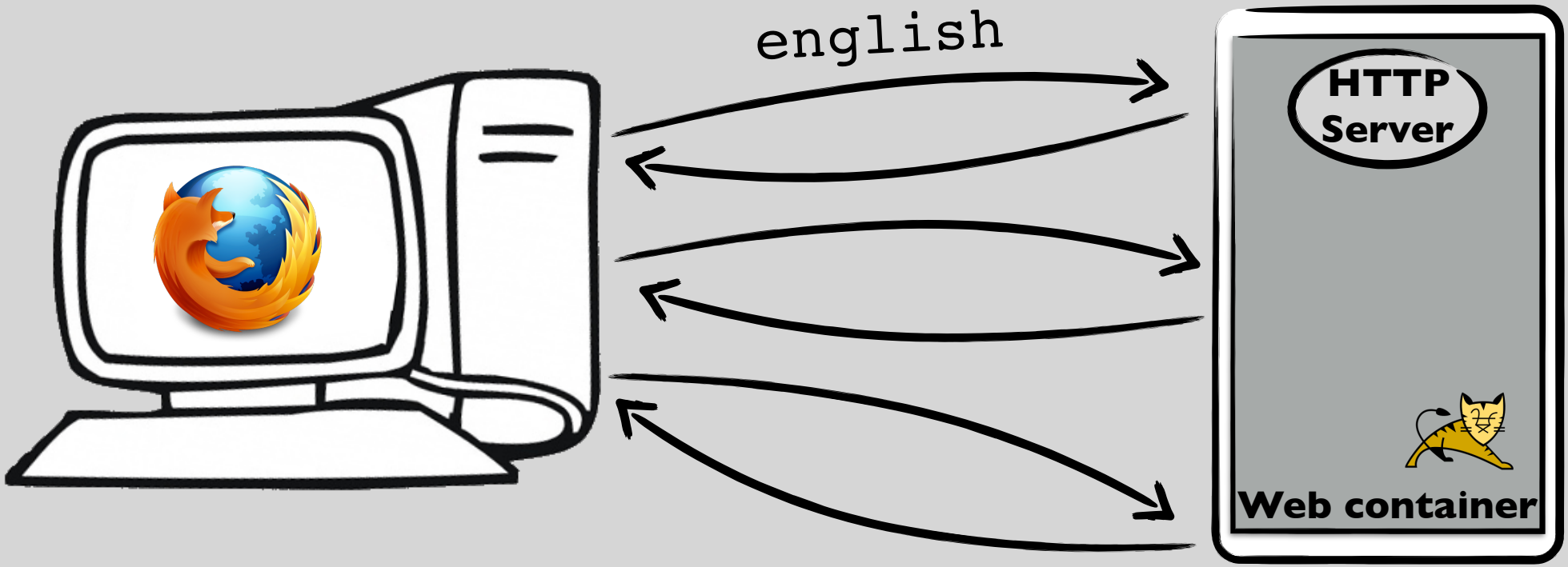
Web 3

Lesson 7: Sessions

Agenda

?



