

Internet Multimedia Engineering

EXAM

Cloud and Network Programming

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Test Validation

Problem

You have to implement an **archive** of the **football teams** and relative **matches**. This archive 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 **teams**;
- an **entity** to represent the **matches**.

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

- **name** (indicate the name of the team);
- **year of foundation**;
- **city**.

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

- **home team**;
- **away team**;
- **event date**;
- **home team goal** (**optional**, can be *null* when the match is not yet played)
- **away team goal** (**optional**, can be *null* when the match is not yet played)

Important

- **Only the user with admin role can create, updated and delete ALL the teams and matches.**
- **Basic user can create, update, delete only created teams and matches.**

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 team.

9 Points

2. Creation, update, deletion of a match.

9 Points

3. Add a **standard authorization mechanism** to all the functions defined in the REST APIs.

9 Points

4. Statistics of a team (number of won, draw, lost matches).

9 Points

5. Statistics of a player (number of won, draw, lost matches).

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 (only **directory** and **python scripts** with extension **.py**).
- **Rename** the **zip file** with the **following syntax**: *your-id-number-surname_name.zip*.

- Option **A** (*highly recommended*)
 - Go the URL of this teaching in **Aulaweb**: .
 - Enter to the assignment **2025-XX-XX [XXh XX 2025]** and upload the file.
- Option **B**
 - Send an **email** to **alessandro.carrega@unige.it** with subject “**Exam 2025-XX-XX** *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 Internet Programming - 104779** class.