ML model deployment using Docker container

Preeti AI · Follow
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Deploying a machine learning model on Docker is a common practice to ensure that your model runs consistently across different environments. Docker containers package your application and its dependencies into a single unit that can be easily deployed and run on various platforms. Here's a step-by-step guide on how to deploy a machine learning model on Docker:

1. Set Up Your Environment:

Before you begin, make sure you have the following installed on your machine:

- *Docker: You can download and install Docker from the official website (https://www.docker.com/get-started).*

2. Create a Directory for Your Project:

Create a directory for your project and navigate to it using your terminal or command prompt.

mkdir my_ml_model
cd my_ml_model

3. Prepare Your Model Code:

Put your machine learning model code and any necessary files (trained model weights, data preprocessing scripts, etc.) into this directory. Ensure that all dependencies are properly listed in a requirements.txt or similar file.

4. Create a Dockerfile:

Create a file called `Dockerfile` *(without any file extension) in your project directory. This file contains instructions on how to build your Docker image. Here's a simple example of a Dockerfile for a Python-based ML model:*

```
# Use an official Python runtime as a parent image
FROM python:3.8-slim

# Set the working directory to /app
WORKDIR /app

# Copy the current directory contents into the container at /app
COPY . /app

# Install any needed packages specified in requirements.txt
RUN pip install — trusted-host pypi.python.org -r requirements.txt

# Make port 80 available to the world outside this container
EXPOSE 80

# Define environment variable
ENV NAME World
```

 # Run app.py when the container launches
CMD [“python”, “your_model_script.py”]

Replace `your_model_script.py` with the actual name of your model deployment script.

5. Build the Docker Image:

Open your terminal or command prompt, navigate to the project directory, and run the following command to build your Docker image:

docker build -t my-ml-model .

This command tells Docker to build an image named `my-ml-model` using the current directory (denoted by `.`) as the build context.

6. Run a Docker Container:

Once the image is built successfully, you can run a Docker container based on this image:

docker run -p 4000:80 my-ml-model

This command maps port 4000 on your host machine to port 80 in the Docker container. Adjust the port numbers as needed.

7. Access Your Model API:

Your model should now be accessible via HTTP at `http://localhost:4000` (or the port you specified in the `docker run` command). You can send requests to this URL to make predictions or perform inference using your model.

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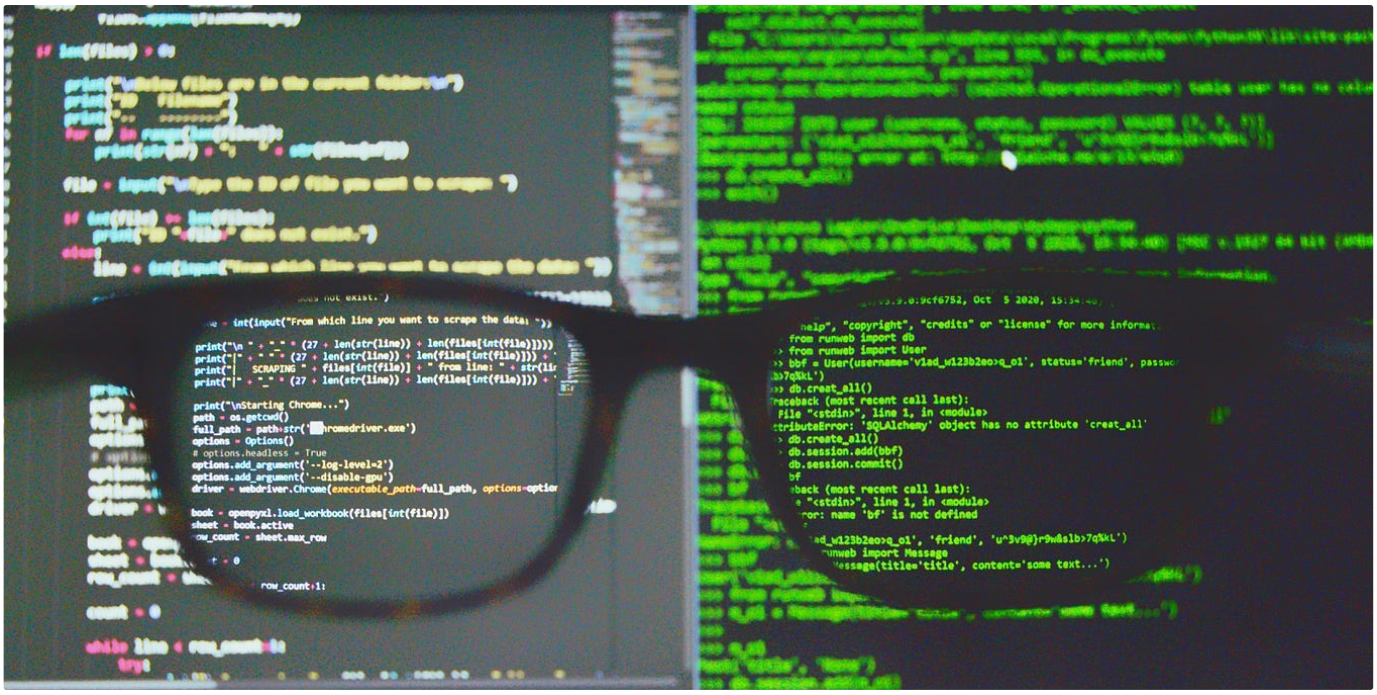