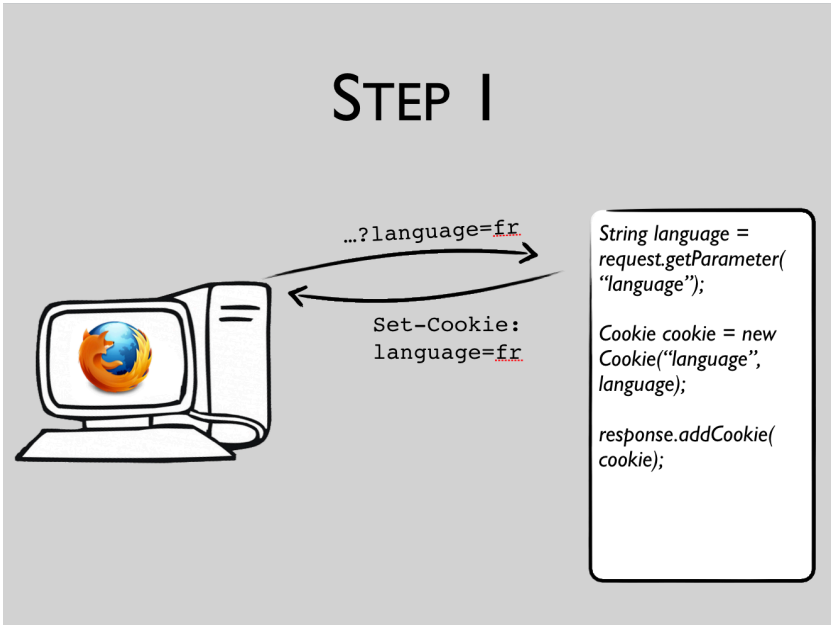
- How can we save our language choice?

Option 1: Client

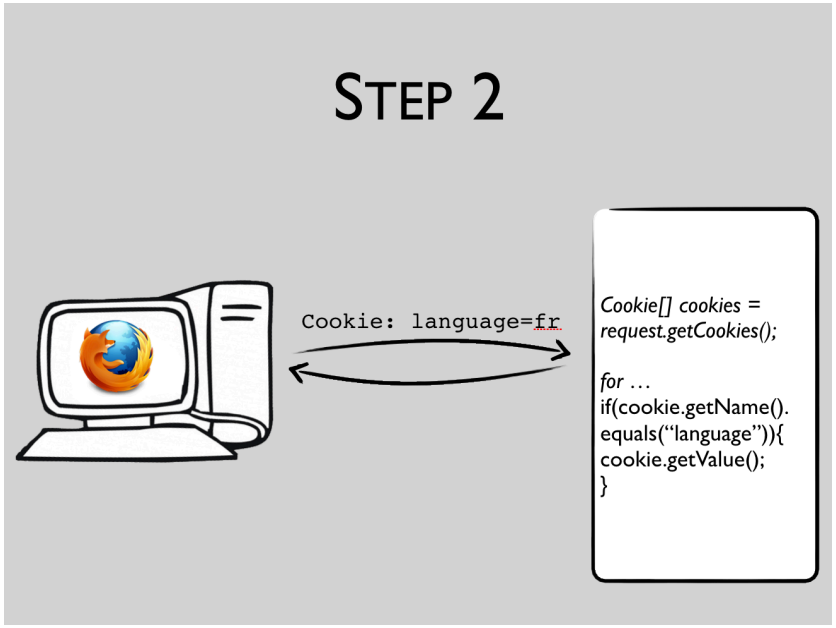
1. client chooses a language and sends it to the server
2. server reads chosen language and makes a **cookie** for the language
3. server gives this to the client in the **response header**
4. browser sends the cookie with each request in a **request header**
5. server uses this info in order to show the right language

