

ABSTRACT

The mobile application Tookar serves as a barter platform that enables users to exchange goods with one another. While the application holds significant potential, it faces challenges in terms of scalability and efficiency. To enhance its performance, this integrates Cloud Computing technology, specifically Vertex AI for Image Classification utilizing AutoML models, and App Engine for deploying the API to the backend database. The design and implementation include the Backend Database API and Image Classification features within the Tookar mobile application. Additionally, Google Cloud Platform, as a Platform as a Service, is utilized for Deployment and Monitoring, involving model evaluation and latency measurements. The main outcomes include test parameters such as Average Prediction, Precision, Recall, Confusion Matrix, Response Latency, and Prediction Latency. Testing is conducted using Cloud Logging and Model Evaluate from Vertex AI. The results obtained using the Google Cloud Platform server include a Highest Response Latency is only 9,719 ms, while highest Prediction Latency only 400 ms, an Average Prediction ranging from 0 to 1 at 0.891, precision at 85.5%, recall at 84.1%, and the highest value in the Confusion Matrix being only 19%. The utilization of Cloud Computing services from the Google Cloud Platform positively contributes to addressing scalability and efficiency challenges in the design and implementation of the API in the Tookar application.

Keywords: Cloud Computing, PaaS, Google Cloud Platform, API Database, Image Classification, Deployment.