Université Gustave Eiffel
Academic year 2025-2026
Course: Web Services

Université Gustave Eiffel

RESTful Web Services Project

Instructions:

- **Projects are to be carried out in groups of three students**
- **Projects are due on Monday 05 January 2026**
- **The demonstrations will take place, by group, on Wednesday 07 January 2026**
- **The demonstration will be on a laptop that you will bring with you**
- Each demonstration will last approximately 15 minutes.
- *To be sent (programme + report) by email to hassan.idoudi@*vedecom.fr
- Please use a *cloud* to send the documents (Google Drive, Dropbox, Github, etc.), so as not to saturate the e-mail box.

Eiffel Bike Corp offers a bike rental service between students and employees of the Gustave Eiffel University. You will be responsible for the design and implementation of a distributed Java application for managing this service, **based on the Java RS**. The rented bikes can be offered by *Eiffel Bike Corp* but also by all students and employees of the university. They can add notes on the bikes they have rented and their condition on return.

When a person requests to rent a particular bike and it is not available, he or she is put on a waiting list; as soon as the requested bike becomes available, the person is notified and rents the bike. If there are several people on the waiting list, the "first come, first served" principle is applied.

In a second phase, *Eiffel Bike Corp.* wants to open up its bikes to the outside world, enriched by the notes and comments of students and employees, and make them accessible to the outside world via a **web service** called *GustaveBikeService*. It offers for sale the bikes that have been rented at least once within *Eiffel Bike Corp.* The web service allows you to view the prices of the bikes, check their availability, add them to a basket and purchase them. To make a purchase on the web service, another web service Bank is contacted by *GustaveBikeService* to check the availability of funds for the purchase and make the payment. The prices of the bikes are in Euros, but *GustaveBikeService* allows sales in any currency in the world, and must provide the prices in the currency requested by the buyer. The exchange rates used must be found in real time[1] .

Work to be done:

2. Implement the applications and web services you deem necessary.
3. Provide a basic scenario, with a number of bikes, employees and clients to run the applications with minimal user intervention.
4. Implement a graphical interface for students and employees to rent bicycles for demonstration purposes.
5. Implement a graphical interface for the *GustaveBikeService* customer, allowing him to create a basket, validate it and pay, is also a plus.

Deliverables:

1. The project source codes (in an archive, named after the students)
2. A report explaining the design choices, the difficulties encountered and a user manual for the application. Special attention will be paid to the quality of the report.

Any enrichment of the project, not requested in this statement, will be awarded additional points.

[1] If you cannot find a working web service, create your own (static) currency converter web service.