Report for milestone 6

Requirement:

Goal: ML system integration

Automation of ML pipelines: deployment of a CI/CD pipeline	ZenFlow, GitHub Actions, Jenkins

The work done for this part revolved around writing a YAML script for automatizing the deployment of my ZenML pipeline with Git Actions:

The process is to simply write a YAML script under a .github/workflows folder that installs the necessary dependencies and executes automatically on push or pull.

The dependencies are in the requirements.txt file.

Ml_ci_cd.yml Script :

```yaml
name: ZenML Pipeline Execution

on:
  push:
    branches:
      - main
  pull_request:
    branches:
      - main

jobs:
  run-zenml-pipeline:
    runs-on: ubuntu-latest

    services:
      cassandra:
        image: cassandra:latest
        ports:
          - 9042:9042
        options: --health-cmd "cqlsh -e 'DESCRIBE KEYSPACES'" --health-interval 10s --health-timeout 5s --health-retries 5

    steps:
      - uses: actions/checkout@v2

      - name: Set up Python
        uses: actions/setup-python@v2
        with:
          python-version: "3.10"
```

```yaml
- name: Install dependencies
  run: |
    python -m pip install --upgrade pip
    pip install -r requirements.txt

- name: Run ZenML Pipeline
  run: |
    python -m zenml up
    python pipeline.ipynb
  env:
    CASSANDRA_CLUSTER: "localhost"

- name: Shutdown ZenML services
  if: always()
  run: python -m zenml down

- name: Log Metrics to MLflow
  run: |
    pip install mlflow
    mlflow server --backend-store-uri sqlite:///mlflow.db --default-artifact-root ./mlruns --host
  env:
    MLFLOW_TRACKING_URI: http://localhost:5000
```