Internet Multimedia Engineering

Exam

Cloud and Network Programming

Alex Carrega – *alessandro.carrega@unige.it*

25th June 2025

Problem

You have to implement an **weather report** of different **cities**. This report has to be managed through a user Representational State Transfer (REST) Application Programming Interface (API). In more details, it is necessary to define:

- an **entity** to represent the **city**;

- an **entity** to represent the **report**.

In particular, in each **city** must be present the following data:

- **name** (indicate the name of the city);

- **latitude**;

- **longitude**;

- **country**.

Instead, in each **report** must be present the following data:

- **id**;

- **description**;

- **unit**.

You have to implement the **report history** of the **city**. In more details, you have to specify the **period of date** (**start**, **end**) of a **specific report** with the **relative measure**.

> **Important**
>
> - **Only** the **user with admin role** can **create**, **updated** and **delete ALL the cities and reports**.
> - **Basic user** can **create**, **update**, **delete only created cities** and **reports**.

For **each question** the following **bonus** are applied:

0.50 **points** if the **code** is **correctly indented**;

1.00 **points** if the **variable names** are **related to the context** (it is more **simple** the **understanding** of the **code**):

> **Examples**
>
> - If I have to **refer to the book entity model**, the **correct name** can be `book`, `books`, etc. and **not** `entity_1`, `entity_a`, or `entityA`;
> - If I have to **refer to the book - customer relationship model**, the **correct name** can be `BookCustomer`, `book_customer`, etc. and **not** `relationship_1`, `relationship_a`, or `relationshipA`;

0.50 **points** if the **variable** and **function names** are written in **english** (**de-facto standard** in the **programming**);

0.75 **points** if the **code** is well **commented** in **english** (**improves** the **understanding** of the **code**).

9 Points 1. **Creation**, **update**, **deletion** of a **city**.

9 Points 2. **Creation**, **update**, **deletion** of a **report**.

9 Points 3. **Creation**, **update**, **deletion** of the **report history** of the **city**.

9 Points 4. Add a **standard authorization mechanism** to all the functions defined in the REST APIs.

9 Points 5. Additional **entity** for the **city's country** with **relative relationship** to the **cities** and the needed operations using the REST API.

Extra

> **Tips**
>
> - `poetry` (https://python-poetry.org) is valid tool to **manage** `python` **environment** and **avoid possible problems** with **package dependencies**.
> - **Guide**: https://realpython.com/dependency-management-python-poetry.

Instructions for Delivery

- **Zip your files** (zip type - not rar, 7zip, etc.).

- **Rename** the **zip file** with the **following syntax**: *your-id-number-surname_name*.zip (all letters in lowercase).

- Option **A** (*highly recommended*)

  - Go the URL of this teaching in **Aulaweb**: `https://2024.aulaweb.unige.it/course/view.php?id=3128`.

  - Enter to the assignment **2025-06-25 [25th June 2025]** and upload the file.

- Option **B**

  - **Send** an **email** to **alessandro.carrega@unige.it** with **subject** "**Exam 2025-06-25** *your-id-number*", **your zip file** as **attachment**, and **no text**.

- Option **C**

  - **Send your zip file** as **attachment** in the **chat** with **alessandro.carrega@unige.it** of **Microsoft Teams channel** of **Cloud and Network Programming - 104779** class.