessing.
3. Enhanced understanding of Git and GitHub workflows through comprehensive video tutorials and hands-on practice.

Challenge(s):

1. Managing time effectively to balance coursework, hands-on implementation and project deliverables.
2. Handling complex data structures and ensuring efficient processing without performance bottlenecks.

Notes(s):

1. Continue refining GitHub collaboration skills.
2. Seek mentorship or peer feedback for continuous improvement.

REFERENCES

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[3] YouTube, "Git and GitHub for Beginners - Crash Course." [Online]. Available: https://www.youtube.com/watch?v=2ReR1YJrNOM

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