Cookies

1. Zet cookie

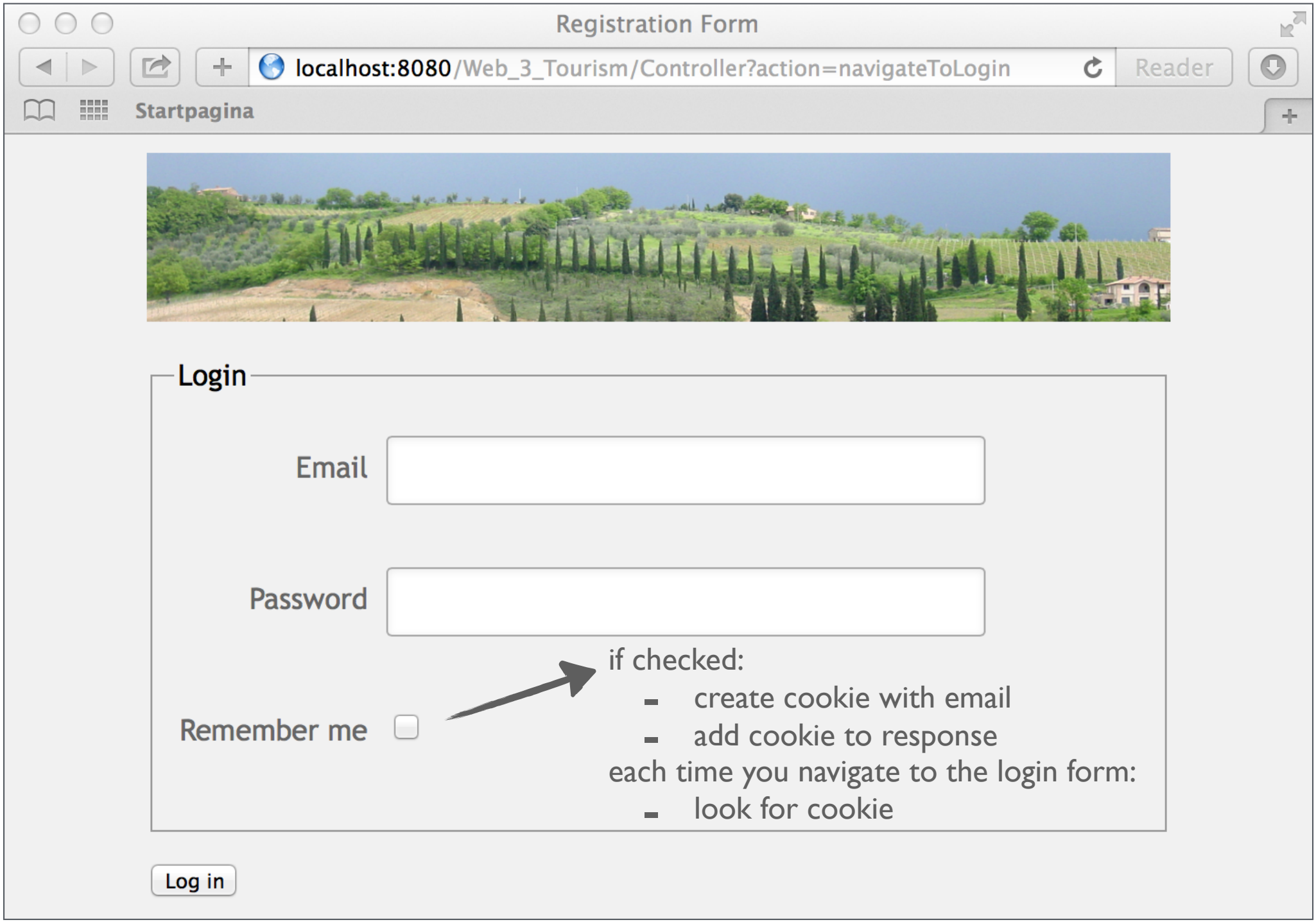


2. Controleer bij iedere request



0. Default als er geen cookie is

EXAMPLE


Registration Form
localhost:8080/Web_3_Tourism/Controller?action=navigateToLogin
Reader
Startpagina
Login
Email
Password
Remember me
if checked:
- create cookie with email
- add cookie to response
each time you navigate to the login form:
- look for cookie
Log in

REMARK: CHECKBOX

```
<p>
    <label for="remember">Remember me</label>
    <input type="checkbox" name="remember"
                    id="remember" value="true">
</p>
```

