ML Continuous Integration System

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Author Note

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ML Continuous Integration System

Aims and Objectives

Aim: Create a platform for taking Machine Learning Code and Data as inputs for running automated tests. We will add the ML code into the repository if it passes the benchmark tests.

Objectives

1. Review and configure the ML pipelines for training.
2. Integrate GitHub to monitor the code changes.
3. Implement a tracking method on the datasets.
4. Any changes to the code or dataset will rebuild the ML pipeline.
5. Optimize for the best ML model by comparing new scores with historical ML models' scores.

Work Plan

July – October: Planning

1. Selected the topic.
2. Conducted research on the ML Continuous Integration System.

October – November: Write-up a preliminary specification outlining my progresses.

November: Design a small-scale prototype with basic functionalities.

November – January: Extend upon the prototype into the full system.

January – February:

1. Design Tests for evaluating each task.
2. Interim report for checking the progress.

February – March: Record a video preview outlining the project.

March: Finalize the Project Report for submission.

Expected Outcomes

Minimum Requirements

Code monitoring

Function	Stage
Integrate GitHub to track the code changes.	✅
Run the ML Code whenever there are new changes made to the repository.	✅

Configuration

Function	Stage
Configure the application via YAML text file	✅

Execute ML Code

Function	Stage
Can run a ML pipeline on the local computer.	✅

Results Presentation

Function	Stage
Present a visualized exhibition of the ML results and its scores via email.	✅

Perfect Solution

Code monitoring

Function	Stage
Allow the user to monitor the changes across several repositories.	⏳

Configuration

Function	Stage
Provide a GUI application to help with configuring the code.	⏳

Execute ML Code

Function	Stage
Enables running the pipeline on the different computational platforms.	⏳

Results Presentation

Function	Stage
Present the results on a web interface alongside an email for the user.	⏳