

qaysi joylarda muammolar chiqgani uni qanday hal qilganim haqida ham yozib ber md qilib

Albatta! Men siz uchun **FastAPI + Gradio + Docker + AWS EC2 + ECR** loyihasini **Markdown** shaklida ketma-ket yozib, qayerlarda muammo chiqdi va uni qanday hal qilganingizni ham qo'shaman.

Hotel Booking Cancellation Prediction - Deployment Steps

1 LOKAL: FastAPI + Gradio Loyihasini Tayyorlash

Loyiha tuzilishi:

```
Hotel-Booking-Prediction/
├── app/
│   ├── __init__.py
│   └── main.py
├── Models/
│   └── Advanced/
│       └── Stacking_Classifier_best_model.joblib
└── requirements.txt
└── Dockerfile
```

requirements.txt [local]:

```
fastapi uvicorn pandas scikit-learn gradio joblib
```

app/main.py [local]:

```
import joblib import pandas as pd import gradio as gr MODEL_PATH =
r"../Models/Advanced/Stacking_Classifier_best_model.joblib" pipeline =
joblib.load(MODEL_PATH) def predict(...): # function body ...
```

Dockerfile [local]:

```
FROM python:3.11-slim WORKDIR /app COPY requirements.txt . RUN pip install --
no-cache-dir -r requirements.txt COPY app ./app COPY Models ./Models CMD
```

```
[ "uvicorn", "app.main:app", "--host", "0.0.0.0", "--port", "8000"]
```

Muammo va yechimlar:

- [Muammo] Model yo'q: ✗ Failed to load model
- [Yechim] Models papkasini Docker image ichiga COPY Models ./Models deb qo'shish

2 LOKAL: Docker Image Yaratish

```
docker build -t hotel-booking-cancel:latest . docker images
```

Muammo va yechimlar:

- [Muammo] Dockerfile topilmadi: failed to read dockerfile: no such file or directory
- [Yechim] cd qilib Dockerfile joylashgan papkaga o'tdim va build qilindi

3 LOKAL: Docker Container Run

```
docker run -d \ --name hotel-api \ --restart unless-stopped \ -p 8000:8000 \ hotel-booking-cancel:latest
```

- Tekshirish: docker ps
- Browser: http://localhost:8000

Muammo va yechimlar:

- [Muammo] Port conflict: Bind for 0.0.0.0:8000 failed
- [Yechim] Avvalgi container docker ps -a bilan topib, docker stop va docker rm qilindi

4 AWS EC2: Tayyorlash

1. EC2 instance (Amazon Linux 2023, t3.micro) yaratildi
2. Security Group: 22 (SSH), 8000 (HTTP) portlar ochiq bo'lди
3. Key pair .pem saqlandi

5 AWS EC2: SSH Ulanish [local → AWS]

```
chmod 400 ~/Desktop/new_key_pairs.pem ssh -i ~/Desktop/new_key_pairs.pem ec2-user@13.204.47.155
```

Muammo va yechimlar:

- [Muammo] Permission denied (publickey):
 - [Yechim] To'g'ri key pair ishlatildi (new_key_pairs.pem)
 - chmod 400 qo'llandi

6 AWS EC2: Docker O'rnatish va Ishga Tushirish [AWS]

```
sudo systemctl enable docker sudo systemctl start docker sudo usermod -aG docker ec2-user newgrp docker docker --version docker run hello-world
```

7 AWS EC2: Loyiha Fayllarini Ko'chirish [local → AWS]

```
scp -i ~/Desktop/new_key_pairs.pem -r ~/Desktop/Hotel\ Booking\ Cancellation\ Prediction ec2-user@13.204.47.155:~/hotel_app
```

Muammo va yechimlar:

- [Muammo] .pem yo'q yoki noto'g'ri yo'l: Identity file not accessible
- [Yechim] To'g'ri path (C:/Users/...) ishlatildi, Windows-da /c/Users/... formatda ham bo'ladi

8 AWS EC2: Docker Image Build [AWS]

```
cd ~/hotel_app docker build -t hotel-booking-cancel:latest . docker images
```

Muammo va yechimlar:

- [Muammo] Model yo'q: Failed to load model
- [Yechim] Models papkasi COPY Models ./Models bilan Dockerfile ichida qo'shildi

9 AWS ECR: Repository Yaratish va Login [AWS]

```
aws ecr create-repository \ --repository-name hotel-booking-cancel \ --region ap-south-1 aws ecr get-login-password --region ap-south-1 | \ docker login --username AWS --password-stdin 221671810317.dkr.ecr.ap-south-1.amazonaws.com
```

10 AWS EC2: Docker Image Tag va Push [AWS]

```
docker tag hotel-booking-cancel:latest 221671810317.dkr.ecr.ap-south-1.amazonaws.com/hotel-booking-cancel:latest docker push 221671810317.dkr.ecr.ap-south-1.amazonaws.com/hotel-booking-cancel:latest
```

Muammo va yechimlar:

- [Muammo] Push access denied: authorization failed
- [Yechim] AWS CLI login docker login orqali to'g'ri qilindi
- [Muammo] Image tag mavjud emas: An image does not exist locally with the tag
- [Yechim] Docker image localda mavjudligi va tag tekshirildi, to'g'ri tag ishlatildi

11 AWS EC2: Docker Container Run [AWS]

1 Avvalgi container bo'lса, то'xtatish va o'chirish:

```
docker stop hotel-api docker rm hotel-api
```

2 Yangi container run:

```
docker run -d \ --name hotel-api \ --restart unless-stopped \ -p 8000:8000 \ 221671810317.dkr.ecr.ap-south-1.amazonaws.com/hotel-booking-cancel:latest \ uvicorn app.main:app --host 0.0.0.0 --port 8000
```

3 Tekshirish:

```
docker ps
```

- PORTS qatorida 0.0.0.0:8000->8000/tcp bo'lishi kerak
- Browser: http://13.204.47.155:8000

Muammo va yechimlar:

- [Muammo] Port conflict: port is already allocated
 - [Yechim] Avvalgi container docker stop va docker rm qilindi
-

✓ Natija

1. FastAPI + Gradio app localda test qilindi
2. Docker image yaratildi va EC2ga yuklandi
3. AWS ECR'da repository yaratildi, image push qilindi
4. EC2'da container run bo'ldi, port 8000 orqali kirish mumkin

Link: <http://13.204.47.155:8000>

Agar xohlasa, men buni **bitta "press-and-go"** skript qilib yozib beraman, **copy-paste** qilasiz va hamma jarayon EC2'da avtomatik ishlaydi.

Shuni qilaylikmi?