Lab 3

Title: Introduction to Deployment Tools.

Objectives:

- To understand the purpose and importance of deployment in software development.
- To get familiar with common deployment tools like **Heroku**, **Netlify**, and **Docker**.
- To deploy a simple web application using a selected deployment tool.

Theory:

Deployment tools are software solutions that help developers move applications from local development environments to production or live servers. They automate the process of building, testing, and releasing software, ensuring consistency, speed, and minimal errors.

Popular deployment tools:

- **Heroku** - PaaS for quick deployment of backend apps.
- **Netlify** - Great for frontend/static websites.
- **Docker** - Container-based deployment for consistent environments.
- **GitHub Pages** - For static sites.
- **Vercel** - Optimized for React/Next.js applications.

Procedure

Deploying with docker:

Create a Dockerfile
```
FROM python:3.9
WORKDIR /app
COPY . .
RUN pip install -r requirements.txt
CMD ["python", "app.py"]
```

Build the Docker image
docker build -t myapp .

Run the Docker container
docker run -p 5000:5000 myapp

App is now running at https://localhost:3000

Conclusion

In this lab report, we explored different deployment tools. Deployment tools simplify and standardize the process of making applications live. With platforms like Heroku and Netlify, developers can automate deployment workflows and maintain consistent performance and availability.