

# Introduction to Web Technology

## Web Form

Joseph Tonien  
School of Computing and Information Technology  
University of Wollongong

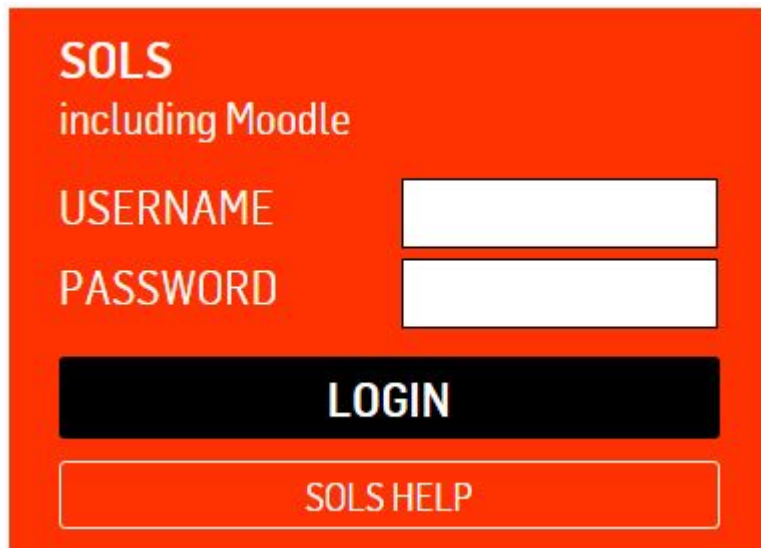
# Web form

## Objectives:

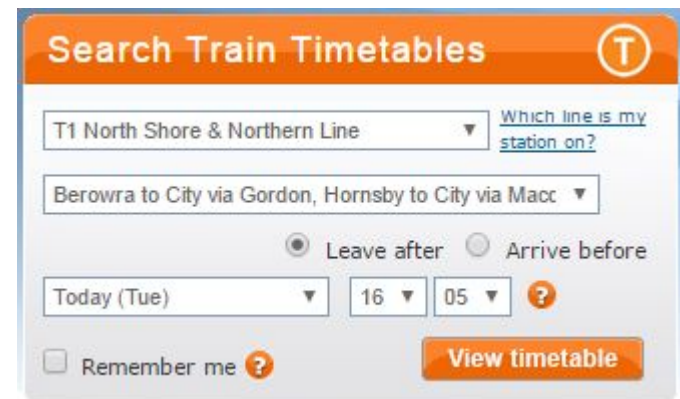
- design a web form;
- understand the web form HTML structure;
- use a web form to submit data to the server.

# Form

- HTML forms are used to collect user input.
- HTML forms contain **form elements**.
- Different types of form elements: text field, textarea, checkboxes, radio buttons, option selection, submit buttons, ...



A login form with an orange background. It features the text 'SOLS including Moodle' at the top. Below this are labels for 'USERNAME' and 'PASSWORD' next to white text input fields. At the bottom, there is a black 'LOGIN' button and an orange 'SOLS HELP' button.



A search form for train timetables with an orange header. It includes a dropdown menu for 'T1 North Shore & Northern Line' with a link 'Which line is my station on?'. Below is another dropdown for 'Berowra to City via Gordon, Hornsby to City via Macc'. There are radio buttons for 'Leave after' (selected) and 'Arrive before'. A date and time selector shows 'Today (Tue)', '16', and '05'. A 'Remember me' checkbox and a 'View timetable' button are at the bottom.

# Form

- When user clicks a submit button, user input will be sent to the server to process



- The front-end form elements must match up with the server back-end program's parameters.

## Example: Whosville's library book search

The server back-end program is running at: <http://library.whosville/bsearch>

The search engine accepts the following parameters:

- **author**: this parameter is to specify the author of the book.
- **year**: this parameter is to specify the publication year.
- **sub**: this parameter is to specify the subjects for the search, the search engine can accept **multiple** values. The acceptable values are:
  - **mth** (for mathematics),
  - **cs** (for computer science),
  - **bio** (for biology),
  - **phy** (for physics), and
  - **chem** (for chemistry).

## Example: Whosville's library book search

The server back-end program is running at: <http://library.whosville/bsearch>

The search engine accepts the following parameters:

- **author**: this parameter is to specify the author of the book.
- **year**: this parameter is to specify the publication year.
- **sub**: this parameter is to specify the subjects for the search, the search engine can accept **multiple** values. The acceptable values are:
  - **math** (for mathematics),
  - **cs** (for computer science),
  - **bio** (for biology),
  - **phy** (for physics), and
  - **chem** (for chemistry).

