Appendix E

Running Instructions

E.1 Database Configuration

- Install PostgreSQL 16 from: `https://www.postgresql.org/download/`
- Launch pgAdmin, which is a graphical tool for managing PostgreSQL databases and is included with most PostgreSQL installations
- Right click on databases under PostgreSQL 16 to bring up a pop-up menu. Then click on Create –> Database... (Figure E.1)

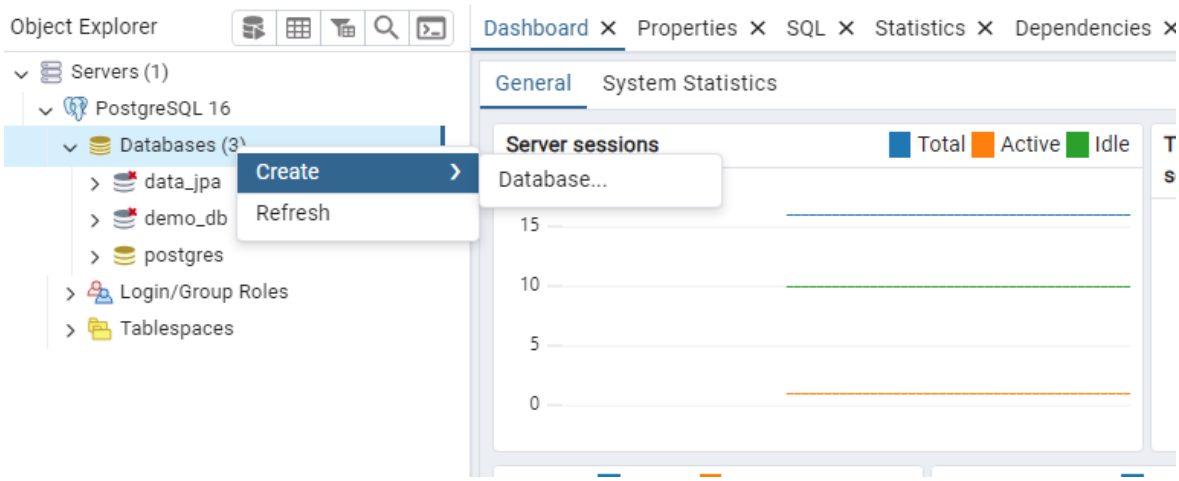

Figure E.1: PgAdmin Database Creation

- Enter the database name and save (Figure E.2)

