Docker Self Directed Learning Activity

After completing steps to install and confirm Docker is working on your machine, we will now do some hands-on activities to learn how to use Docker.

**Part 1 : Docker for Beginners**

Please visit: <https://dockerlabs.collabnix.com/>

1. Go to the “Workshops Labs (Hands-On Practical Labs)” section and click on “Docker for Beginner”
2. At minimum complete the exercises up to “Creating Private Docker Registry” which is outside the scope of this introduction.

**Part 2: Mini-Lab**

To containerize a PostgreSQL database, connect to it through pgAdmin, and containerize a Spring Boot application.

**Steps**

1. **Containerize a PostgreSQL Database:**
   * Use Docker Hub or create your own Dockerfile to containerize a PostgreSQL database.
     + Hint: Look up the postgres image on Docker Hub and review the usage instructions.
   * Run the PostgreSQL container with the appropriate command.
     + Hint: You'll need to set the POSTGRES\_PASSWORD environment variable.
2. **Connect to PostgreSQL via pgAdmin:**
   * Pull the pgAdmin image from Docker Hub.
     + Hint: Look up the dpage/pgadmin4 image on Docker Hub.
   * Run the pgAdmin container and configure it to connect to your PostgreSQL container.
     + Hint: You'll need to set PGADMIN\_DEFAULT\_EMAIL and PGADMIN\_DEFAULT\_PASSWORD environment variables, and ensure the pgAdmin container can communicate with the PostgreSQL container.
3. **Containerize a Spring Boot Application:**
   * Look up how to write a Dockerfile for a Spring Boot application.
     + Hint: Search for examples of Dockerfiles for Spring Boot applications. Focus on using an OpenJDK base image and copying your JAR file into the container.
   * Build and run your Docker image.
     + Hint: Use the docker build and docker run commands to build your image from the Dockerfile and run it.
4. **Test the Spring Boot Application:**
   * Verify that your Spring Boot application is running by sending a request to http://localhost:8080.