### Whosville library book search

Author name:	<input type="text" value="tonien"/>
Publication year:	<input type="text" value="2000"/>
Subject:	<input type="checkbox"/> Mathematics <input checked="" type="checkbox"/> Computer Science <input type="checkbox"/> Biology <input checked="" type="checkbox"/> Physics <input type="checkbox"/> Chemistry
<input type="button" value="Search"/> <input type="button" value="Clear"/>	

# Example: Whosville's library book search

## Whosville library book search

Author name:

Publication year:

Subject:

- ☐ Mathematics
- ☒ Computer Science
- ☐ Biology
- ☒ Physics
- ☐ Chemistry

When the form is submitted, we can see the following appears in the URL:

<http://library.whosville/bsearch?author=tonien&year=2000&sub=cs&sub=phy>

form's action



match up with the back-end  
program's parameters

# Example: Whosville's library book search

```
<form action="http://library.whosville/bsearch" method="get">
```

## Whosville library book search

Author name:

Publication year:

Subject:

- ☐ Mathematics
- ☒ Computer Science
- ☐ Biology
- ☒ Physics
- ☐ Chemistry

← `<input type="text" name="author"/>`

← `<input type="text" name="year"/>`

`<input type="checkbox" name="sub" value="mth"/>`

`<input type="checkbox" name="sub" value="cs"/>`

`<input type="checkbox" name="sub" value="bio"/>`

`<input type="checkbox" name="sub" value="phy"/>`

`<input type="checkbox" name="sub" value="chem"/>`

**The front-end form elements must match up with the server back-end program's parameters:**

- Use the attribute **name** to specify the back-end's parameter



# Example: Whosville's library book search

```
<form action="http://library.whosville/bsearch" method="get">
```

## Whosville library book search

Author name:

Publication year:

Subject:

- ☐ Mathematics
- ☒ Computer Science
- ☐ Biology
- ☒ Physics
- ☐ Chemistry

← `<input type="text" name="author"/>`

← `<input type="text" name="year"/>`

`<input type="checkbox" name="sub" value="mth"/>`

`<input type="checkbox" name="sub" value="cs"/>`

`<input type="checkbox" name="sub" value="bio"/>`

`<input type="checkbox" name="sub" value="phy"/>`

`<input type="checkbox" name="sub" value="chem"/>`

**The front-end form elements must match up with the server back-end program's parameters:**

- Use the attribute **value** to specify the data sent back to the back-end

# Example: Whosville's library book search

```
<form action="http://library.whosville/bsearch" method="get">
```

## Whosville library book search

Author name:

Publication year:

Subject:

- ☐ Mathematics
- ☒ Computer Science
- ☐ Biology
- ☒ Physics
- ☐ Chemistry

← `<input type="text" name="author"/>`

← `<input type="text" name="year"/>`

`<input type="checkbox" name="sub" value="mth"/>`

`<input type="checkbox" name="sub" value="cs"/>`

`<input type="checkbox" name="sub" value="bio"/>`

`<input type="checkbox" name="sub" value="phy"/>`

`<input type="checkbox" name="sub" value="chem"/>`

**The front-end form elements must match up with the server back-end program's parameters:**

- Sometimes the data sent back to the back-end is **different** from the data displayed to the user.

# Class discussion

Go to some webforms on the Internet:

- Look at the source code of the form
- Look at the attribute **name** used to specified the back-end parameters
- Submit the form and look at data displayed on the URL

<http://www.ebay.com/>

<http://www.amazon.com.au>

# Form - type text

First name:<br />

```
<input type="text" name="firstname" size="30"/><br />
```

Last name:<br />

```
<input type="text" name="lastname" size="30"/><br />
```

First name:

Last name:

# Form - type password

Username:<br />

```
<input type="text" name="username" size="30"/><br />
```

Password:<br />

```
<input type="password" name="password" size="30"/><br />
```

Username:

Password:

# Form - type checkbox

This is the value that sent to server

Choose journals to subscribe:<br />

`<input type="checkbox" name="journal" value="AMM"/>`American  
Mathematical Monthly<br />  
`<input type="checkbox" name="journal" value="CMJ"/>`College  
Mathematics Journal<br />  
`<input type="checkbox" name="journal" value="MM"/>`Mathematics  
Magazine<br />

This is the value that get displayed

Choose journals to subscribe:

- ☐ American Mathematical Monthly
- ☐ College Mathematics Journal
- ☐ Mathematics Magazine

# Form - type checkbox

Choose subscription method: `<br />`

```
<input type="checkbox" name="subscription"
  value="e" checked="checked" />eJournal <br />
```

```
<input type="checkbox" name="subscription"
  value="paper" />Hard copy
```

This should be pre-selected (checked)  
when the page loads

Choose subscription method:

☒ eJournal

☐ Hard copy

# Form - type radio

This is the value that sent to server

Select student type:<br />

```
<input type="radio" name="studentType" value="u"/>Undergraduate  
<input type="radio" name="studentType" value="p"/>Postgraduate  
<input type="radio" name="studentType" value="other"/>Other
```

