Web Application Development I
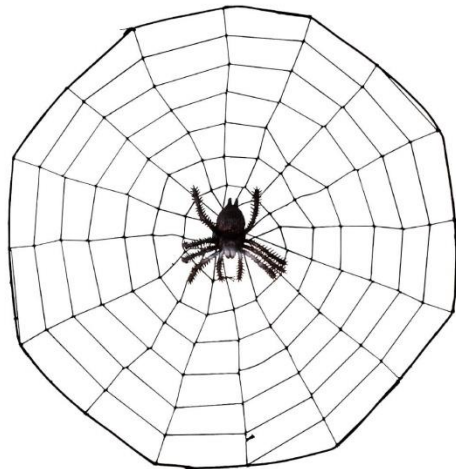
Building Static Webpages using HTML

"If you think you can, you can."
- Henry Ford

School of
Computing and
Information Systems

SMU
SINGAPORE MANAGEMENT
UNIVERSITY

Overview

- Objective
  - To read and modify HTML code
- Content
  - Common HTML Tags
- After this module, you should be able to
  - Create and modify HTML pages

HTML

- Uses markup tag elements that tell the Web browser how to present the information.

- Each tag will appear as letters or words between a **<** (less than sign) and a **>** (greater than sign).

- Most tags come in pairs

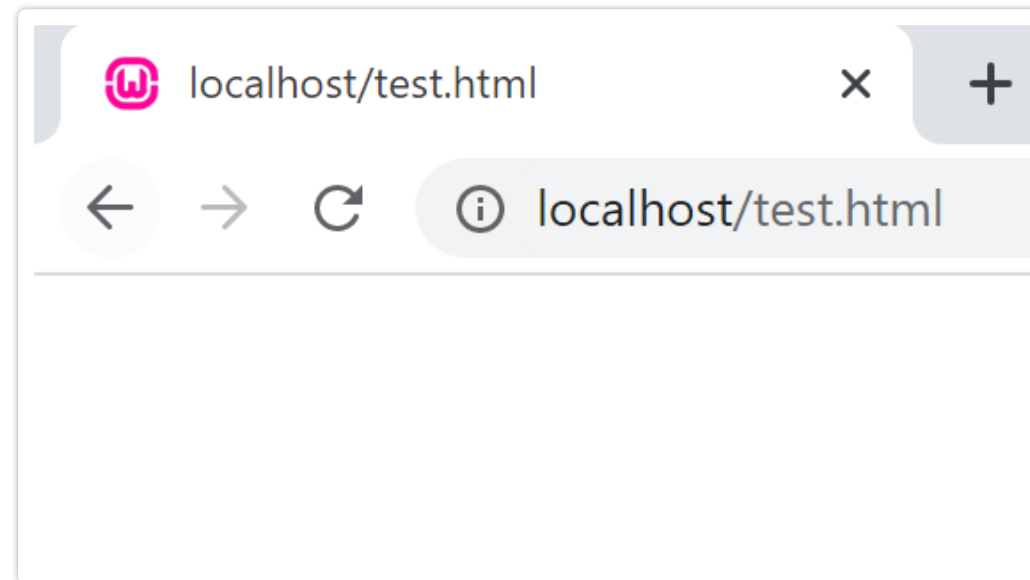`<html>`   `</html>`

End Tag

Start Tag
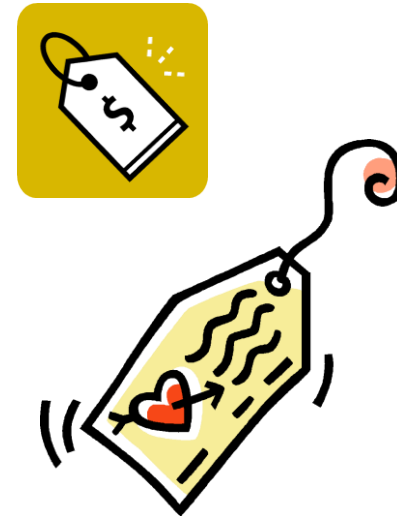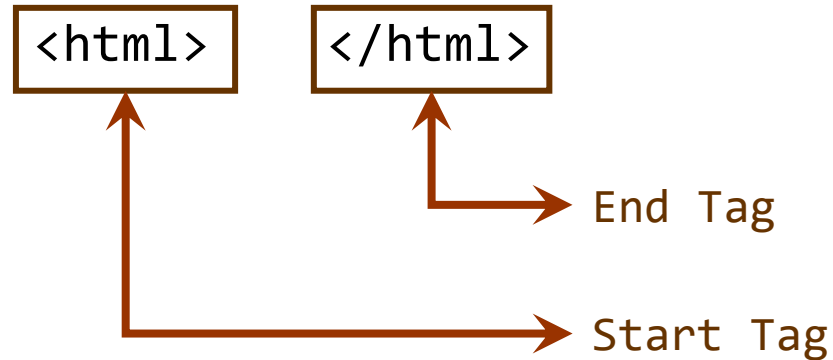
<!DOCTYPE html>

- Inform the web browser that the document is an HTML version 5 (HTML5) file
- Must be the first line of an HTML file

HTML Tag

- Indicates to the Web browser that this is the beginning of an HTML document

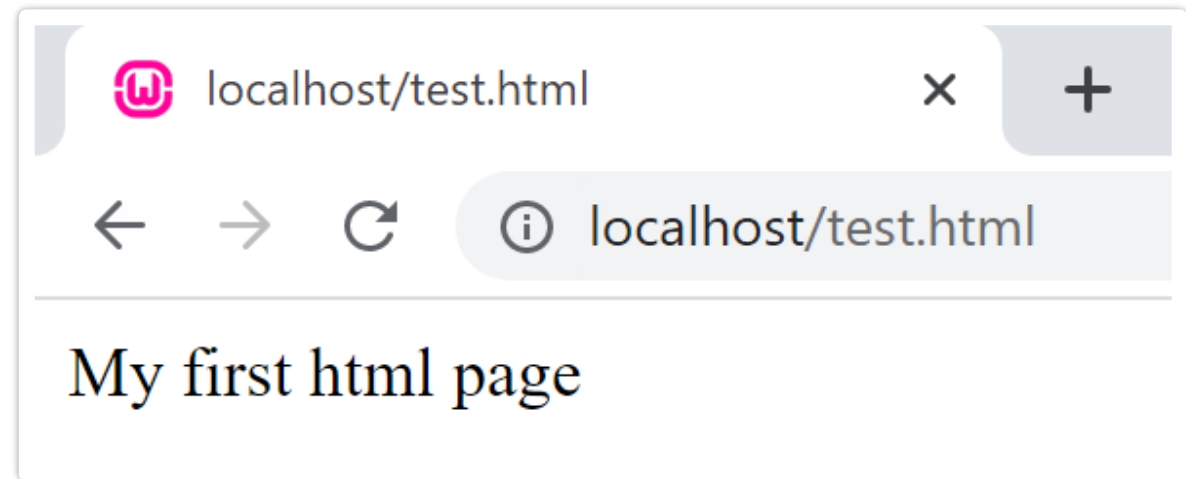```
<!DOCTYPE html>
<html></html>
```

# Body Tag

- Indicates to the Web browser that this is the beginning of the Web page content

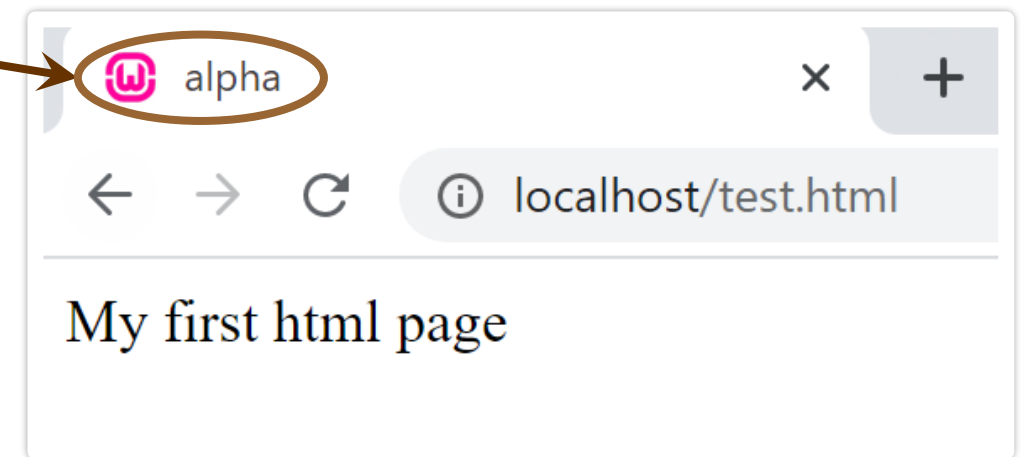- Everything you want to say and see on your page will follow this tag.

```
<!DOCTYPE html>
<html>
  <body>
    My first html page
  </body>
</html>
```


localhost/test.html

My first html page

School of
**Computing and
Information Systems**

SMU
SINGAPORE MANAGEMENT
UNIVERSITY

Head & Title Tag

- <head>: tells the Web browser that this is the header for the page
- <title>: tells the Web browser that this is the title of the page

