Flask - Exercise Sheets

# Lab 1: Introduction to Flask

* 1. Create a Flask app with 3 routes: '/', '/about', '/contact'.
* 2. Add CSS file in /static and style pages.

# Lab 2: Templates with Jinja2

* 1. Build a mini blog page showing 5 posts from a list/dictionary.
* 2. Use template inheritance for layout (header, footer).

# Lab 3: Forms & User Input

* 1. Create a contact form (name, email, message).
* 2. Show submitted values on a result page.

# Lab 4: Error Handling & Debugging

* 1. Create a custom 404.html page.
* 2. Add a forced error route ('/crash') to test error handling.

# Lab 5: Databases & SQLAlchemy

* 1. Create a User table with id, name, email.
* 2. Add routes: create, list, and delete users.

# Lab 6: User Authentication

* 1. Build a login system with hashed passwords.
* 2. Only logged-in users can access '/dashboard'.

# Lab 7: Modular Apps

* 1. Convert blog app into Blueprint structure.
* 2. Separate into auth/ (login, register) and blog/ (posts).

# Lab 8: REST API Basics

* 1. Create '/api/users' CRUD endpoints (no pagination).
* 2. Test with Postman or curl.

# Lab 9: File Uploads & JWT Auth

* 1. Upload profile picture for user.
* 2. Protect API routes with JWT.

# Lab 10: Real-Time Apps & APIs

* 1. Create a real-time chat API using SocketIO.
* 2. Allow multiple clients to join a room.

# Lab 11: Deployment & Scaling

* 1. Dockerize the blog app.
* 2. Deploy locally with Gunicorn.

# Lab 12: Final Project

* Build a Mini E-commerce Backend with Flask:
* - JWT Authentication
* - Product CRUD with Images
* - Cart & Order API
* - Swagger Docs
* - Deployment (Docker/Heroku/Render)