

Session 6

Form Dataset

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Lecture Objectives

- Understand the relationship between HTML form elements and parameters that are passed to the servlet, particularly the form dataset

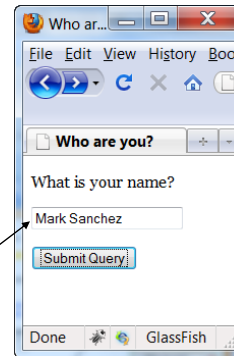
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Example - Form Input to a Servlet

```
<head>
<title>Who are you?</title>
</head>
<body>
<form method="get" action=
"http://localhost:8080/CodeCSE336/helloyou.html">
  What is your name?
  <input type="text" name="fullName"
    value="Enter name" />
  <input type="submit" />
</form>
</body>
</html>
```

Input components are grouped by a form element

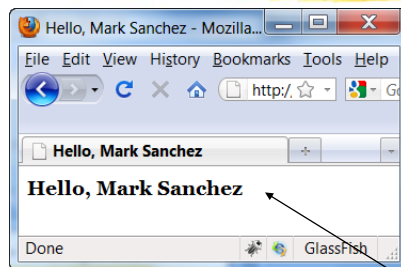


Entering a name in this component changes the value of this form parameter

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HelloYou Servlet



```
out.println(docType);
String name = request.getParameter("fullName");
out.println("<html>");
out.println("<head><title>
Hello, " + name + "</title></head>");
out.println("<body>");
out.println("Hello, " + name);
out.println("</body></html>");
out.close();
```

Servlet reads value of form data set

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Servlet Generates HTML

```
out.println(docType);
String name =
    request.getParameter("fullName");
out.println("<html>");
out.println("<head><title>Hello, Mark
Hello, " + name +
    "</title></head>");
out.println("<body>");
out.println("Hello, " + name);
out.println("</body></html>");
out.close();
```

→ <html>
→ <head><title>Hello, Mark Sanchez</title></head>
→ <body>
→ Hello, Mark Sanchez
→ </body></html>

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HTML Form Element ...

- A Form element contains component elements that are used to collect information on a Web page
- Each component typically has a name and a value
- The collection of name/value pairs is referred to as the form data set
- Form values are initially set to the value in the html, but changed when the user enters data
- The entire form is associated with a URL that will process the data (usually after the submit button is pressed)

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HTML Form Element

■ HTML control types:

- Buttons
- Text input (INPUT and TEXTAREA)
- Submit
- Password
- Check boxes
- File select
- Radio buttons
- Hidden controls
- Menus
- Object controls

- Users complete a form by modifying the form elements and then submitting to the server for servlet processing

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Example Form (Partial) ...

* Country

USA ▼

```
<select name="icountry">
  <option value="USA" selected="selected">USA</option>
  <option value="IRELAND"> IRELAND </option>
  <option value="ISRAEL"> ISRAEL </option>
  <option value="ITALY"> ITALY </option>
  <option value="JAMAICA"> JAMAICA </option>
  <option value="UZBEKISTAN"> UZBEKISTAN </option>
</select>
```

The value of the icountry form element is initially "USA", but changes when the user selects a different menu item

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Registration Form

- Consider the following state drop-down form

```
<select name="CountryOfRes" id="countryResidence">
  <option value="">Select one</option>
  <option value="AF">Afghanistan</option>
  <option value="FR">France</option>
  <option value="DE">Germany</option>
  <option value="IL">Israel</option>
  ...
</select>
```

Notice that the value attribute is not always the same as the text contained in the value element

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Form Element Server Coordination

- A Form element specifies attributes for:
 - The program that will handle the completed and submitted form (ACTION attribute)
 - A script program that evaluates prior to submission to the server - and that can prevent data from being submitted. (ONSUBMIT attribute)
 - The method by which the user data will be sent to the server (METHOD attribute)
 - GET - form data set is appended to the URL with a ? (used when form causes no side effects)
 - POST - form data set is included in the body of the form
 - Character encoding that must be accepted by the server

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Form Data Set

- GET method - Form data set is included in the URL query string (by the browser)