```
<!DOCTYPE html>
<html>
    <head><title>alpha</title></head>
    <body>My first html page</body>
</html>
```

alpha

localhost/test.html

My first html page

School of
Computing and
Information Systems

SMU
SINGAPORE MANAGEMENT
UNIVERSITY

Un-ordered List

- : **bulleted** list

- : an item in a list
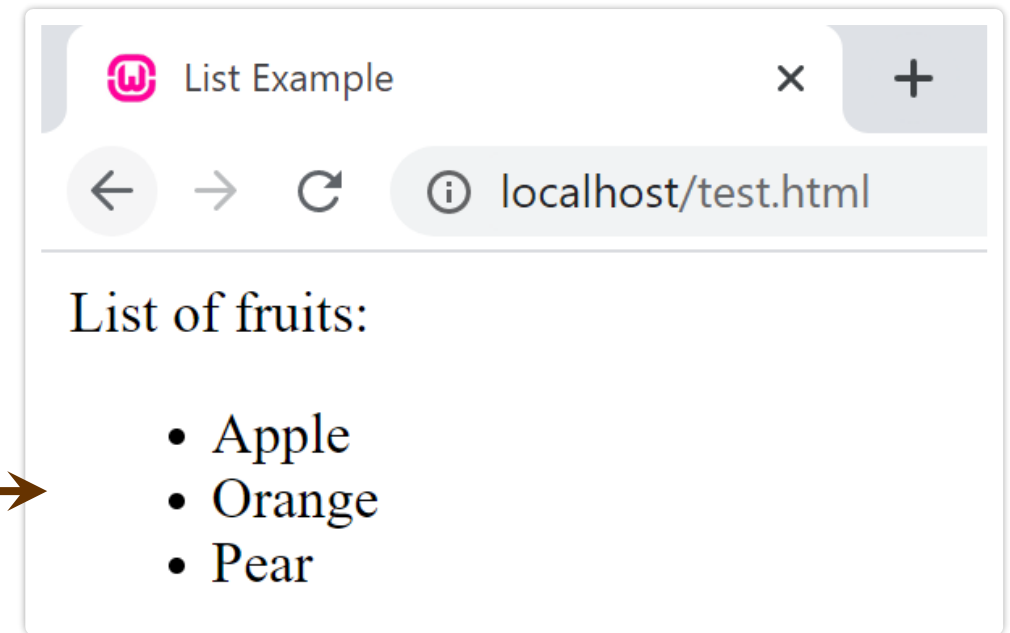
```
<!DOCTYPE html>
<html>
    <head><title>List Example</title></head>
    <body>List of fruits:
        <ul>
            <li>Apple</li>
            <li>Orange</li>
            <li>Pear</li>
        </ul>
    </body>
</html>
```
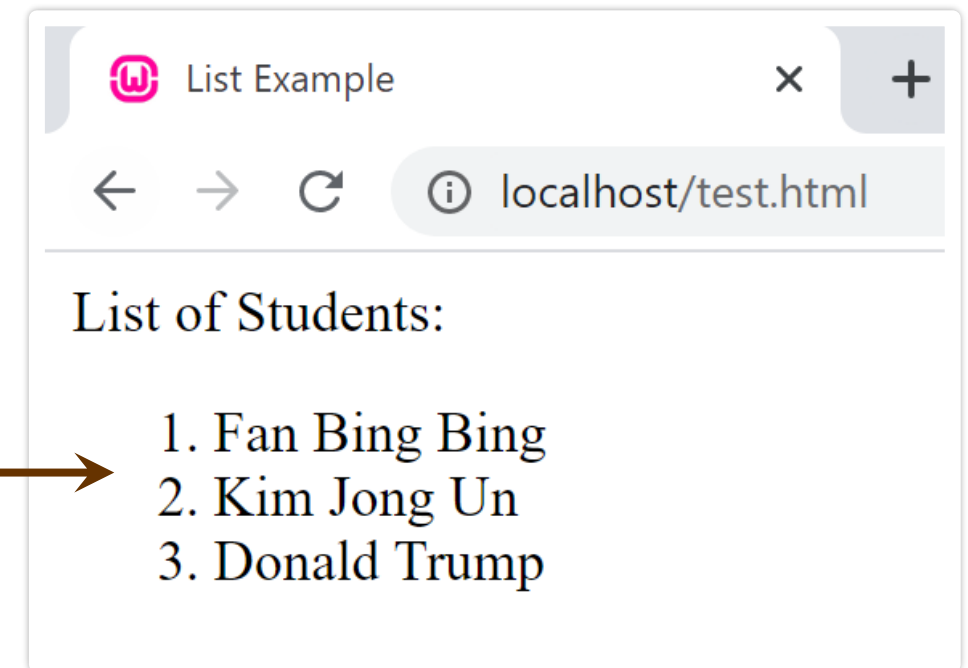
List Example

localhost/test.html

List of fruits:

- Apple
- Orange
- Pear

School of
**Computing and
Information Systems**

SMU
SINGAPORE MANAGEMENT
UNIVERSITY

Ordered List

- **<ol>: numbered list**
- **<li>: an item in a list**
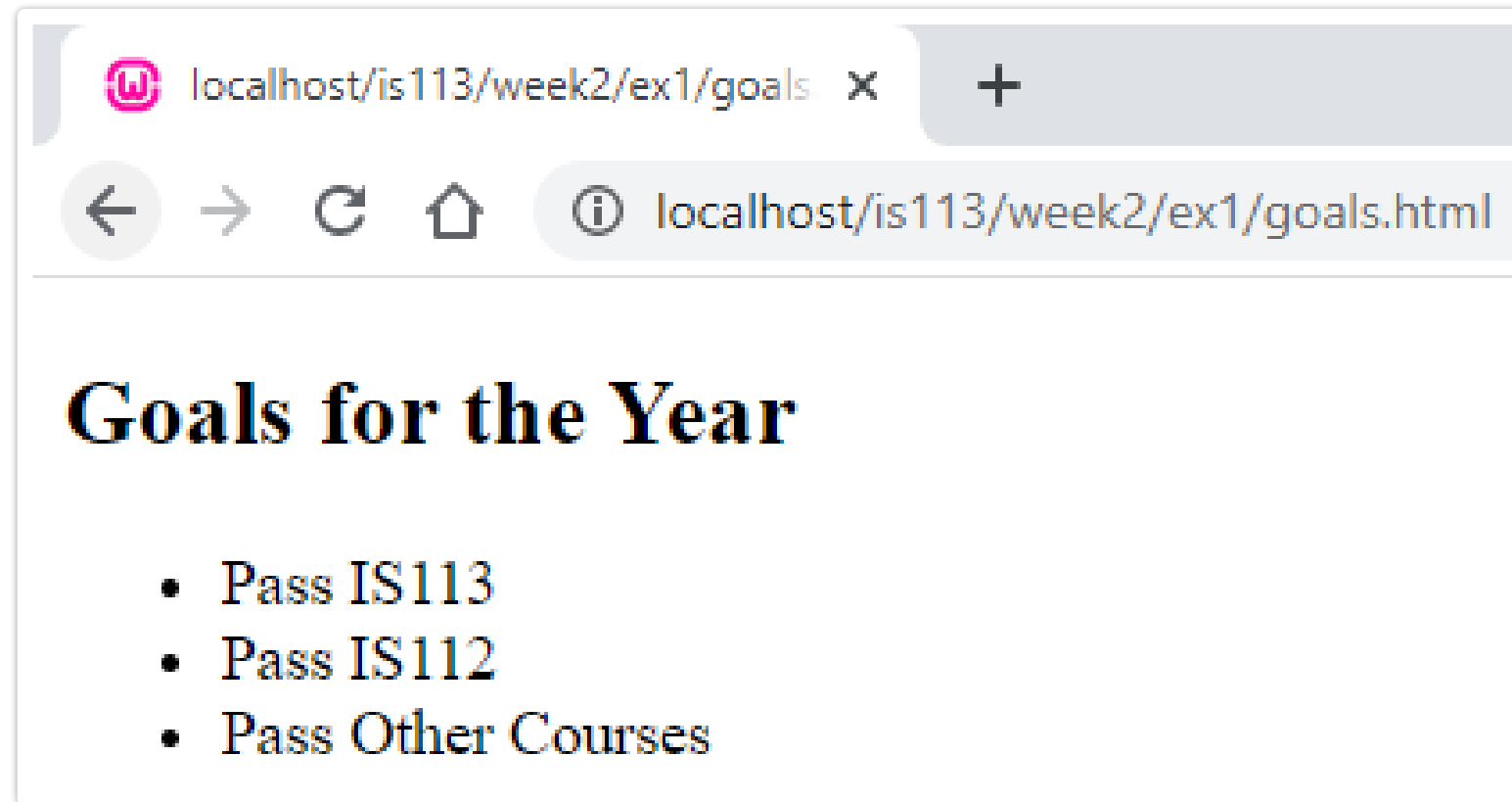
```
<!DOCTYPE html>
<html>
    <head><title>List
Example</title></head>
    <body>List of Students:
        <ol>
            <li>Fan Bing Bing</li>
            <li>Kim Jong Un</li>
            <li>Donald Trump</li>
        </ol>
    </body>
</html>
```
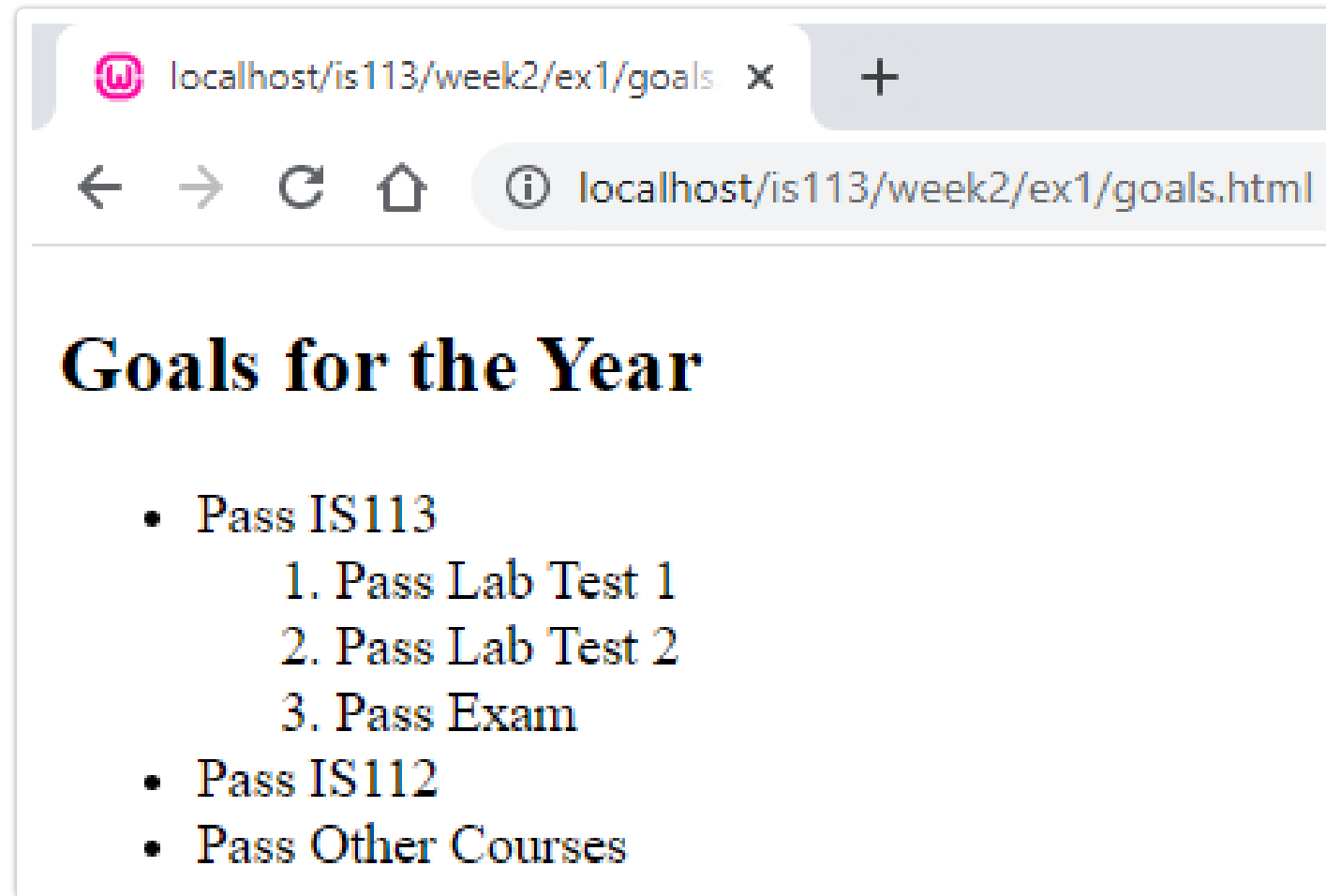
List Example   ×   +

← → C ⓘ localhost/test.html

List of Students:

1. Fan Bing Bing
2. Kim Jong Un
3. Donald Trump

School of
**Computing and
Information Systems**

SMU
SINGAPORE MANAGEMENT
UNIVERSITY

Exercise 1: List

- Create `goals.html` such that the following will be displayed:

Hint: Explore by yourself the use of `<h2>`

Exercise 1: List

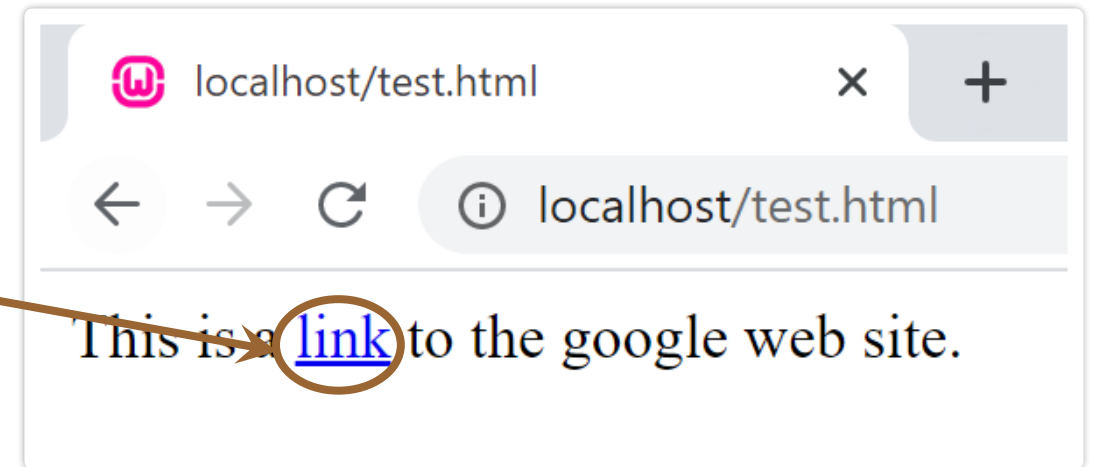- Modify `goals.html` to produce the following output:

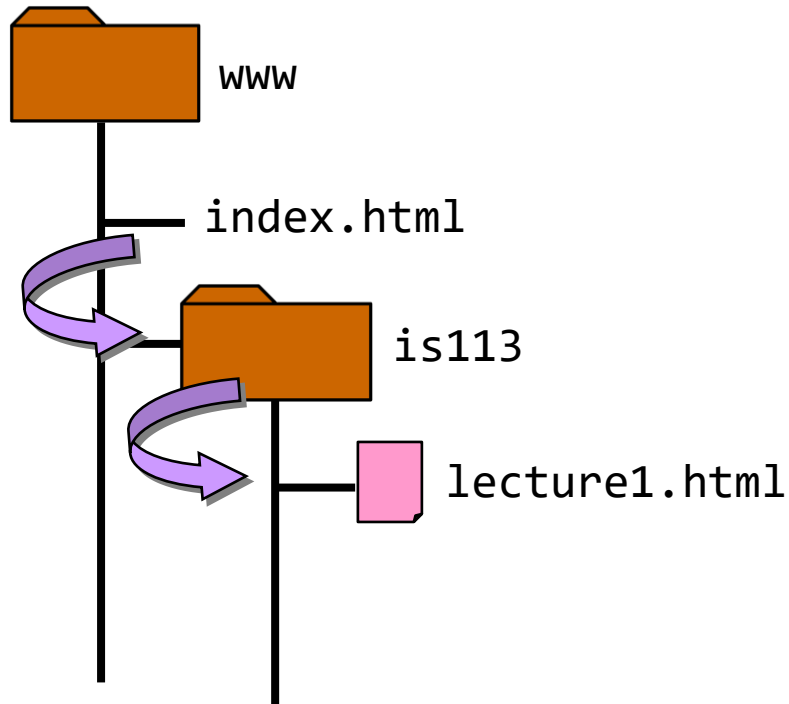# Anchor Tag

- Creates a link to another page
- Use the *href* attribute