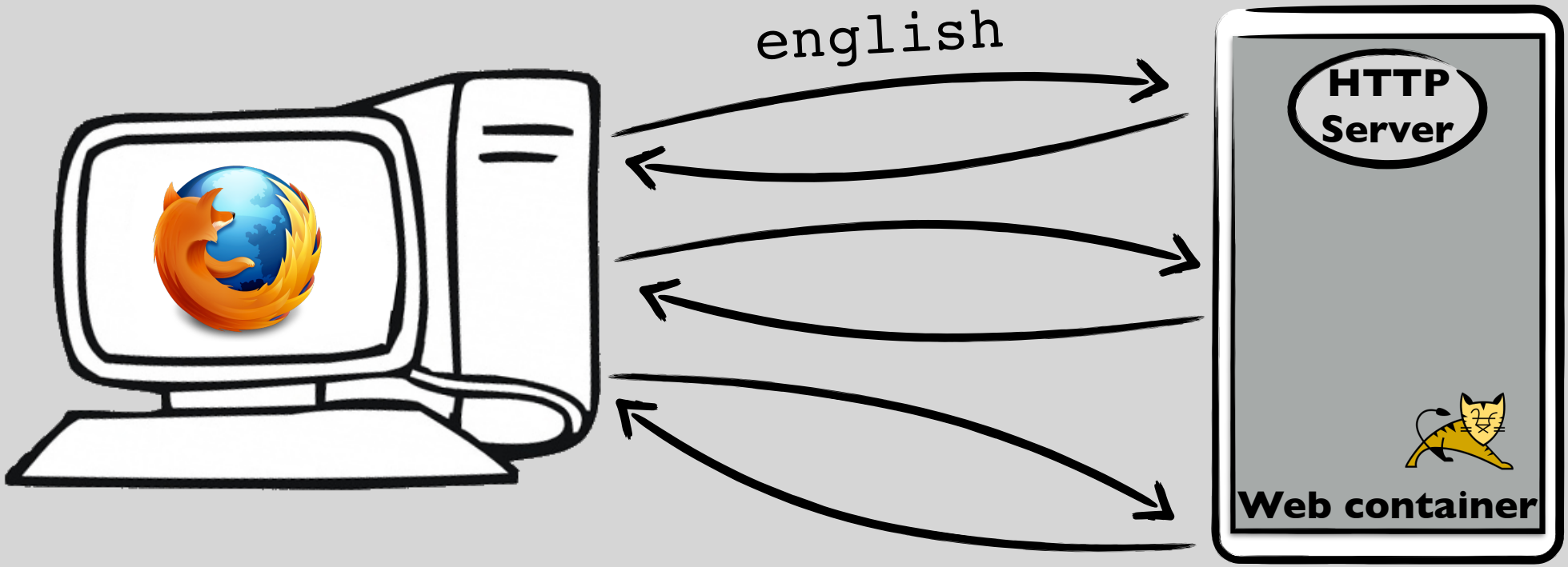
- request body:
  - if checked: `remember=true`
  - if not checked:

Agenda

EXAM QUESTIONS…

- ☑ Is a session saved at the client side or at the server side?
- ☑ Explain how sessions works.
- ☑ How can you set the expiration time of a session?
- ☑ How can you end a session?
- ☑ Is a session safe? Why or why not?
- ☑ When is it better to use a session, when is it better to use a cookie?
- ☑ …

?



- How can we save our language choice?

Option 2: Server

1. server stores choice
2. server passes a token, id to client
3. client saves this id and sends it in each request
4. server uses this id to find the stored language

Sessions

SESSIONS

- What?
  - **name-value** pairs, eg. `language=english`
- Why?
  - to save **temporary data**
  - info about **one client**

SESSIONS

- Where?
  - made by a '**script**' on the **server**
  - saved by **server**
  - id saved by the **client** in its **browser**

SESSIONS

- How?
  - server makes a **session** object
  - ... and **stores the information** in the session
  - ... and gives the **id** of the session to the client in the **response header**
  - browser sends the id within each **request header**
  - server uses the id to **find** the corresponding session
  - server gets the **information** from the session

Name Example

DEMO

- server makes a **session** object:
  request.getSession() method
- ... and **stores the information** in the session:
  session.setAttribute() method
- ... and gives the id of the session to the client in the response header

