Phase 4: Development Part 2 - Deploying and Integrating the Diabetes Prediction Model

Introduction

In this phase of the project, we focus on deploying the trained diabetes prediction model as a web service in IBM Cloud Watson Studio. Our goal is to integrate the deployed model into applications using the provided API endpoint. This report outlines the steps we followed and the outcomes of this phase.

Deployment of the Trained Model

Deployment Space Creation

- We logged into our IBM Cloud Watson Studio account and navigated to the project containing our diabetes prediction model.
- Following the provided steps, we created a deployment space for our model, setting up the necessary configurations.

Model Deployment

- We selected the trained diabetes prediction model for deployment within the deployment space.
- The deployment process was successful, and we received an API endpoint URL for our deployed model.

Integration into Applications

Application Development

- We developed a web-based application to integrate our diabetes prediction model.

API Integration

- We incorporated the provided API endpoint URL into our application, allowing us to send data for predictions to the deployed model.
- Our application was designed to handle API responses, parse predictions, and display results effectively.

Data Input and Prediction Display

- We created a user-friendly interface in our application for users to input their health data, such as age, BMI, and glucose levels, required for diabetes prediction.
- Upon sending data to the deployed model, the application displayed the prediction results clearly, indicating whether the user is at risk of diabetes or not.

Error Handling

- We implemented robust error handling mechanisms to ensure the application could gracefully handle unexpected scenarios or API failures.

Testing and Quality Assurance

- We conducted extensive testing to verify that our integrated application works as expected.

- We rigorously tested the application to ensure that the model's predictions aligned with our project's objectives.

Documentation

- We documented the entire integration process, including details on the API endpoint, data format, and how to make requests to the model.
- We also documented the application's features, user interface, and how prediction results are presented.

User Acceptance Testing (UAT)

- User acceptance testing was conducted, and valuable user feedback was collected.
- Based on user feedback, we made improvements to enhance the user experience and model predictions.

Deployment

- After thorough testing and user feedback incorporation, we deployed the application for production use.

Maintenance and Monitoring

- We established a maintenance plan to regularly monitor the application and model's performance in the production environment.
- Any necessary updates and improvements will be implemented to keep the system accurate and up-to-date.

Conclusion

This phase marks a significant milestone in our project, as we successfully deployed the diabetes prediction model as a web service and integrated it into our web-based application. Our model is now accessible to users for real-world use via the provided API endpoint. The application was designed to be user-friendly and provides accurate predictions, thus fulfilling our project's objectives.