```
<!DOCTYPE html>
<html>
  <body>
    This is a
    <a href="http://www.google.com">link</a>
    to the google web site.
  </body>
</html>
```

Anchor Tag (Relative Link)

www

index.html

is113

lecture1.html

- index.html -
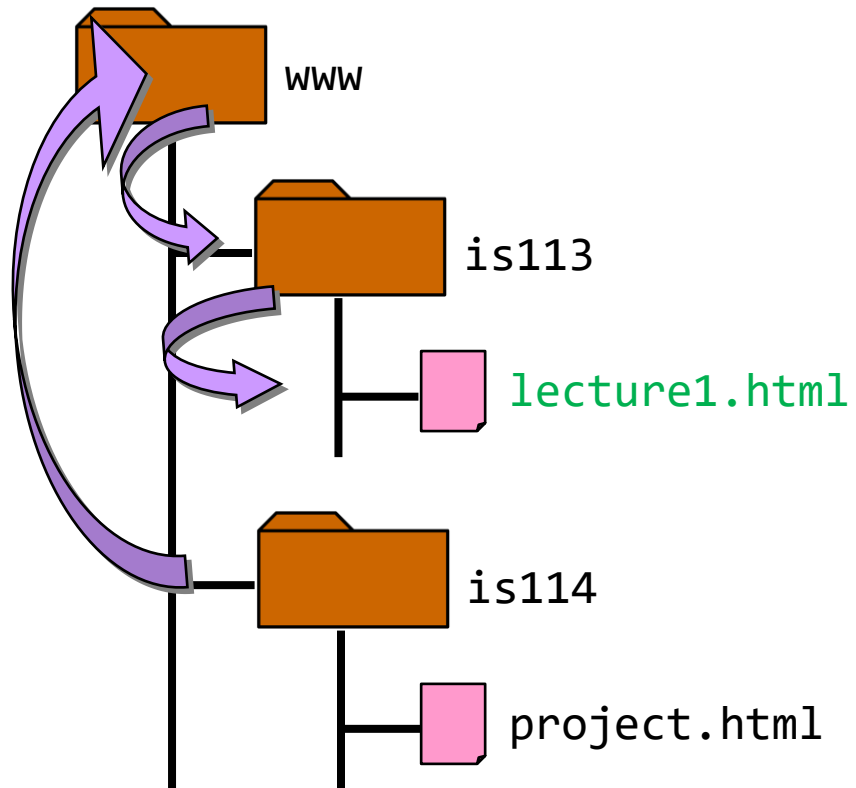
```
<!DOCTYPE html>
<html>
  <head>
    <title>Index Page</title>
  </head>
  <body>
    <a href="./is113/lecture1.html">
    Lecture 1
    </a>
  </body>
</html>
```
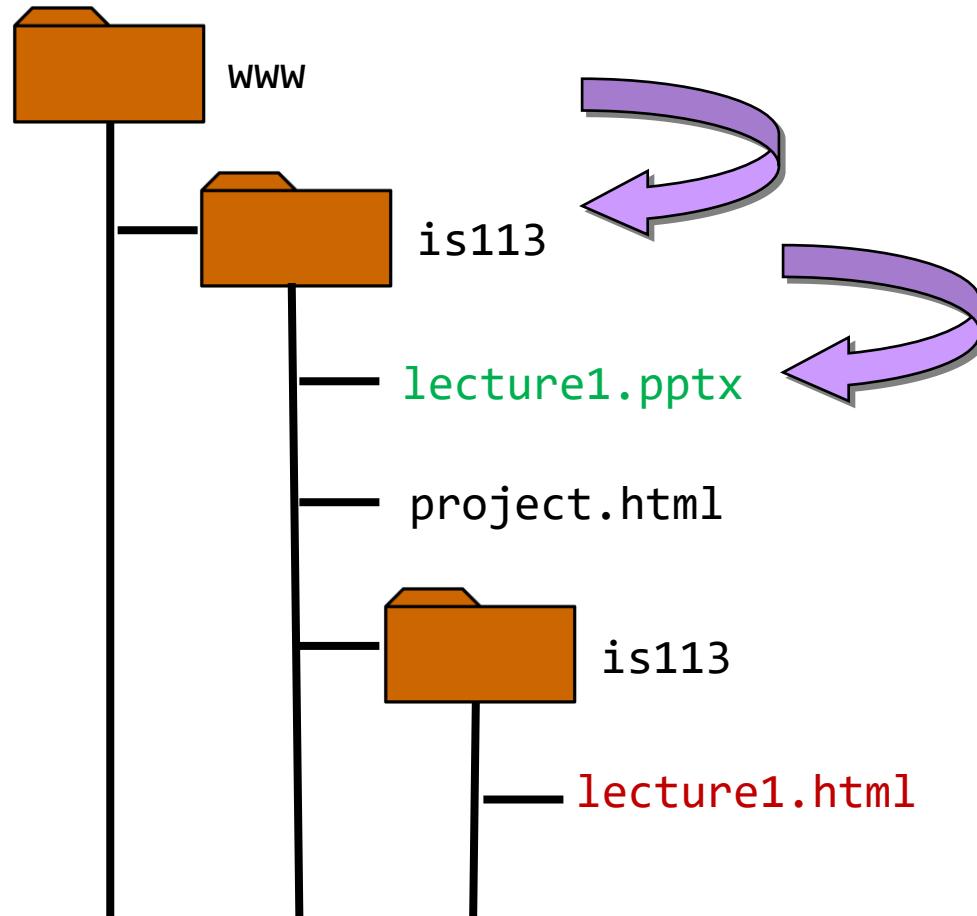
A dot stands for the current directory

School of
**Computing and
Information Systems**

Anchor Tag (Relative Link)

- project.html -