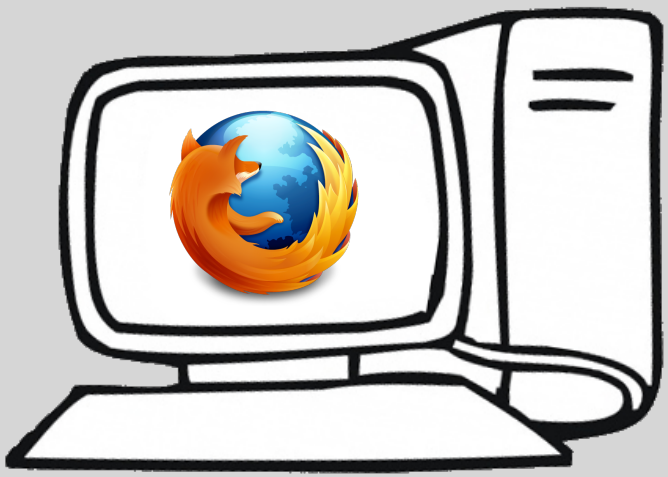
Step 1

String name = request.getParameter("name");

Person user = …; HttpSession session = request.getSession(); session.setAttribute ("name", user);

- browser sends the id within each **request header**
- server uses the id to **find** the corresponding session **request.getSession**() method
- server gets the **information** from the session **session.getAttribute()** method

Step 2



```
Cookie:
JSESSIONID=D1ACEDFDFC32
F4C3910CAC24505E21B0
```

HttpSession session = request.getSession();

String language = session.getAttribute ("name");

Create - Get Session

- `request.getSession()`
  - returns existing session OR
  - creates a new one if no session exists

- `request.getSession(false)`
  - returns existing session OR
  - returns null if no session exists

Add info to - Get info from Session

- `session.setAttribute(name, object)`
  - if already attribute with same name ⟶ replaced!
- `session.getAttribute(name)`

TILL WHEN?

- until **destroyed**
  - `session.invalidate()`
- or until **timeout**
  - `session.setMaxInactiveInterval(seconds)`
  - web.xml
  - server default

Sessions of Cookies?