This is the value that get displayed

Select student type:

☒ Undergraduate ☐ Postgraduate ☐ Other



# Form - type radio

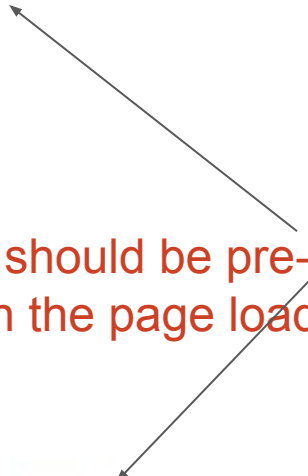
Select student type:<br />

```
<input type="radio" name="studentType" value="u"/>Undergraduate
```

```
<input type="radio" name="studentType" value="p"/>Postgraduate
```

```
<input type="radio" name="studentType"  
value="other" checked="checked"/>Other
```

This should be pre-selected (checked)  
when the page loads



Select student type:

☐ Undergraduate ☐ Postgraduate ☒ Other

# Form - select

This is the value that sent to server

Select day:<br />

```
<select name="day">
  <option value="mon">Monday</option>
  <option value="tue">Tuesday</option>
  <option value="wed">Wednesday</option>
  <option value="thu">Thursday</option>
  <option value="fri">Friday</option>
</select>
```

This is the value that get displayed

Select day:

Monday ▼

# Form - select

Select day:<br />

```
<select name="day">
  <option value="mon">Monday</option>
  <option value="tue">Tuesday</option>
  <option value="wed">Wednesday</option>
  <option value="thu">Thursday</option>
  <option value="fri" selected="selected">Friday</option>
</select>
```

This should be pre-selected  
when the page loads

Select day:


Friday ▼

# Form - select multiple

Select day:<br />

```
<select name="day" multiple>
  <option value="mon">Monday</option>
  <option value="tue">Tuesday</option>
  <option value="wed">Wednesday</option>
  <option value="thu">Thursday</option>
  <option value="fri">Friday</option>
</select>
```

Select day:



# Form - textarea

Enter your comment:<br />

```
<textarea name="comment" rows="5" cols="30">  
</textarea>
```

Enter your comment:



# Form - submit

this is the program in the server that processes the form

```
<form action="handle_login" method="post">
  Username:<br />
  <input type="text" name="username" size="30"/><br />
  Password:<br />
  <input type="password" name="password" size="30"/><br /><br />

  <input type="submit" value="Login"/>
  <input type="reset" value="Reset form"/>

</form>
```

Username:

Password:

Login

Reset form

# Form method

```
<form action="handle_login" method="post">
```

	method="get"	method="post"
Visibility	Data is visible in the URL	Data is not displayed in the URL
History	Parameters remain in the browser history	Parameters are not saved in browser history
Bookmarked	Can be bookmarked	Cannot be bookmarked
<b>Security</b>	<b>get</b> is less secure compared to <b>post</b> because data sent in part of the URL. <b>Never use <b>get</b> when sending passwords or other sensitive information.</b>	
Back button/ Reload	Harmless	Data will be re-submitted. Browser should alert the user about resubmission.

# Form method

```
<form action="handle_login" method="post">
```

	<code>method="get"</code>	<code>method="post"</code>
Restrictions on data length	Yes, when sending data, the <code>get</code> method adds the data to the URL; and the length of a URL is limited (maximum URL length is 2048 characters)	No restrictions
Restrictions on data type	Only ASCII characters allowed	No restrictions. Binary data is also allowed.



# Form - reset

```
<form action="handle_login" method="post">
  Username:<br />
  <input type="text" name="username" size="30"/><br />
  Password:<br />
  <input type="password" name="password" size="30"/><br /><br />

  <input type="submit" value="Login"/>
  <input type="reset" value="Reset form"/>

</form>
```

When reset button is clicked  
all input in the form will be  
cleared

Username:

Password:

# Form

```
<form ...>
  First name:<br />
  <input type="text" name="firstname" size="30"/><br />
  Last name:<br />
  <input type="text" name="lastname" size="30"/><br />

  Select day:<br />
  <select name="day">
    <option value="mon">Monday</option>
    <option value="tue">Tuesday</option>
    <option value="wed">Wednesday</option>
    <option value="thu">Thursday</option>
    <option value="fri">Friday</option>
  </select>
  ...
</form>
```

**Finally, an important question:**  
**What is the purpose of the attribute `name` ?**

# References

- <http://www.w3schools.com/html>
- [http://www.w3schools.com/html/html\\_forms.asp](http://www.w3schools.com/html/html_forms.asp)
- <http://www.w3.org/TR/html5/forms.html>