```html
<!DOCTYPE html>
<html>
  <head>
    <title>Index Page</title>
  </head>
  <body>
    <a href="../is113/lecture1.html">
    Lecture 1
    </a>
  </body>
</html>
```

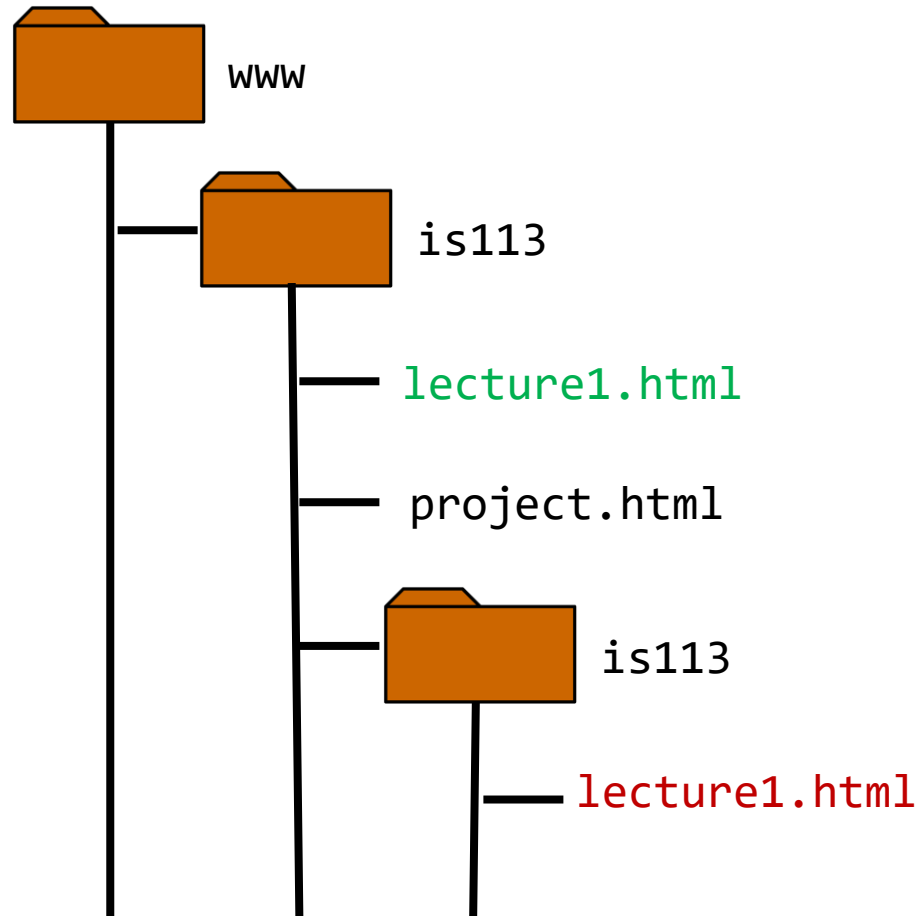Two dots stand for the parent directory

Anchor Tag (Root – Absolute - Link)

▪ ## How about this?

- project.html -


```
<!DOCTYPE html>
<html>
  <head>
    <title>Index Page</title>
  </head>
  <body>
    <a href="/is113/lecture1.html">
    Lecture 1
    </a>
  </body>
</html>
```

www

is113

lecture1.pptx

project.html

is113

lecture1.html

A **slash** means starting from the Document Root (i.e., www) directory

School of
**Computing and
Information Systems**

Anchor Tag (Root – Absolute - Link)

- How about this?

- project.html -

```
<!DOCTYPE html>
<html>
  <head>
    <title>Index Page</title>
  </head>
  <body>
    <a href="is113/lecture1.html">
    Lecture 1
    </a>
  </body>
</html>
```

www

is113

lecture1.html

project.html

is113

lecture1.html

What if it is without a slash?

School of
**Computing and
Information Systems**

Anchor Tag

- How about this?

www

is113

lecture1.html

project.html

is113

lecture1.html

- project.html -

```
<!DOCTYPE html>
<html>
  <head>
    <title>Index Page</title>
  </head>
  <body>
    <a href="is113/lecture1.html">
      Lecture 1
    </a>
  </body>
</html>
```
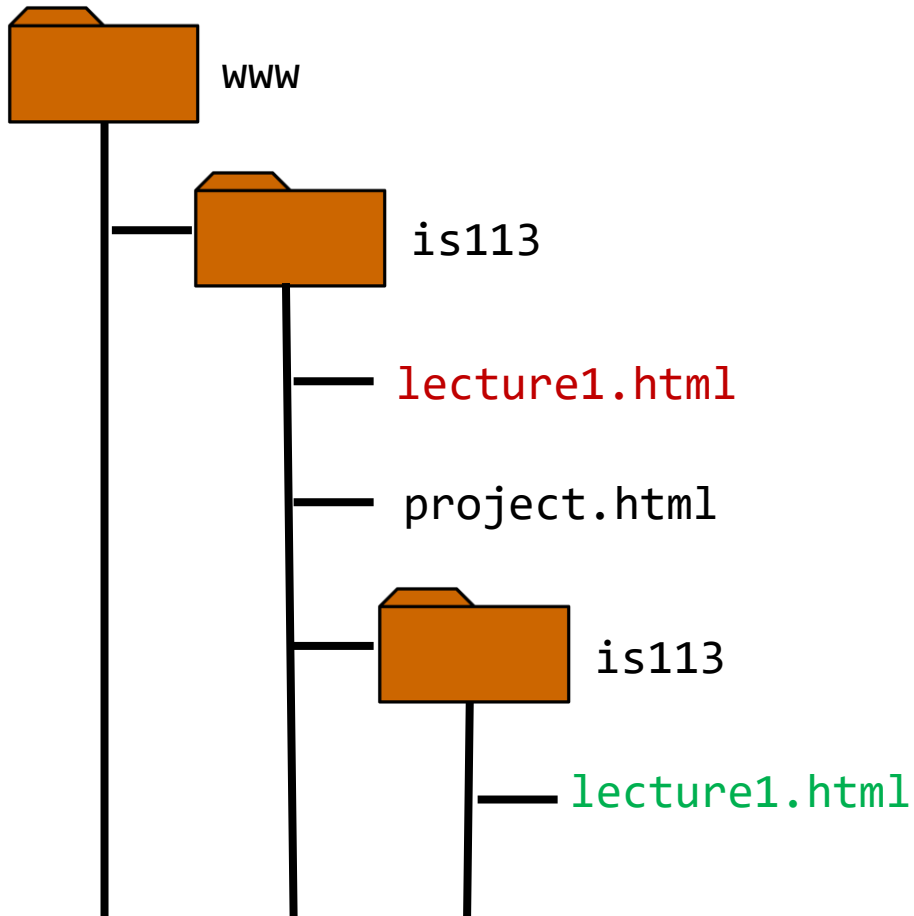
What if it is without a slash?

Anchor Tag & the *id* Attribute

- Can jump directly into a specific section on a page, instead of letting the user scroll around to find what he/she is looking for

```html
<!DOCTYPE html>
<html>
  <head><title>My Links Page</title></head>
<body>
  <a href="#bottom-section">Jump to Bottom Section</a>
  <br><br><br> <br><br><br> <br><br><br>
  <br><br><br> <br><br><br> <br><br><br>
  <br><br><br> <br><br><br> <br><br><br>
  <br><br><br> <br><br><br> <br><br><br>
  <br><br><br> <br><br><br> <br><br><br>
  <br><br><br> <br><br><br> <br><br><br>
  <a id="bottom-section">Bottom Section</a>
</body>
</html>
```

School of
Computing and
Information Systems

Image Tag

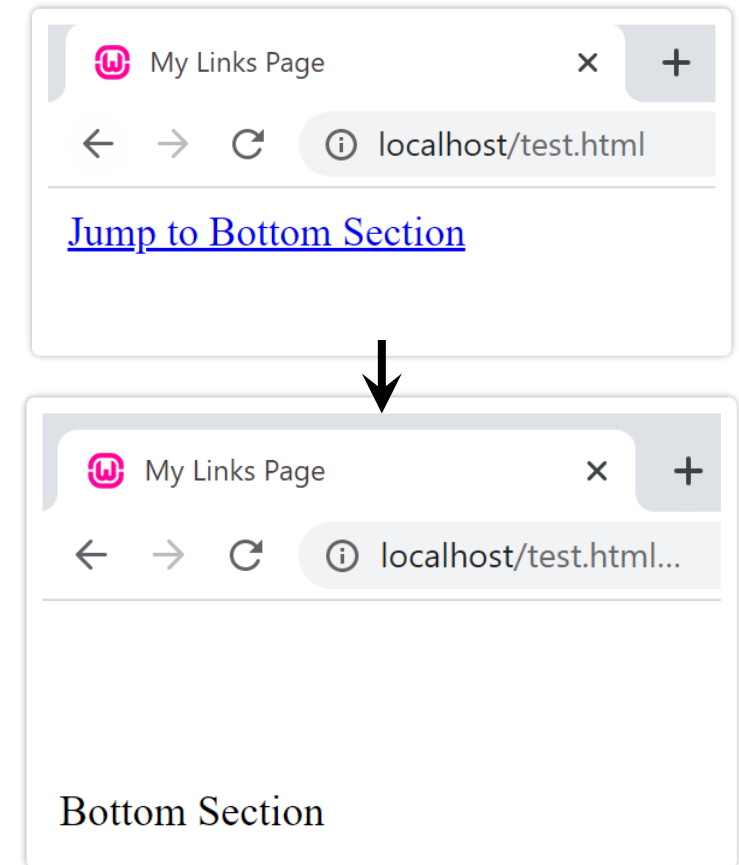- To display images in your Web page

