Cloud Computing with Virtualization, Docker, and Database Integration

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Project Goals

The project is to create a scalable database application using Docker and leverage machine learning integration, setting up a cloud environment, developing a user-friendly web interface, and enabling data analytics and reporting functionalities.

Related Work and Gap Analysis

The use of Docker containers for cloud computing has gained popularity due to their resource efficiency and ease of deployment. Many researchers have demonstrated the efficiency of Docker containers in management systems, shorter deployment times and work efficiency.

However, there may be a gap in providing a cloud-based database application that will integrate machine learning and providing detailed data analytics and reporting even though it will be implemented in the project.

Proposed Tasks

(1) Setting up a cloud computing environment using Jetstream2 and configuring the infrastructure.
(2) Deploying the database system and designing the schema.
(3) Integrate machine learning models for data analysis, including preprocessing, classification model training, and performance evaluation.

Progress on Proposed Tasks

(1) Completed the setup of the cloud environment using Jetstream2.
(2) The database system has been deployed successfully.
(3) Preprocessing and model training is in progress.
(4) Integration of machine learning models is ongoing.
(5) Data analytics and reporting features are under development.

Preliminary Observations

(1) The cloud environment (Jetsream2) was successfully configured.
(2) The dataset is from Breast Cancer Wisconsin (diagnostic).
(3) The Integration of the machine learning models will enhance data analysis capabilities.
(4) Data analytics and reporting features are expected to provide actionable insights.