



**Computer Engineering Department**  
**Computer Networks 2 (10636455)**  
**Project: HTTP Connection**  
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**Description:**

You are asked to develop a Java Web Client and multiple Server-side applications (PHP server and Servlet) to implement a basic Database system of an Inventory System (نظام مستودع).

The assignment has two parts:

- Part 1.** You will develop a **Java Client application** that connects to servers by using HTTP protocol.
- Part 2.** You will develop two **server-side applications** by using different programming languages (PHP Server and Servlet). Both applications will have the same functionalities, which is receiving HTTP requests from Java client and respond with corresponding HTTP response.

**Part 1 (Java Client):**

In this part, you are required to develop a Java application as a Portal for employees to manage the Inventory System.

The following functionalities should be available:

1. **Login** (Employee ID, Password): Authorized employees have permissions to access the system. The service will be denied by the server if this information is not validated at the beginning of the connection. When the employee logs in successfully, the server should send the last access time of this employee.
2. **Show All Products in Inventory**: The information sent by the server (see part 2) should be elegantly shown in the portal (by using a table for example).
3. **Show Information about a Product**: The employee should send a Product ID (by the use of a text field) to the server and receive its information. If the product ID is invalid (or not found), an error message should be displayed to the employee.
4. **Insert #Items of a Specific Product into Inventory**: The Inventory can be modified by sending a ProductID and a number of items to be inserted (non-negative number) and the amount in the server should be modified accordingly.

5. **Withdraw #Items of a Specific Product from Inventory:** The Inventory can be modified by sending a ProductID and a number of items to be withdrawn (non-negative number) and the amount in the server should be modified accordingly.

**Notes:**

- The information about each product includes its price/item. The employee should be able to show the prices in two currencies (USD and EUR) by using a **live currency API**.
- Use a dropdown to select the server to which you want to connect (PHP or Servlet), a dropdown to select the method to use for the HTTP request (POST or GET), a textbox for EmployeeID and a textbox for Password and a CONNECT button.
- For each of the above-mentioned functionalities, use Textboxes to enter values (if required) and a SEND button.
- Take care of the GUI of your application.

**Part 2 (Server Side):**

In this part, you are required to develop 2 servers applications as the server side of the Inventory System. The server receives HTTP requests from the java client application and responds with corresponding responses.

- The server should be implemented in 2 programming languages: **PHP server** and **Servlet**.
- The server needs a small database to store information about employees and Products. You need one database (use MySQL).
- Fill the database with few number of entries (authorized employees and Products)
  - Employees: ID and Password and Last Access time (connect time to the server).
  - Products: ID, Name, Amount (#items in the inventory), Price/item (in USD).
  - Assume the default value of the #items per each product is 100 items.