```
<!DOCTYPE html>
<html>
  <body>
    <img src="images/keith.png"
      width="170"
      height="227">
    <br>
  Hi there.<strong>My name is Keith</strong>, and
  I am a junior in Singapore Management
  University. You might be interested to know more
  about my education, interest, life and working
  experience ... Connect with me on Facebook!
  </body>
</html>
```
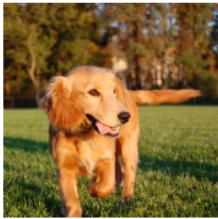

Hi there. **My name is Keith**,and I am a junior in Singapore Management University. You might be interested to know more about my education, interest, life and working experience ... Connect with me on Facebook!

Exercise 2: Anchor and Image

SCIS PET ADOPTION DRIVE UPDATES

Month of January 2018

Dogs for Adoption , MAX , Cotton

Name: MAX
Breed: Golden Retriever
Age: 4 months

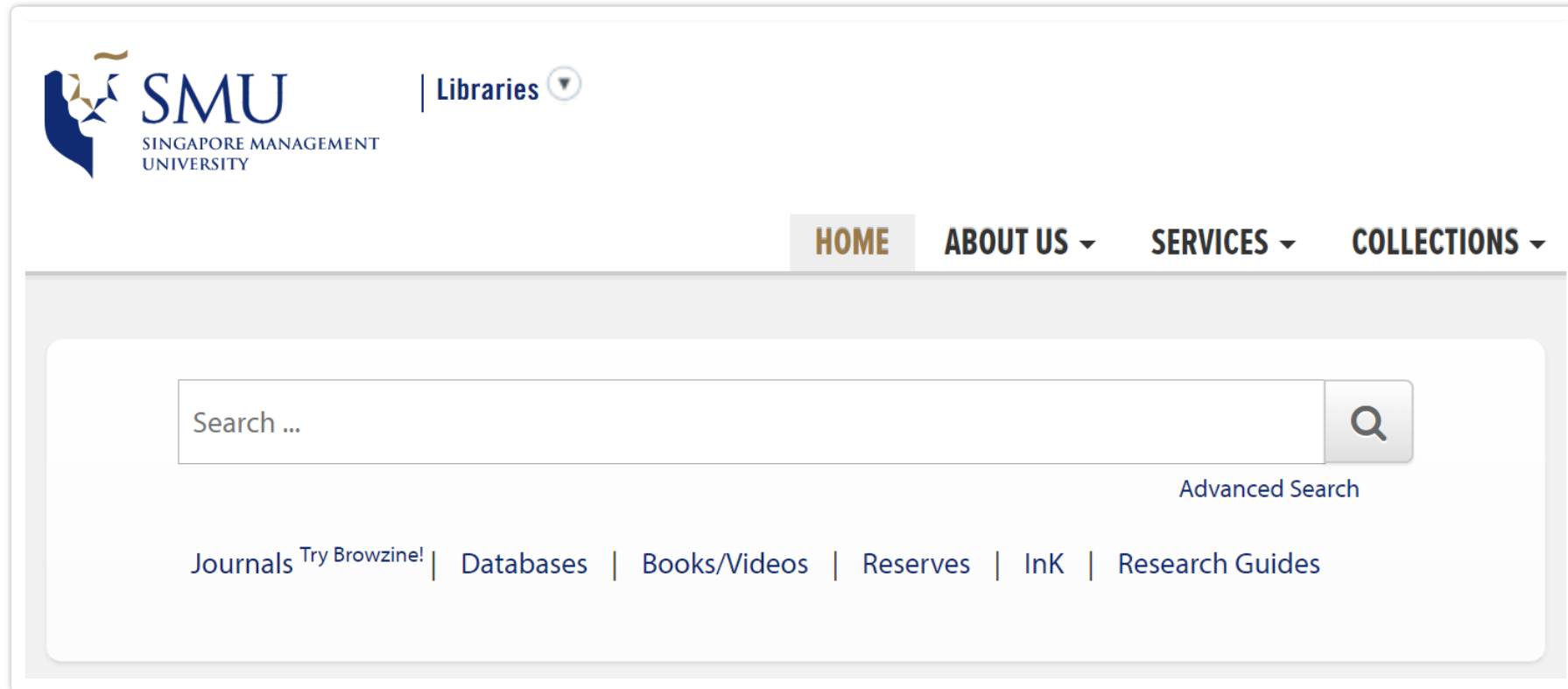Name: Cotton
Breed: Japanese Spitz
Age: 2 yrs old

- Copy folder 'images' from the 02-resources.zip into a suitable folder in your WAMP's www folder.
- Create the page on the left using `<img>`, `<a>`, and other tags.
  - Images' width = height = 100
- When clicked on the link MAX , The page will 'jump' to the Name field of Max.[1]

Hint: Explore by yourself the use of `<h2>`, `<h3>`, `<p>`, and `<br>` tags

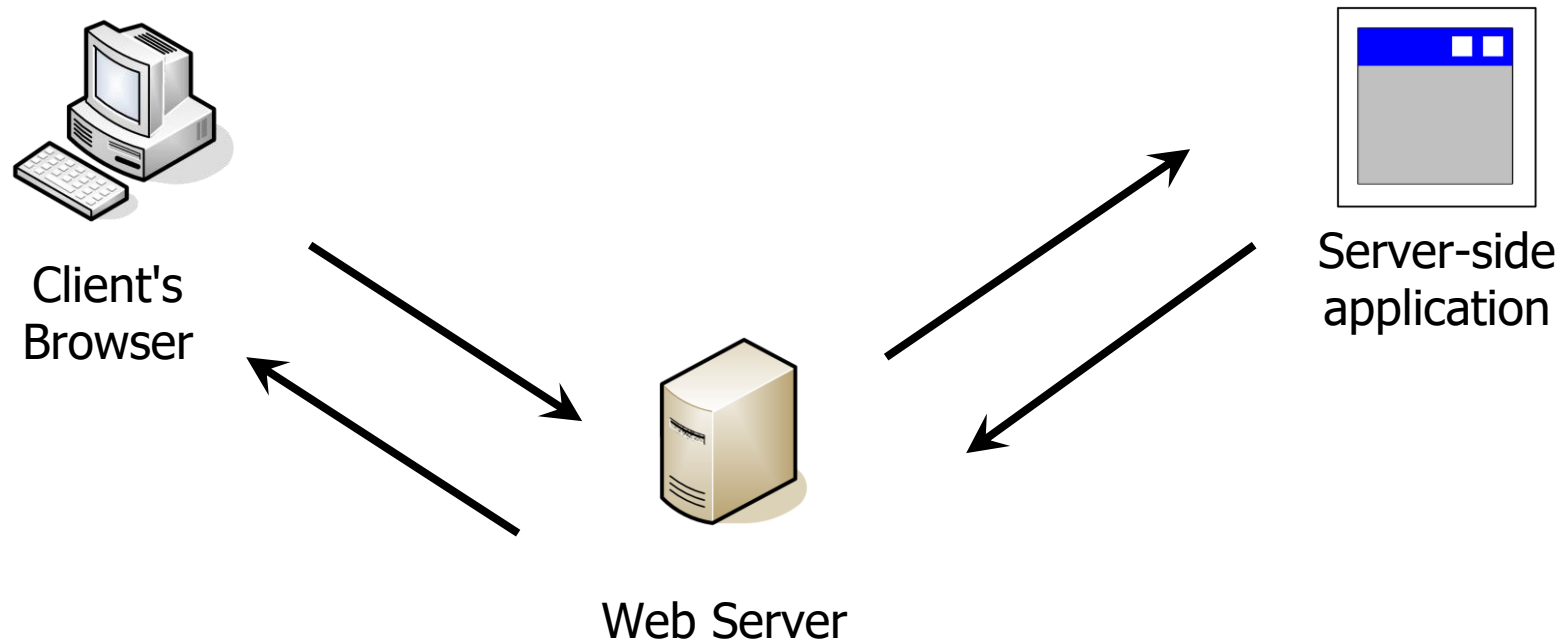[1]If the 'jump' is not observed, zoom the page

School of
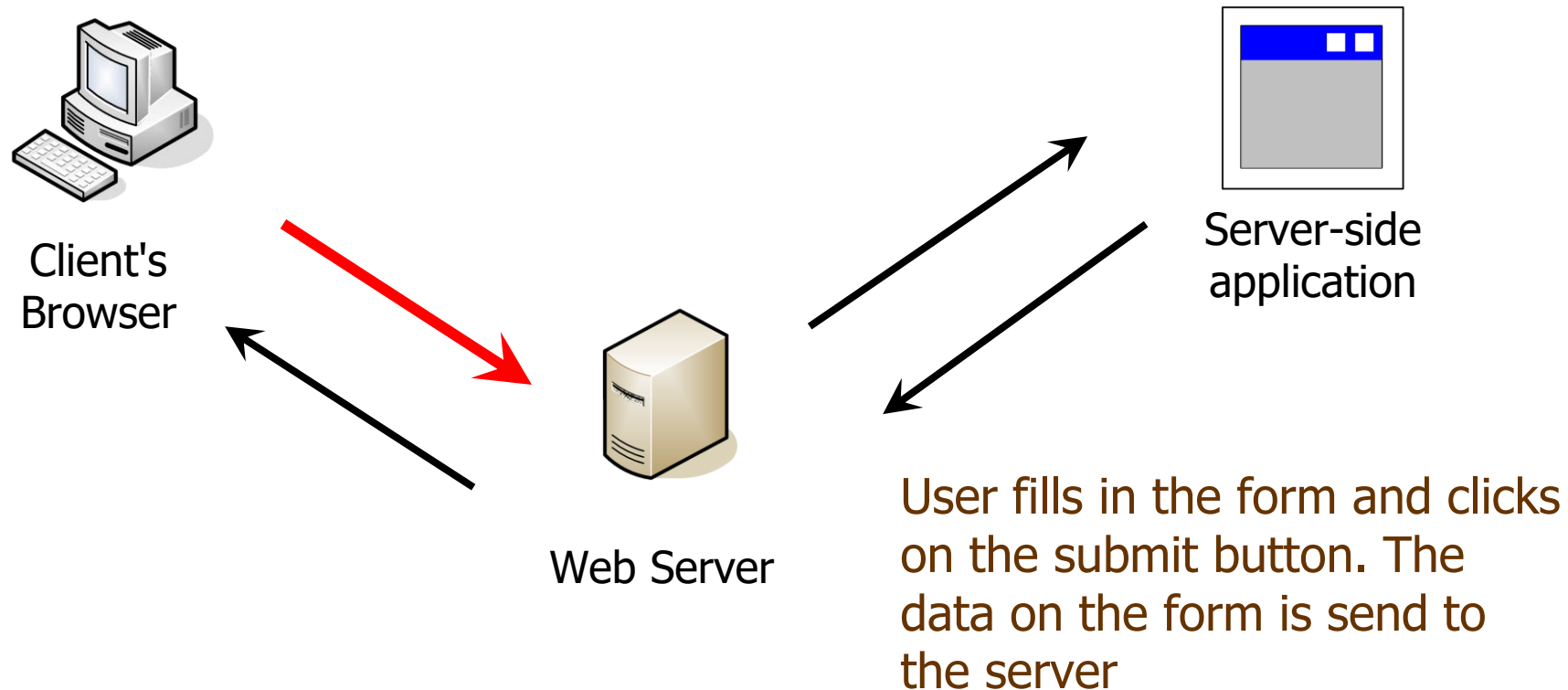**Computing and
Information Systems**

SMU
SINGAPORE MANAGEMENT
UNIVERSITY

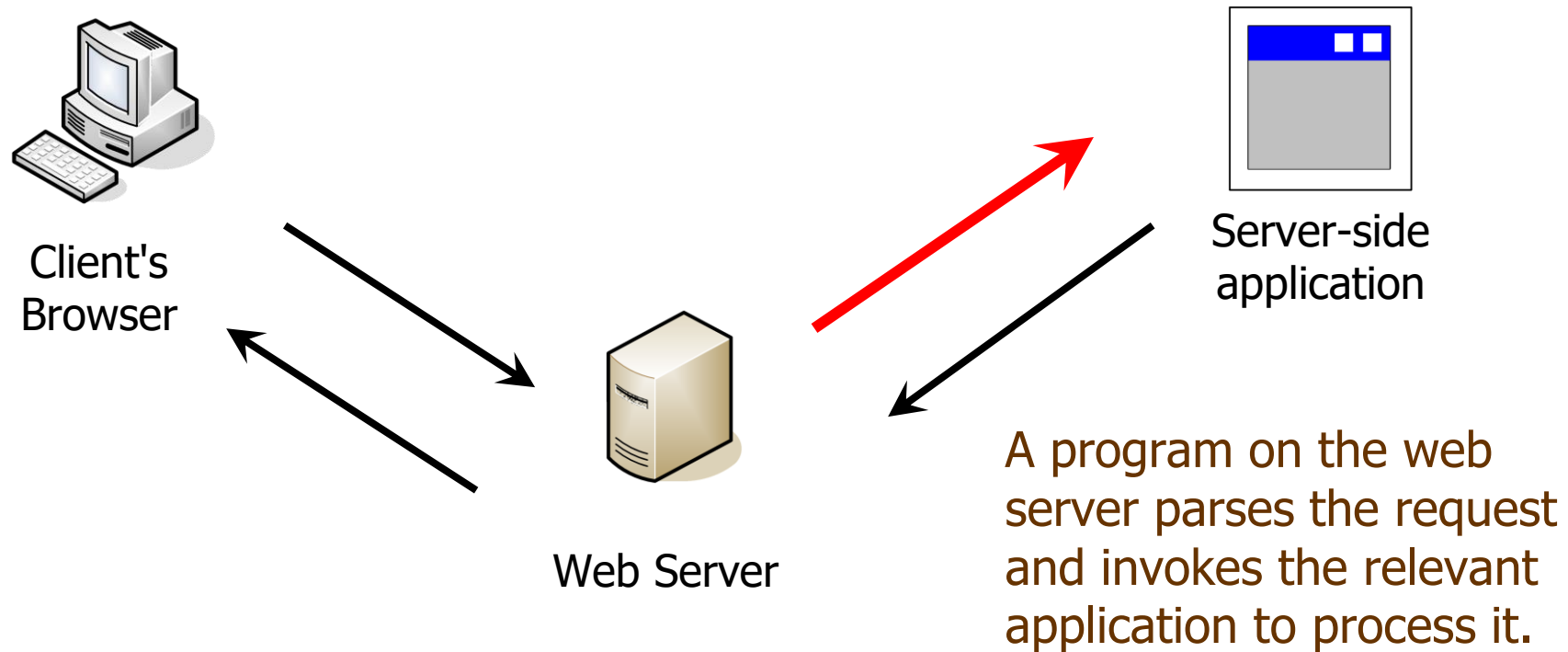# Form Tag

- Provides a means to make web pages interactive

Form Tag

- Provides a means to make web pages interactive

Client's
Browser

Server-side
application

Web Server

Form Tag

- Provides a means to make web pages interactive

Client's
Browser

Server-side
application

Web Server

User fills in the form and clicks on the submit button. The data on the form is send to the server

Form Tag

- Provides a means to make web pages interactive

Client's Browser

Web Server

Server-side application

A program on the web server parses the request and invokes the relevant application to process it.

Form Tag

- Provides a means to make web pages interactive

Client's
Browser

Web Server

Server-side
application

The program creates
the output and returns
it to the server

Form Tag

- Provides a means to make web pages interactive

Client's Browser

Web Server

Server-side application

The server sends the output returned by the application to the client

HTML Form Tag

Tells the client where to send the request to

