

MLOps Notes

Baby Meow

Invalid Date

Session Information

Date: 2nd January 2025

Topic: MLOps

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What is MLOps?

MLOps (Machine Learning Operations) combines: - Machine Learning - Software Engineering - DevOps

Goal: **Build, deploy, monitor, and maintain ML models in production**

Technologies Used

- **FastAPI** – backend API framework
- **PostgreSQL** – database
- **Docker & Docker Compose** – containerization
- **Cloud Deployment** – hosting the system
- **Domain & SSL** – production readiness

Project Structure (Docker-based)

```
my-ml-project/
  frontend/
    index.html
    Dockerfile

  backend/
    main.py
    model.py
    requirements.txt
    Dockerfile

  docker-compose.yml
  .env
```

Cloud deployment

clone : HTTPS VS SSH - https use github to clone it very easy but SSH for private work.
After deploy we get the domain server http://197.168.0.0 for test system How to by domain?

- **Technology**

- Domain registrar (Hostinger/Namecheap)
- Cloudflare for ssl
- after buy production url: https://catdog.com
- debit card

Next week:

- update progress, choose model, setup, testing with rout or web not use jupyter notebook and requirements:
- ML model - API Backend - Database - Frontend

what is Docker ?

- python must be the same version ex: 3.12.1 if not will have conflicts.
- Solved: use **Docker**: when run multiple file
 - handle conflict such as programming version ...

Using Docker we have App A(python), B(frontend), C(backend) - Container

- container: store multiple files like clean.py preprocess.py

Docker File -> Docker Image -> Docker Container(server) ->
fabric clothes shirt/...

Docker file

```
FROM python: 3.12.1 WORKDOR /app # set working directory COPY requirements.txt  
RUN pip install -r requirement.txt COPY EXPOSE 8000 CMD[“python”, “main.py”] # run  
your application
```

What is Docker Container? like **What is docker-compose.yml** for run(diliver) all docker container