`http://www.mysite.com/path/
program?first_name=Mark&last_name=Sanchez`

- Note the use of:

- = associates a value with a name
- & separates consecutive name/value pairs

Form dataset

- POST method - Form data set is encoded in a similar manner, but included with http header information

- Notes:

- for Post requests, the input data cannot be bookmarked with the target URL - consistent with side effects
- Post form data set is not immediately visible

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Form Element

- A form element's name is given by the name attribute
- A form element has an initial value and a current value (both are strings)
- A form element is displayed in the browser according to the value of the type attribute
- Form submission - for the successful submissions, the form element's value is paired with its name - all of these pairs are referred to as the form data set

```
<input  
  name="ifirst_name"  
  value=""  
  type="text" />
```

Type attribute is not required (default value is "text"), but it is a good practice to do so

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Radio Buttons

* Do you need hotel reservations? ☐ Yes
 To ensure that you receive the discounted JavaOne Conference hotel rate, please make your hotel reservations through us. ☐ No

How is the radio button group specified?

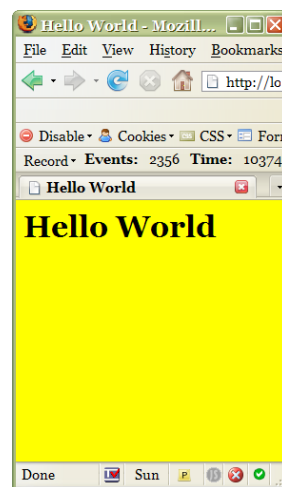
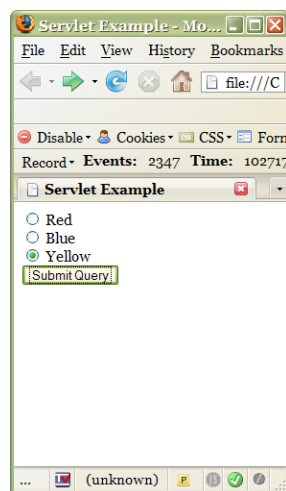
```
<td><span class="asterisk">*</span> Do you need hotel
reservations?<br /> To ensure that you receive the discounted
JavaOne Conference hotel rate, please make your hotel
reservations through us.</td>
<td> <input name="ihotel" value="Yes" type="radio" /> Yes<br />
<input name="ihotel" value="No" type="radio" /> No </td>
<td></td>
```

You can optionally specify the default selected button or checkbox

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Example - Hello Background Color



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BackgroundColor Launch Page

```
<?xml version="1.0" encoding="iso-8859-1"?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
    "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Servlet Example</title>
<meta http-equiv="Content-Type"
    content="text/html; charset=iso-8859-1" /> </head>
<body>
<form action="http://localhost:8080/CodeCSE336/BackgroundColor">
<div> <label>
<input name="bgColor" type="radio" value="red" checked="checked" />
Red</label> <br /> <label>
<input name="bgColor" type="radio" value="blue" /> Blue</label>
<br /> <label>
<input name="bgColor" type="radio" value="yellow" /> Yellow</label>
<br />
<input type="submit" /> </div> </form> </body> </html>
```

What does the label
tag do?

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Background Servlet Fragment

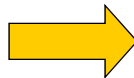
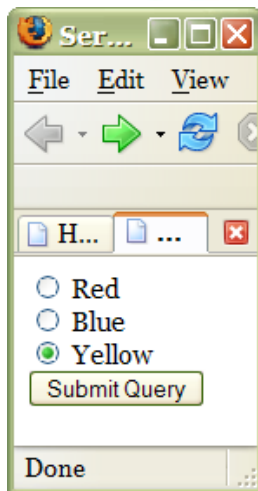
```
String color = "white";
try {
    color = request.getParameter("bgColor");
} catch (Exception e) {
    e.printStackTrace();
}
out.println("<html>");
out.println(
    "<head><title>Hello World</title>");
out.print(
    "<style> body {background-color:");
out.print(color);
out.println("}</style>");
out.println("</head>");
out.println("<body>");
out.println("<h1>Hello World</h1>");
out.println("</body></html>");
out.close();
}
```