```
<!DOCTYPE html>
<html>
  <body>
    <form action="/test.php" method="POST">
    </form>
  </body>
</html>
```

Tells the server the kind of request that's being made, and how the message will be formatted. Common values are POST & GET.

School of
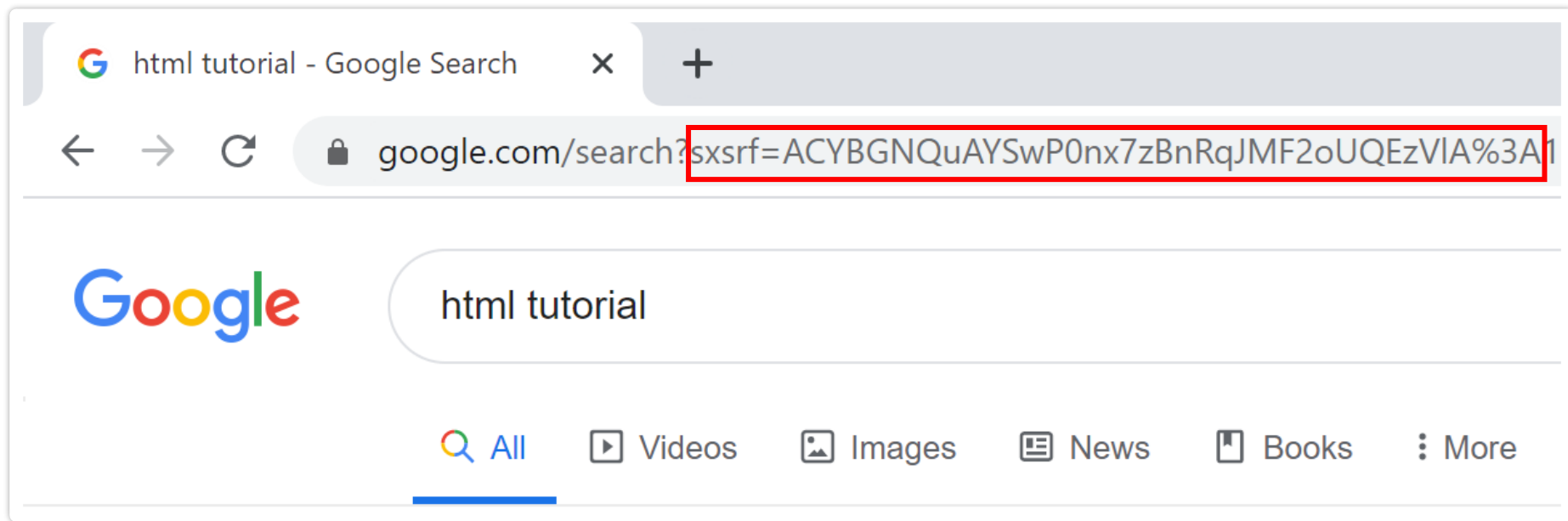**Computing and
Information Systems**

SMU
SINGAPORE MANAGEMENT
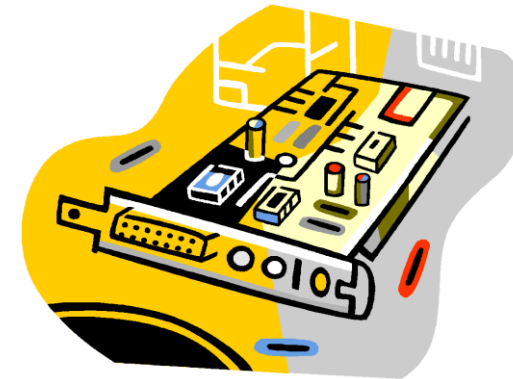UNIVERSITY

Differences between HTTP GET and POST

- Data sent with the GET is appended to end of the URL up in the browser, so whatever you send is exposed.
- Can be bookmarked

Form Components

Text Field	
Submit Button	Submit Query
Reset Button	Reset
Checkbox	☐ Red
Radio Button	○ Red

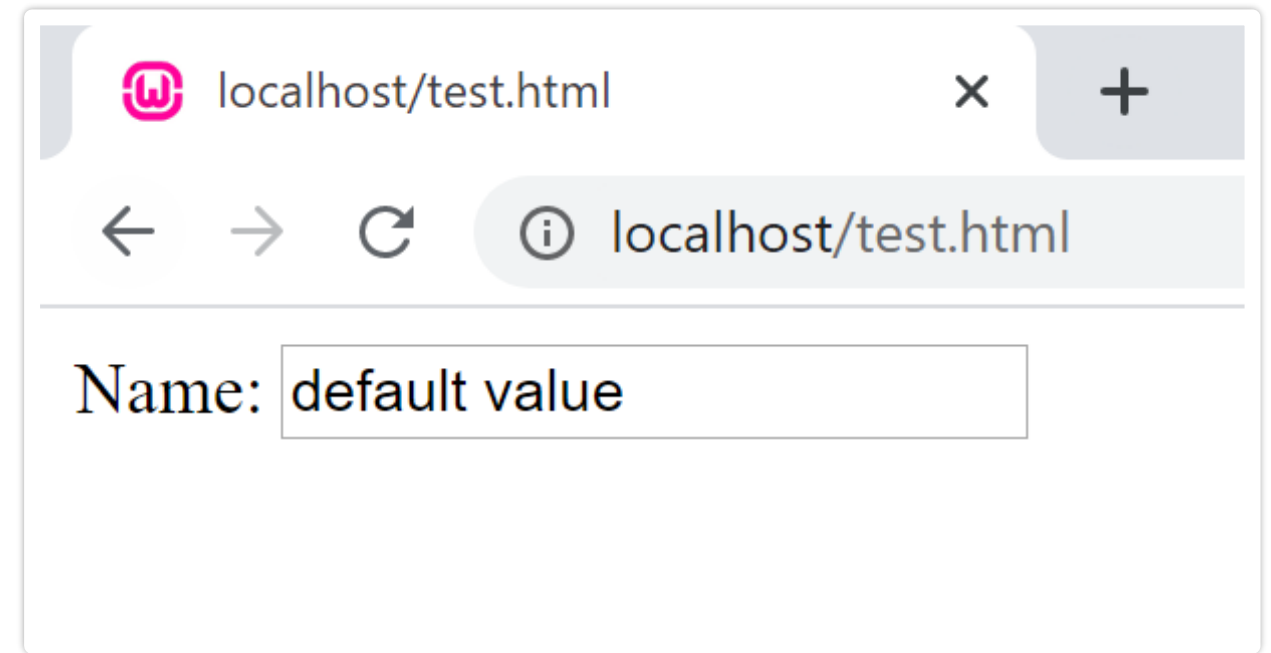|	
Password Field	••••••••
Hidden Field	
Dropdown List	red ▼
Text Area	
Label	123

Text Field

- Allows the user to enter a single line of text.