Cookie

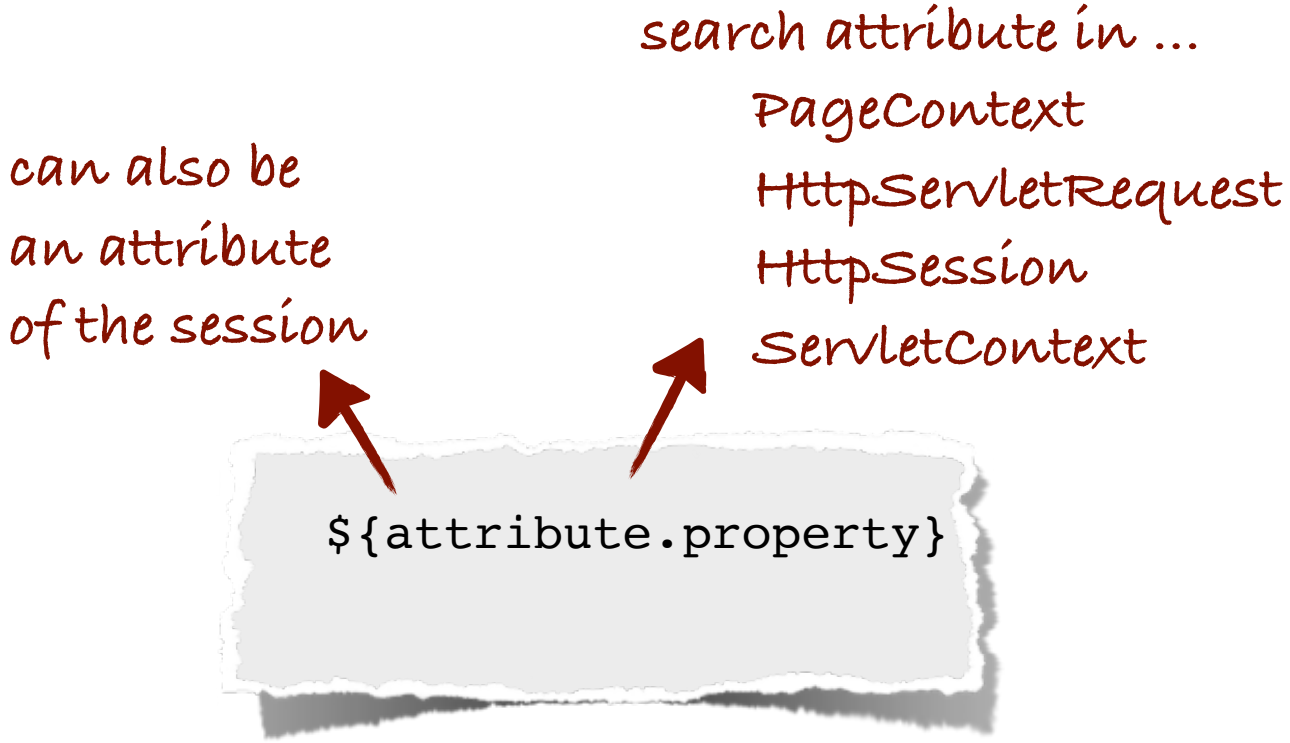
- in browser
- can be removed/blocked
- unsafe → google "edit http cookies"
- expiration time can be set
- only to use when sending few/small data
- example: choice of language → network load!

SESSION

- on server
- safe(r)
  - only sessionID accessible, not data
  - risk: 'session hijacking'
- can be invalidated
- more data possible
- example: shopping cart

REMARK:

EXPRESSION LANGUAGE: . OPERATOR



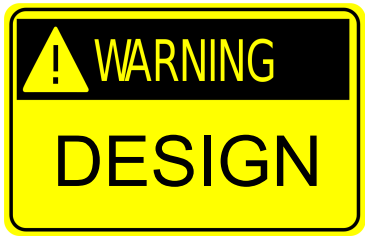
REMARK:

IMPLICIT OBJECTS

```
${attribuut.property}

${implicitObject.keyOrProperty}
```

- pageScope
- requestScope
- sessionScope
- applicationScope
- param
- paramValues
- header
- headerValues
- cookie
- initParam
- pageContext




```
${header["host"]}
```

```
${param["id"]}
```

