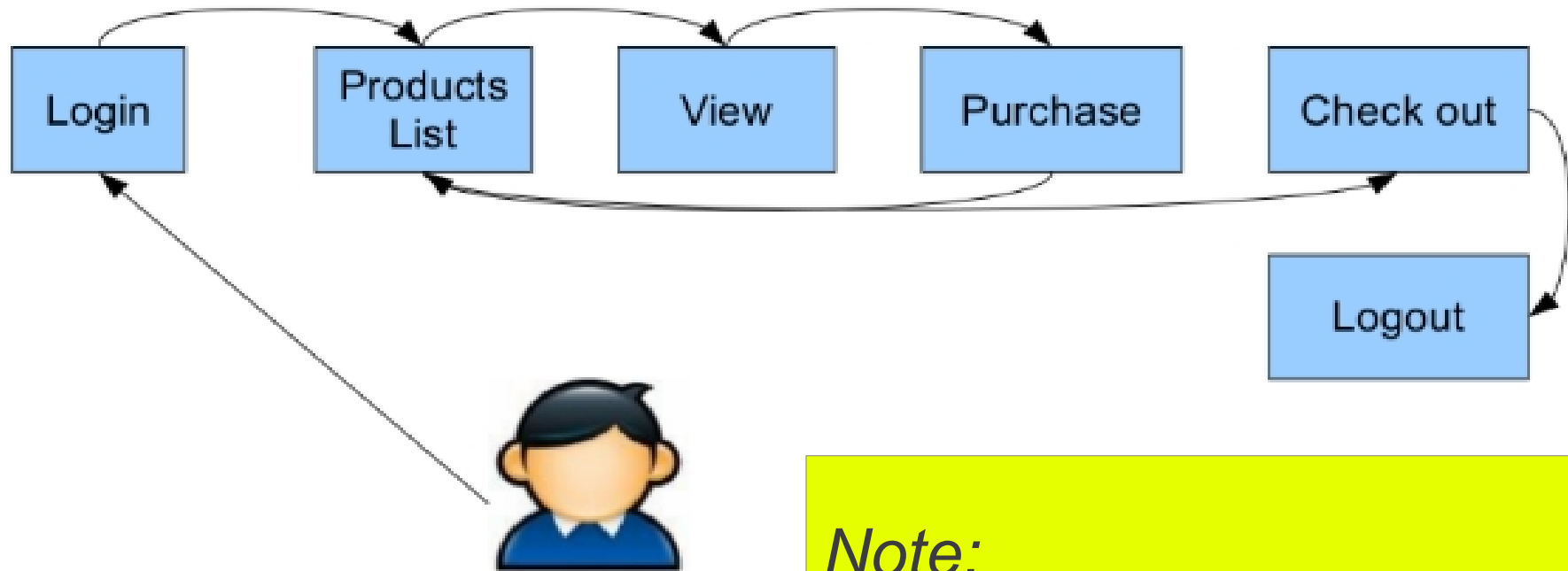**CMSC 100** *Web Programming*

DATA:
Sources and Formats

Objectives

At the end of the class, we should be able to:
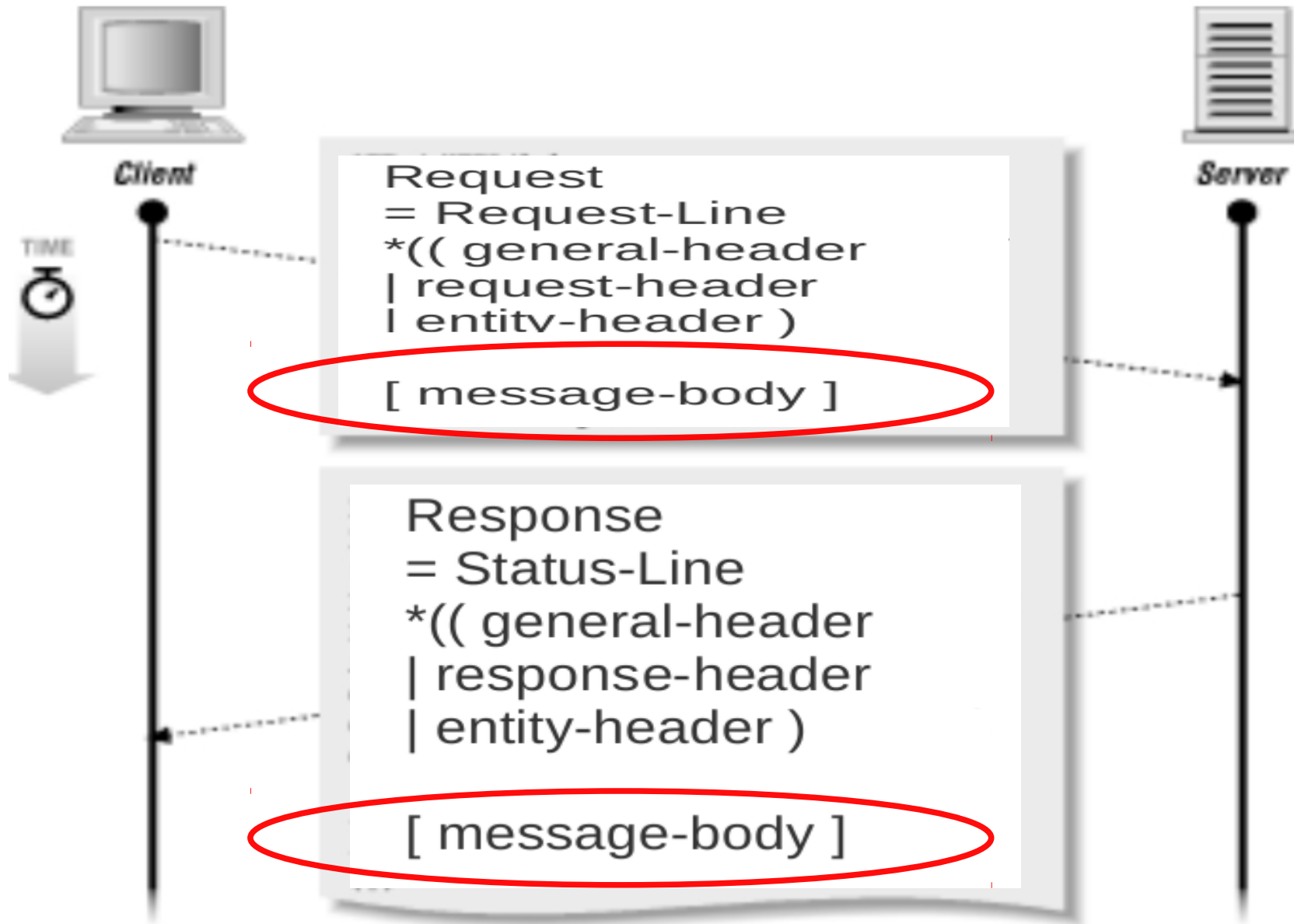
- Discuss how data is represented in web applications

Recall: Sessions on Web App

Login → Products List → View → Purchase → Check out → Logout

Note:
User data is handled throughout

Review re: HTTP Web Interaction

Client

TIME

Server

Request
= Request-Line
*((general-header
| request-header
| entity-header)

[message-body]

Response
= Status-Line
*((general-header
| response-header
| entity-header)

[message-body]

Common Data Sources

HTML Form

http://www.example.com/news.php?article=27781

URL Query String

```
xhr.open(form.method, form.action, true);
xhr.setRequestHeader('Content-Type', 'application/json; charset=UTF-8');

// send the collected data as JSON
xhr.send(JSON.stringify(data));
```

Client-Side Code

Usual Data Formats

- **HTML and URL Query Strings**

> username=juan+dela+cruz&usercomment=hi

- **Code**

HTML Form/URL String Data

- **Plain PHP**

  $_GET["dataName"]
  $_POST["dataName"]

- **Java: JSP**

  request.getParameter("dataName")

- **Java: Using Form Bean**

  public class FormBean {
    private String dataName;
  ...

XML

- Extensible Mark-up Language

  - Defines a format for data

  - Uses Tags:
    ```
    <userInfo>
     <username>Juan Dela Cruz</username>
     <usercomment>hi<usercomment>
    </userInfo>
    ```

JSON

- JavaScript Object Notation

    – an open standard format using human-readable text to transmit data objects consisting of attribute–value pairs.

    – used primarily to transmit data between a server and web application as an alternative to XML

JSON

```json
{
    "name": "Product",
    "properties": {
        "name": {
            "type": "string",
            "description": "Name of the product",
            "required": true
        },
        "price": {
            "type": "number",
            "minimum": 0,
            "required": true
        }
    }
}
```

JSON vs XML

- JSON is simpler: structure and opening/closing tags of XML just take up valuable space and processing time in an HTTP request and response.

- With JSON, you are limited to only storing classical data like text and numbers. However, XML allows you to store any data type you can come up with.

Quiz