TechProAcademy

Full-Stack Stream

Semester Project Description

Student Attendance Management System

Description

Develop a web-based backend system that allows managing students, courses, and attendance records via RESTful endpoints. It is ideal for demonstrating Java syntax, REST API implementation, and deployment via Tomcat. *No database is needed as everything will be in memory*. A typical approach (and suggestion) is to use/develop the bellow described entities and endpoints. You may also use the proposed folder structure. You may use also a simple frontend (form.js or/and index.html)

*Note: **Do not use** Maven, Gradle or any other handle dependency framework*

Deliverable

Source code (preferably at GitHub), fully documented (Readme.md + Inline source documentation)

Entities

Student

- ID
- Full Name
- Email
- Registered Courses (List of Course IDs)

Course

- ID
- Name
- Instructor

AttendanceRecord

- ID
- Student ID
- Course ID

- Date
- Present (Boolean)

REST API Endpoints:

Student Endpoints

- `GET /students` — List all students
- `POST /students` — Add a new student
- `GET /students/{id}` — Get student by ID
- `PUT /students/{id}` — Update student
- `DELETE /students/{id}` — Delete student

Course Endpoints

- `GET /coures`
- `POST /courses`

Attendance Endpoints

- `GET /attendance?studentId=1&courseId=2` — Get attendance
- `POST /attendance` — Record new attendance
- `PUT /attendance/{id}` — Update attendance
- `DELETE /attendance/{id}` — Remove record

Technologies Used

- Java SE (Core)
- Java EE / Jakarta EE (for REST using JAX-RS)
- Apache Tomcat (server deployment – local deployment)

Folder Structure

StudentAttendanceSystem/

├── src/

| └── com/example/

| ├── model/

| | ├── Student.java

| | ├── Course.java

| | └── AttendanceRecord.java

| ├── storage/

```
|      |     └── DataStore.java
|      └── servlet/
|           ├── StudentServlet.java
|           ├── CourseServlet.java
|           └── AttendanceServlet.java
├── WebContent/
|     ├── index.html
|     └── form.js
├── WEB-INF/
|     └── web.xml
```