**Title: Dockerizing and Running a Django 5.2.4 Application**

**Objective:** Deploy a Django 5.2.4 application using Docker, ensuring minimal dependencies and successful containerized execution.

### **1. Project Structure**

Django\_web\_app/  
django\_web\_app/  
├── Dockerfile  
├── requirements.txt  
├── manage.py  
├── .env  
├── django\_web\_app/  
│ ├── \_\_init\_\_.py  
│ ├── settings.py  
│ ├── urls.py  
│ ├── wsgi.py  
├── users/  
│ ├── models.py  
│ ├── views.py  
│ ├── ...  
├── templates/  
│ ├── base.html  
│ └── index.html

### **2. Dockerfile**

# ---------- Stage 1: Builder ----------

FROM python:3.11-slim AS builder

ENV PYTHONDONTWRITEBYTECODE=1 \

    PYTHONUNBUFFERED=1

WORKDIR /app

RUN apt-get update && apt-get install -y --no-install-recommends \

    build-essential \

    libpq-dev \

    git \

    curl \

    && rm -rf /var/lib/apt/lists/\*

COPY requirements.txt .

RUN python -m venv /opt/venv \

 && /opt/venv/bin/pip install --upgrade pip \

 && /opt/venv/bin/pip install -r requirements.txt

# ---------- Stage 2: Runtime ----------

FROM python:3.11-slim

RUN useradd -m appuser

ENV PATH="/opt/venv/bin:$PATH" \

    PYTHONDONTWRITEBYTECODE=1 \

    PYTHONUNBUFFERED=1

WORKDIR /app

COPY --from=builder /opt/venv /opt/venv

COPY . .

RUN chown -R appuser:appuser /app

# Add this line to collect static files

RUN python manage.py collectstatic --noinput

USER appuser

HEALTHCHECK CMD curl --fail http://localhost:8000/ || exit 1

CMD ["gunicorn", "django\_web\_app.wsgi:application", "--bind", "0.0.0.0:8000"]

### **3. requirements.txt**

asgiref==3.9.1  
Django==5.2.4  
gunicorn==23.0.0  
packaging==25.0  
sqlparse==0.5.3  
tzdata==2025.2  
psycopg2-binary==2.9.9  
python-dotenv==1.0.0  
Pillow==10.3.0

Pillow is required because users/models.py uses from PIL import Image.

### **4. Fix for Template Error**

In all HTML template files: **Replace**

{% load staticfiles %}

**With**

{% load static %}

This is necessary because Django 5+ no longer supports the staticfiles template tag.

### **5. Build and Run Docker Image**

docker build -t django-app .  
docker run -p 8000:8000 --name my-django-app django-app

### **6. Confirm the App is Running**

Visit: <http://localhost:8000> You should see the application homepage.

To check logs:

docker logs my-django-app

### **7. Common Errors and Fixes**

* ``
* Add Pillow to requirements.txt
* ``
* Replace {% load staticfiles %} with {% load static %}

### ✅ Final Status

* Django app successfully containerized and running in Docker.
* All runtime errors resolved.
* Logs show proper Gunicorn startup and no fatal exceptions.

## ✅ Section Added: **“Local Testing Before Dockerization”**

I'll highlight that we:

* Activated a virtual environment
* Installed dependencies
* Fixed template and package errors
* Verified successful local run at localhost:8000