```
<!DOCTYPE html>
<html>
  <body>
    <form>
    Name:
      <input type="text"
             name="aName"
             value="default value"
             size="20">

    </form>
  </body>
</html>
```

On-/offline documentation: https://devdocs.io/html/element/input/text

School of
Computing and
Information Systems

SMU
SINGAPORE MANAGEMENT
UNIVERSITY

Submit Button

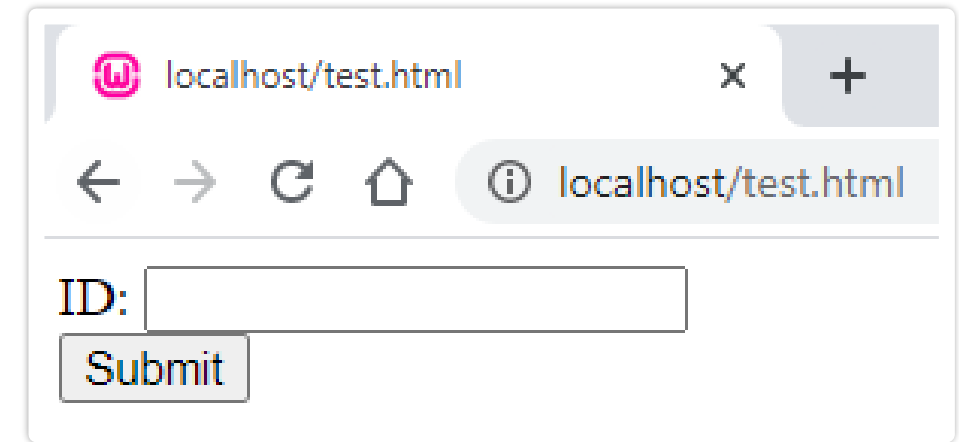- Trigger the browser to send the information to the server.

```
<!DOCTYPE html>
<html>
  <body>
    <form action="test.php">
      ID: <input type="text" name="id">
      <br>
      <input type="submit">
    </form>
  </body>
</html>
```

Password Field

- Allows the user to enter a single line of text.
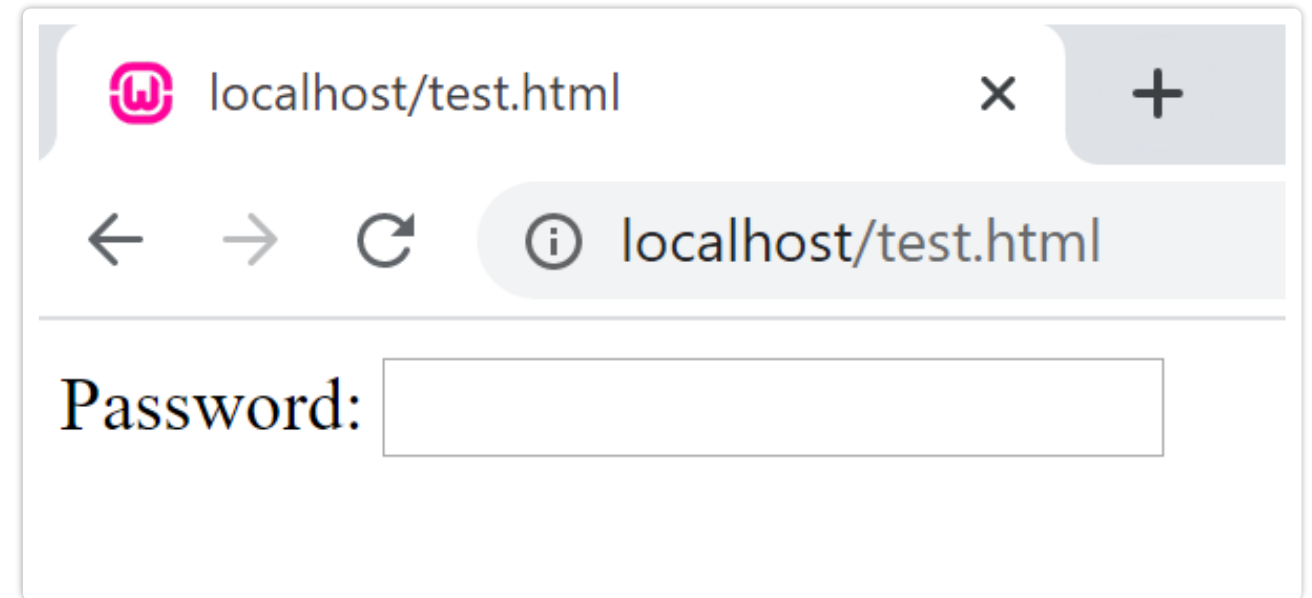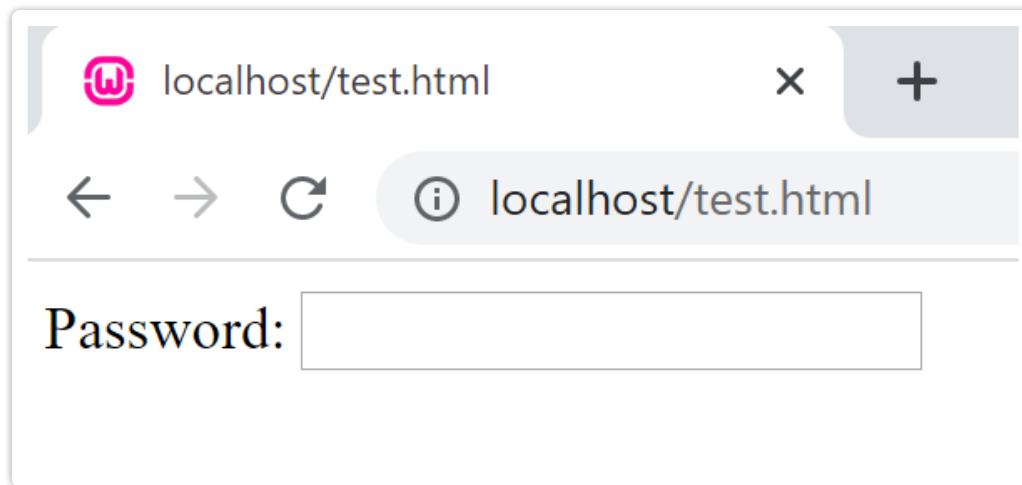
```
<!DOCTYPE html>
<html>
  <body>
    <form>
    Password:
      <input type="password"
             name="pwd"
             size="20">
    </form>
  </body>
</html>
```
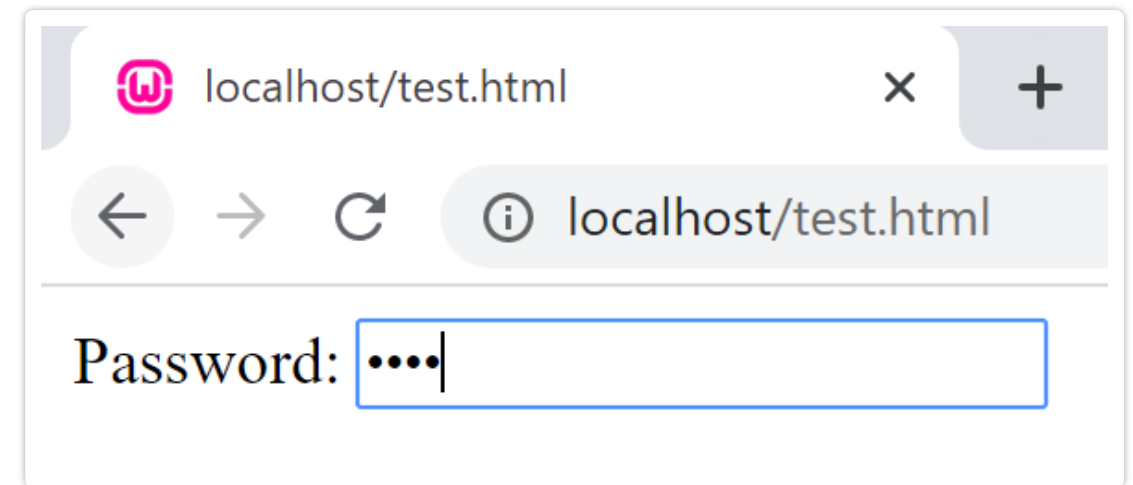
Password Field

- Similar to a textfield, but the characters entered are obscured.

Before the characters "password" is typed in

After the characters "password" is typed in

School of
Computing and
Information Systems

SMU
SINGAPORE MANAGEMENT
UNIVERSITY

32

Radio Button

- A set of radio buttons with the name.

- When one is selected, the rest are automatically deselected

```
<!DOCTYPE html>
<html><body>
  <form>
    Your preferred Color:
      <input name="color" type="radio" value="r" checked>Red
      <input name="color" type="radio" value="g"> Green
      <input name="color" type="radio" value="b">Blue
  </form>
</body></html>
```

Radio buttons are associated by their name

localhost/test.html   ×   +

← → C ⓘ localhost/test.html

Your preferred Color: ● Red ○ Green ○ Blue

School of
Computing and
Information Systems

SMU
SINGAPORE MANAGEMENT
UNIVERSITY

Label

- Associates a label with a form component

