■ Deployment Notes – Spring Boot + MySQL with Docker Compose

1. Build & Push Docker Image

```
# Build image
docker build -t pasindu55/final-year-project:latest .

# Push to Docker Hub
docker push pasindu55/final-year-project:latest
```

2. Prepare Environment File (docker-compose.env)

```
# Application config
app.environment=local
app.base_url=http://<YOUR_VM_IP>:8080

# Database config
MYSQL_ROOT_PASSWORD=SuperSecretRoot
MYSQL_USER=appuser
MYSQL_PASSWORD=SuperSecretUser
MYSQL_DATABASE=final_project_db

# Spring Boot datasource
spring.datasource.url=jdbc:mysql://final-year-db:3306/final_project_db?createDatabaseIfNotExist=true
spring.datasource.username=appuser
spring.datasource.password=SuperSecretUser

# Mail (if needed)
SPRING_MAIL_HOST=smtp.gmail.com
SPRING_MAIL_PORT=587
SPRING_MAIL_USERNAME=yourmail@gmail.com
SPRING_MAIL_PASSWORD=yourpassword
```

3. Create docker-compose.yml

```
services:
  final-year-db:
    image: mysql:8
    container_name: final-year-db
    restart: always
    env_file:
      - ./docker-compose.env
    environment:
      MYSQL_ROOT_PASSWORD: ${MYSQL_ROOT_PASSWORD}
      MYSQL_DATABASE: ${MYSQL_DATABASE}
      MYSQL_USER: ${MYSQL_USER}
      MYSQL_PASSWORD: ${MYSQL_PASSWORD}
    ports:
      - "3306:3306"
    volumes:
      - db_data:/var/lib/mysql

  final-year-backend:
    image: pasindu55/final-year-project:latest
    container_name: final-year-backend
    restart: always
    env_file:
      - ./docker-compose.env
    ports:
      - "8080:8080"
    depends_on:
      - final-year-db

  watchtower:
    image: containrrr/watchtower
```

```
      container_name: watchtower
      restart: always
      volumes:
        - /var/run/docker.sock:/var/run/docker.sock

  volumes:
    db_data:
```

4. Run Containers in VM

```
# Remove old containers first
docker compose --env-file ./docker-compose.env down

# Build & start services
docker compose --env-file ./docker-compose.env up -d --build
```

5. Debugging Tips

```
Check logs of backend:
  docker logs -f final-year-backend

Check logs of database:
  docker logs -f final-year-db

Verify environment variables inside container:
  docker exec -it final-year-backend env
```

6. Common Errors & Fixes

```
Conflict: container name already in use
  → Run `docker compose down` before `up`.

Could not resolve placeholder
  → Missing variable in `.env` file.

Database connection refused
  → Ensure `spring.datasource.url` uses `final-year-db` (service name), not VM IP.
```