Note: the value of bgcolor
is "yellow" (not "Yellow")

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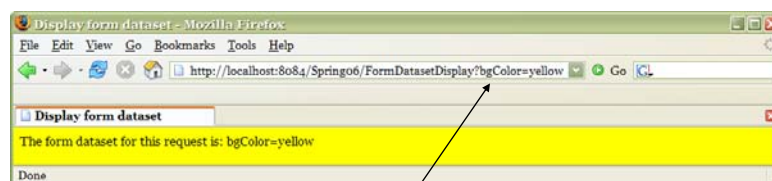
Example - Display the Form dataset



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FormDataset



For GET requests,
the form dataset is
contained in the
URL query string

```
<form action="http://localhost:34908/  
CodeCSE336/formdataset"  
method="get">  
What's your favorite color?  
<input value="Enter color"  
name="bgColor" />  
<input type="submit"  
value="Submit Query" />  
</form>
```

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FormDataSet Servlet Fragment

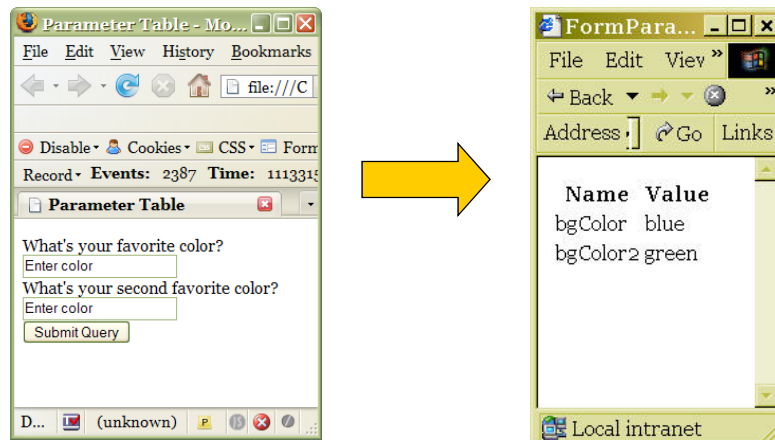
```
out.println("The form dataset for this request is ");  
out.println(request.getQueryString());
```

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Example

- Display all the form name value pairs in a table



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FormParameters ...

```
public void doGet(HttpServletRequest request,
    HttpServletResponse response)
    throws ServletException, IOException {
    String formDS = request.getQueryString();
    StringTokenizer pair;
    StringTokenizer st = new StringTokenizer(formDS, "&");
    response.setContentType(CONTENT_TYPE);
    PrintWriter out = response.getWriter();
    out.println("<?xml version=\"1.0\"?>");
    out.println(DOC_TYPE);
    out.println(
        "<html xmlns=\"http://www.w3.org/1999/xhtml\"
        xml:lang=\"en\" lang=\"en\">");
    out.println("<head><title>FormParameters</title></head>");
    out.println("<body>");
    out.println("<table><tr><th>Name</th><th>Value</th></tr>");
```

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... FormParameters

```
while (st.hasMoreTokens()) {
    out.println("<tr>");
    pair = new StringTokenizer(st.nextToken(), "=");
    while (pair.hasMoreTokens()) {
        out.println("<td>" + pair.nextToken() + "</td>");
    }
    out.println("</tr>"); }
out.println("</body></html>"); }
```

Or - using `getParameter`

Have you noticed what a pain
it is to place the HTML
inside a `println` call?

```
while (st.hasMoreTokens()) {
    out.println("<tr>");
    pair = new StringTokenizer(st.nextToken(), "=");
    while (pair.hasMoreTokens()) {
        String s = pair.nextToken();
        out.println("<td>" + s + "</td>");
        out.println("<td>" + request.getParameter(s) +
            "</td>");
    }
    out.println("</tr>"); }
out.println("</body></html>"); }
```

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Have You Satisfied the Lecture Objectives?

- Understand the relationship between HTML form elements and parameters that are passed to the servlet, particularly the form dataset