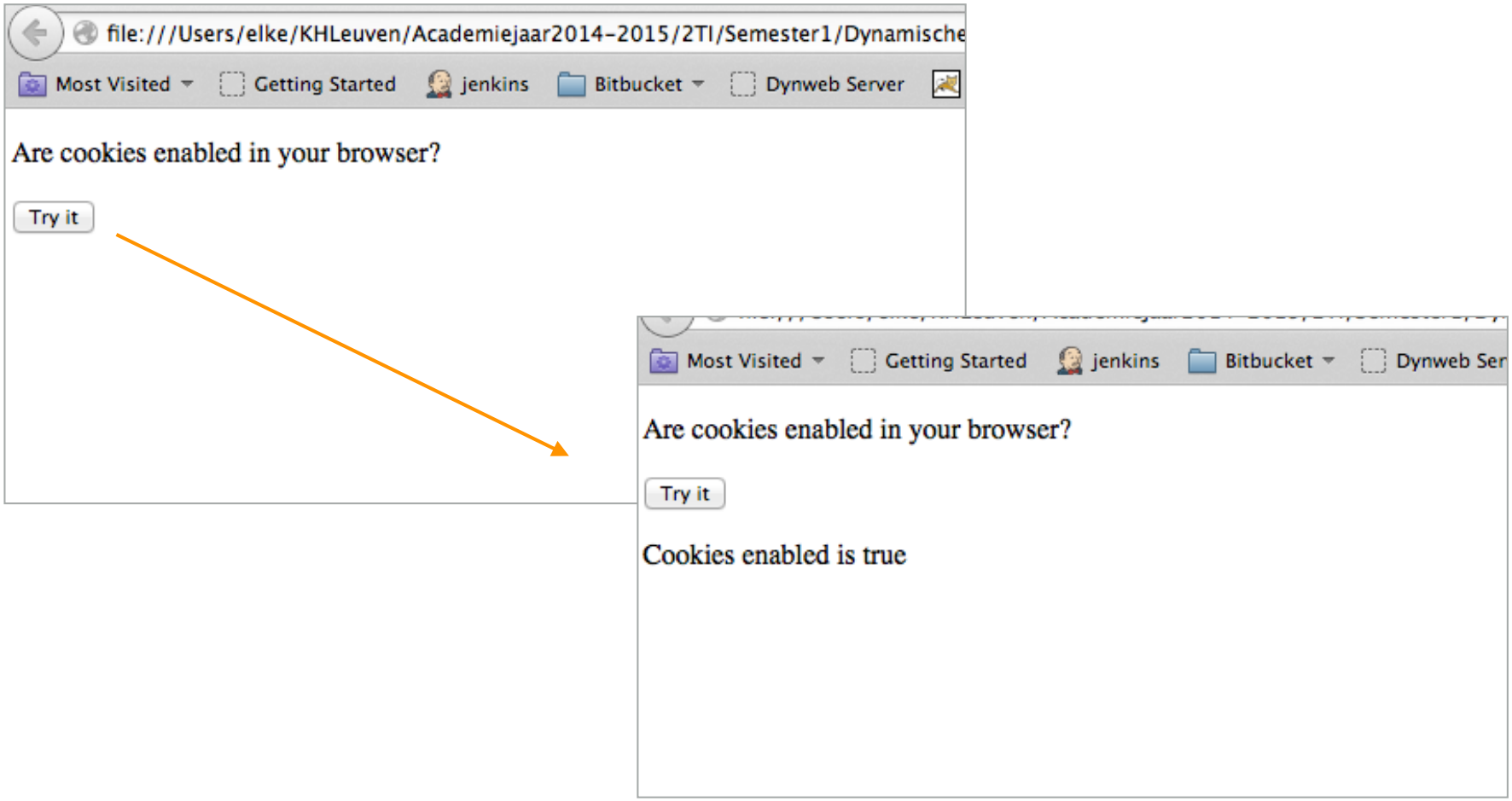
```
${initParam.mainEmail}
```

```
${cookie.JSESSIONID.value}
```

WHAT IF …

Cookies are disabled ?

Cookies Enabled Check Example



Cookies Enabled Check Example

```
<!DOCTYPE html>
<html>
<head>
   <title>Check whether cookies are enabled yes/no</title>
   <script>
      function myFunction() {
         document.getElementById("demo").innerHTML =
         "Cookies enabled is " + navigator.cookieEnabled;
      }
   </script>
</head>
<body>
   <p>Are cookies enabled in your browser?</p>
   <button onclick="myFunction()">Try it</button>
   <p id="demo"></p>
</body>
</html>
```

URL Rewriting

- <c:url>
  - encodes URL
  - adds session id at the end of URL…
  - …only when cookies are disabled

- Example:

```
<a href="<c:url value="Controller?action=users" />">Users</a>
```

```
Controller;jsessionid=68E817C0535046B5C93268C83A5584ED?action=navigateToLogin
```

Agenda

HIDDEN FIELDS

- <input type="hidden">
  - field is not shown
  - parameter is send with request when form is submitted

- Example:

```
<input type="hidden" name="userid" value="${user.email}">
```

Agenda