**PE02: Programming Exercise**

Docker is an open-source platform that uses OS-level virtualization to enable developers to package applications into containers. This software platform makes building, running, managing, and distributing applications easy. In this exercise, we use Flask to develop our backend web app and docker to package the app into a container.

First, we set up our application with an index page with a short message and a prediction page that uses the Get API to make a prediction based on a trained Machine learning model. We use joblib to package our classifier and use it in our prediction page to make inferences.

A screen shot of a computer

Description automatically generated

Next, we proceed to enhance our Docker environment by incorporating the necessary libraries.

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Let’s add a simple training model. In this exercise, we use a simple polynomial model based on some random values. We export the classifier to the joblib used on the prediction web page.

A screenshot of a computer

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For our docker, we use a preloaded image; we add it to our folder, install the requirements, and run the Python main app.

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We then run our training script to generate the joblib binary and build the docker image.

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Finally, we ran the app on port 3456.

A screen shot of a computer

Description automatically generated

The index page looks like this.

A screenshot of a video game

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The prediction page looks like this. The GET method takes in a parameter. In this case, we used five as an example input for our prediction API.

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