

qaysi joylarda muammolar chiqqani 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'ldi
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'lsa, to'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`

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

Shuni qilaylikmi?