



OBJECT ORIENTED PROGRAMMING II (ADVANCED JAVA)

420-P33-SU

Cookies

Definition

- Cookie information is saved on the Client system in a text file.
- Cookies can only be retrieved from one domain at a time for security reasons. Each cookie is linked to a domain name or a set of URLs.
- Cookies are founded on HTTP principles.
- Cookies can be retrieved from the header of a request.
- Cookies are composed of a set of key-value pairs in a text file managed by the client's browser. Both key and value are of type String.
- A client can store a maximum of 300 cookies, with 20 being the maximum for an individual domain or set of URLs.
- Each cookie can store up to 4000 bytes (about 4KB), so size is a limitation.

Cookies allow for

- User Identification (e-commerce):
 - ▶ Managing sessions and shopping carts (automatic)
- Minimizes repeated information entry by the user:
 - ▶ Login, address, phone number...
- Manage user preferences:
 - ▶ Saving user preferences, and automatically loading those preferences when the user logs back in.
- Targeted advertisement
 - ▶ Recall previous slides

Cookies and Security

- ♦ Cookies are never interpreted or executed :
 - / Therefore it is impossible for viruses to abuse them.
- ♦ A cookie is limited to 4KB and browsers are limited to 300 cookies (20 per site) :
 - / Therefore we do not have to worry about managing disk space (totally managed by the browser).
- ♦ Useful for data which is not sensitive :
 - / name, address, ...
 - / But no credit card numbers or passwords!!
- ♦ Cookies do not pose a serious security risk if used properly.

Managing Cookies

- ♦ Cookies are created by the server and sent to the client along with the first response returned to them.
- ♦ Before sending a request, the browser checks if there are cookies for the requested server:
 - / If there are cookies for the server, they are sent along with the request (it is from the request object that cookies are retrieved)
- ♦ When the server receives a request it will:
 - / Retrieve the cookies that do exist.
 - / Create new cookies to send to return to the client.
 - / Modify retrieved cookies.

Creating and Sending Cookies (Response)

3 Steps

- / Create the cookie object

```
Cookie myCookie = new Cookie("nameUser","Paul");
```

Neither the name nor the value can contain spaces or any of the following characters:

[] () = " / ? @ : ;

- / Define the cookie's lifespan

```
myCookie.setMaxAge(60*60*24*365);
```

- / Add the cookie to the response!

```
response.addCookie(myCookie);
```

Retrieving Cookies (Request)

3 Steps :

- / Retrieve all cookies sent by the browser:

```
Cookie[] myCookies = request.getCookies();
```

- / Iterate through the cookie array and find the key of the cookie that interests us.
We will use getName() to identify the desired key:

```
for (Cookie cookie : myCookies {  
    if(cookie.getName().equals("myUser")  
        { // enter code here }  
}  
  
//Recover the value of the cookie  
for (Cookie cookie :myCookies) {  
    if(cookie.getName().equals("nameUser"))  
        { String userName = cookie.getValue(); }  
}
```

Cookie Related Methods

- ♦ `setValue(String value) / getValue () :`
Define / Return the cookie's value.
- ♦ `setMaxAge(int duration)/ getMaxAge() :`
Defines / Returns the age of a cookie.
- ♦ `setDomain(String domain) / getDomain() :`
Defines / Returns the domain.