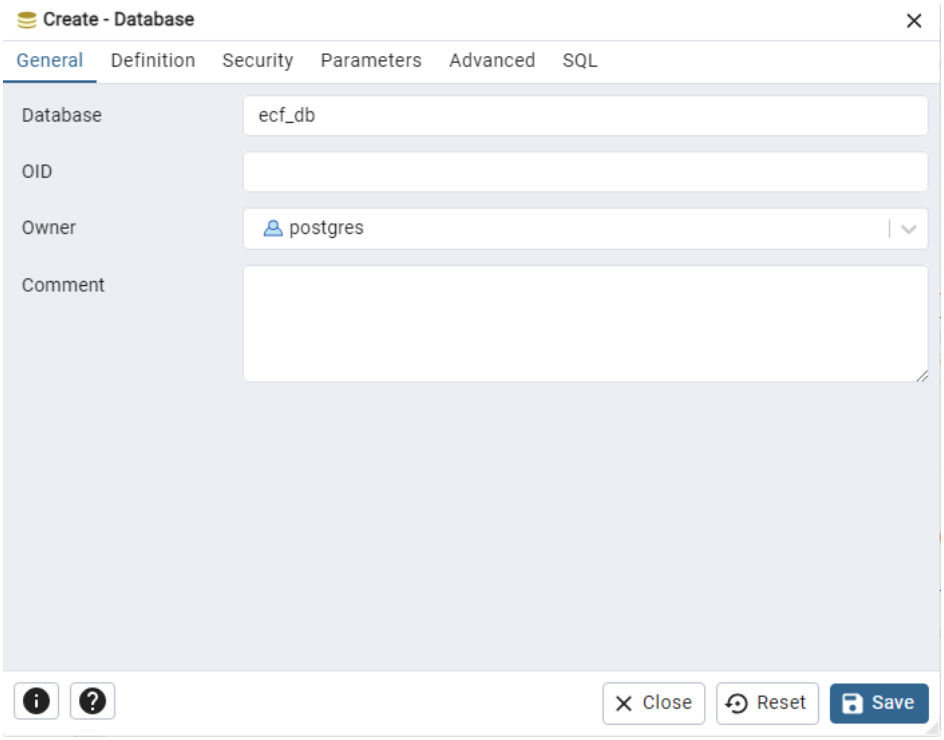

Figure E.2: PgAdmin Database Name

- Modify the properties of the `backend/src/main/resources/application.yml` file which are shown in Figure E.3 to specify the URL of the newly created database, along with the username and password of a user who is allowed to access the database.

```
datasource:
  url: jdbc:postgresql://localhost:5432/ecf_db
  username: postgres
  password: pass
```

Figure E.3: Database Properties

E.2 Running the Spring Boot Application

After configuring the database, perform the following steps:

- Download Java 17 from: `https://www.oracle.com/java/technologies/javase/jdk17-archive-downloads.html`
- Navigate to the `backend` folder
- Ensure port 8080 is free on the machine that is used
- Run:
  - **For Windows**: `mvnw.cmd spring-boot:run`
  - **For macOS/Linux**: `./mvnw spring-boot:run` (might need to make script executable first with: `chmod +x mvnw`)

NOTE: When the Spring Boot application is first run, two database migration scripts will automatically be executed in order to initialise the database schema and insert data into the database (many of which are crucial like the admin user, roles etc.). If this process is interrupted for any reason, the application will fail. In that case, all database tables and sequences should be manually dropped and the Spring Boot application should be run again to execute the migration scripts from the beginning.

It should also be noted that the names of the users that are inserted into the database are generic names used for demonstration and easier debugging. For instance, the user with the name: *Student A (Dept.1)* indicates that it is a student user whose home department has ID 1.

E.3 Running the React Application and Signing In

After running the Spring Boot application, perform the following steps:

- Download Node.js from: `https://nodejs.org/en`
- Navigate to the `frontend` folder
- Run: `npm install`
- Ensure port 5173 is free on the machine that is used
- Run: `npm run dev`
- Use any browser to access: `http://localhost:5173/`

Table E.1 lists all users that are inserted when the database migration scripts are first run, and can be used to sign in.

All of the below users have the same password: ***pass123***

Email	Role	Department
tmeras@yahoo.gr	Student	Mechanical Engineering
tmeras1@sheffield.ac.uk	Student	Mechanical Engineering
student3@gmail.com	Student	Computer Science
clstaff1@gmail.com	Clerical Staff	Mechanical Engineering
clstaff2@gmail.com	Clerical Staff	Computer Science
acstaff1@gmail.com	Academic Staff	Mechanical Engineering
acstaff2@gmail.com	Academic Staff	Mechanical Engineering
acstaff3@gmail.com	Academic Staff	Mechanical Engineering
acstaff4@gmail.com	Academic Staff	Computer Science
acstaff5@gmail.com	Academic Staff	Computer Science
acstaff6@gmail.com	Academic Staff	Computer Science
admin@gmail.com	Administrator	Mechanical Engineering

Table E.1: Preexisting System Users

E.4 Running Tests with Coverage

- Navigate to the `backend` folder
- Run:
  - **For Windows**: `mvnw.cmd clean test`
  - **For macOS/Linux**: `./mvnw clean test` (might need to make script executable first with: `chmod +x mvnw`)
- The coverage report can be viewed by opening `backend/target/site/jacoco/index.html` in a browser

NOTE: The coverage report generated using the above steps has a different appearance and slightly different coverage values than the report included in section 6.1. This is because the above steps use the Jacoco library to generate the report, whereas section 6.1 shows the report generated using IntelliJ's coverage tools. The Intelij report was preferred for section 6.1 because the author found its coverage breakdown more comprehensive and readable.