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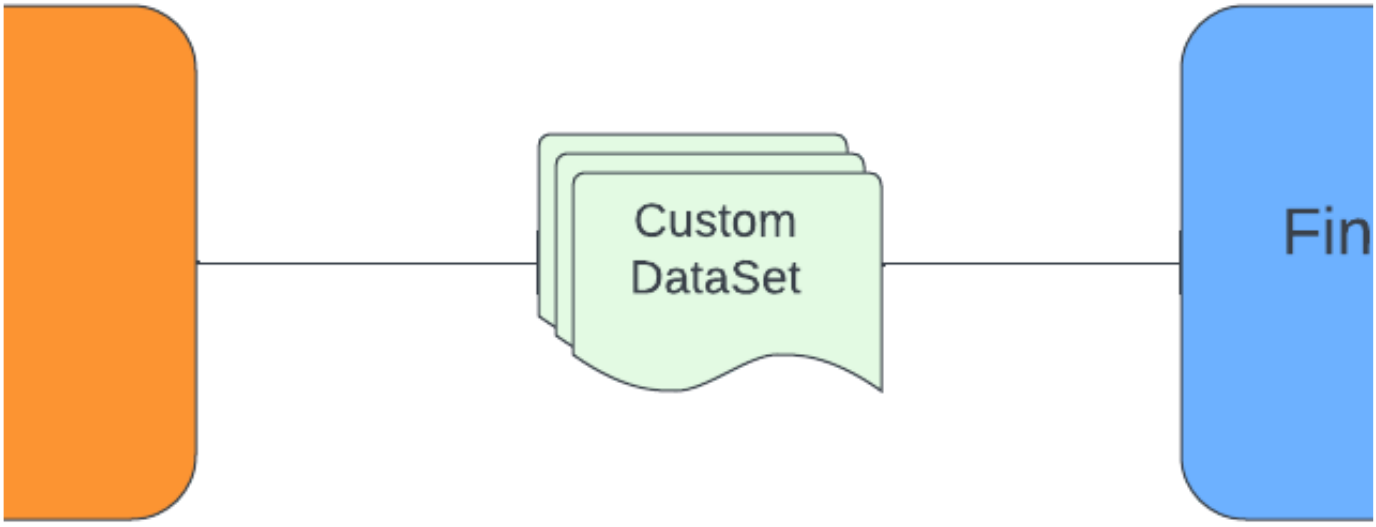

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