```
<!DOCTYPE html>
<html><body>
    <form>
    Your preferred Color:
        <input name="color" type="radio" value="r" checked>Red
        <input name="color" type="radio" value="g" id="color_g">
        <label for="color_g">Green</label>
        <input name="color" type="radio" value="b">Blue
    </form>
</body></html>
```
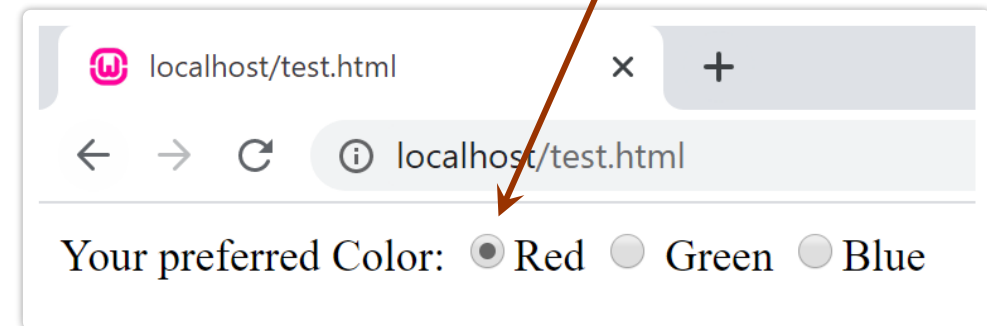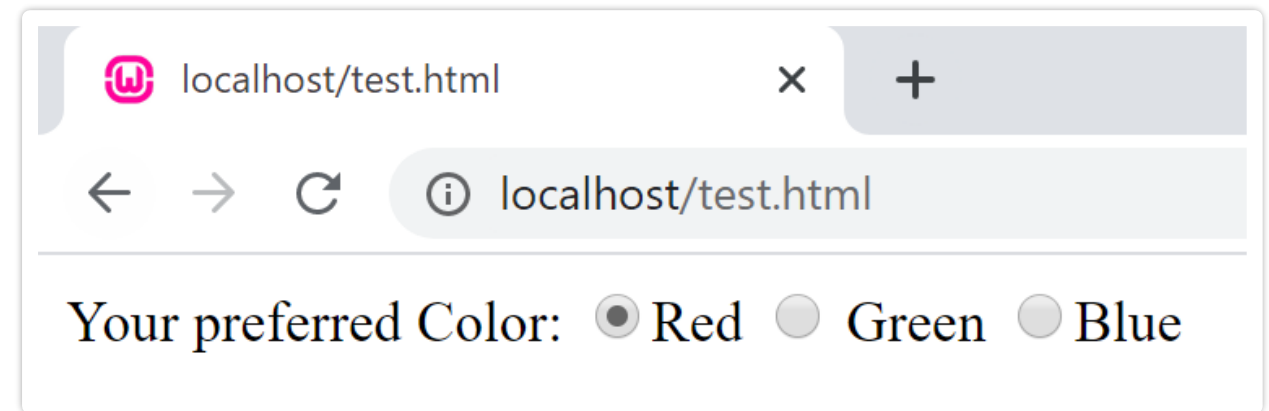
Click on the word "Red", "Green" & "Blue". What do you notice?

localhost/test.html

localhost/test.html

Your preferred Color: ⦿ Red ◯ Green ◯ Blue

School of
**Computing and
Information Systems**

SMU
SINGAPORE MANAGEMENT
UNIVERSITY

Checkbox

- The item it places on the page is a square and it is marked with a check when chosen.

- You can check as many as you like.

```
<!DOCTYPE html>
<html><body>
    <form>
     My favourite colors:
        <input name="color[]" type="checkbox" value="r" checked>Red
        <input name="color[]" type="checkbox" value="g" checked>Green
        <input name="color[]" type="checkbox" value="b">Blue
</form>
</body></html>
```
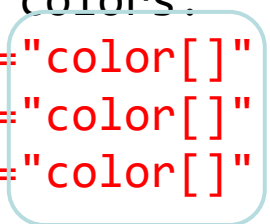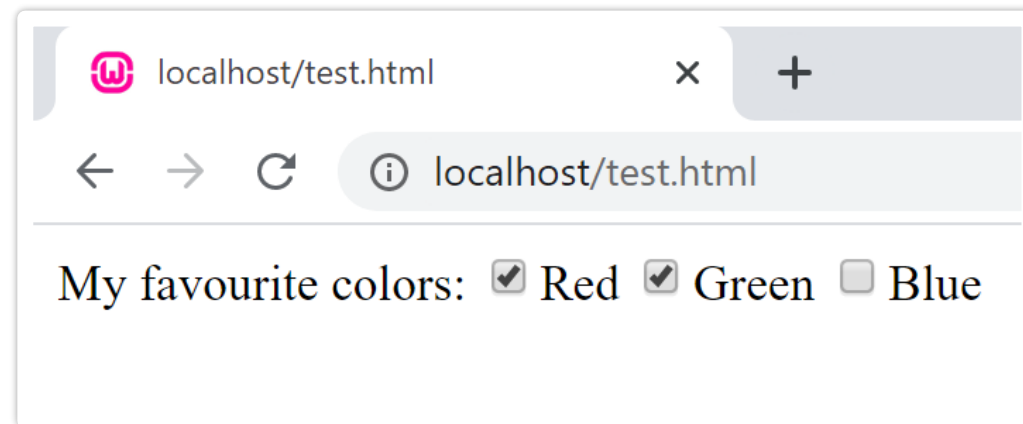
If more than one possible value, always use an array name

localhost/test.html   ×   +

← → C   ⓘ localhost/test.html

My favourite colors: ☑ Red ☑ Green ☐ Blue

School of
**Computing and
Information Systems**

SMU
SINGAPORE MANAGEMENT
UNIVERSITY

Exercise 3: Form - I

- Create a New User Registration Form as shown on the right.

- You have text input for First Name, Last Name, and Email. You have password input for password and radio buttons for Gender female and male.

- Next, they fill in their interest in games. Use check boxes for Mobile Games, PC Games Play Station and Xbox.

- Remember to create relevant Labels for each input and fill in the values for the radio buttons and checkboxes.

New User Registration

First Name: [Enter Your First Name]
Last Name: [Enter Your Last Name]
Email: [Enter Your Email]
Password: [   ]
Gender: ○ Female ○ Male

INTEREST

Please Check all that apply
☐ Mobile Games ☐ PC Games
☐ Play Station ☐ Xbox

Hint: Explore by yourself the use of `<small></small>`, `<h1></h1>`, `<h4></h4>`, and ` `

School of
Computing and
Information Systems

Text Area Component

- Unlike a text box that only allows one line, the text area allows as many lines as you wish.
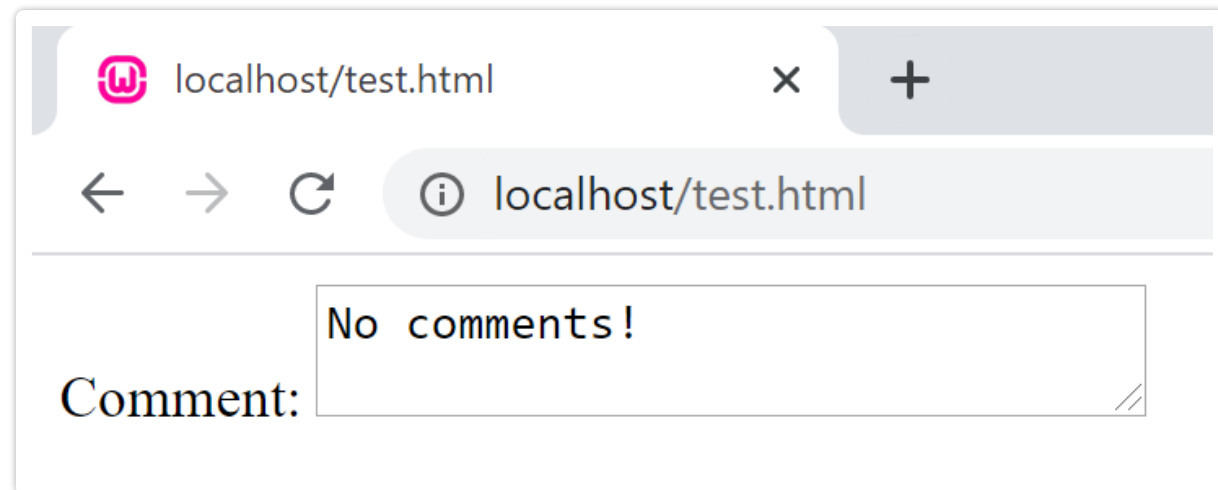
```
<!DOCTYPE html>
<html>
  <body>
    <form>
      Comment:
      <textarea name="comment" rows="2" cols="30">No comments!
      </textarea>
    </form>
  </body>
</html>
```

Note: every character in-between the tag is included verbatim

School of
**Computing and
Information Systems**

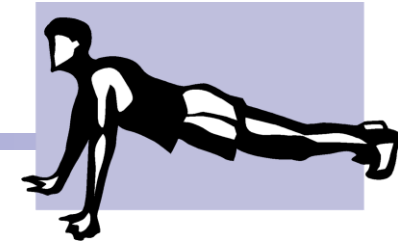# Dropdown List

- Allows selection out of a specified list.

```html
<!DOCTYPE html>
<html>
  <body>
    <form>
      My favorite color:
      <select name="color">
        <option value="R" selected>red</option>
        <option value="G">green</option>
        <option value="B">blue</option>
      </select>
    </form>
  </body>
</html>
```
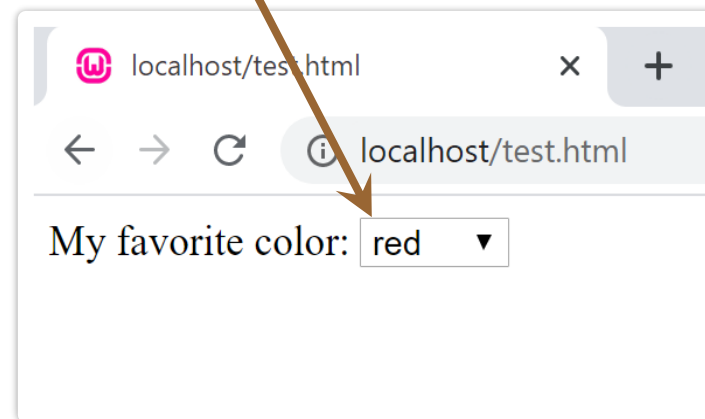
When clicked

School of
**Computing and
Information Systems**

Dropdown List

- **multiple** will allow more than one option to be selected.
- **size** attribute specifies the number of options that should be visible at a time.

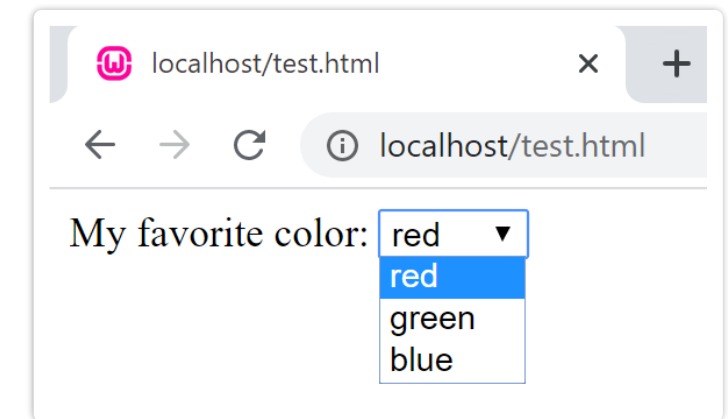```
<!DOCTYPE html>
<html>
  <body>
    <form>
      My favorite colors:
      <select name="color[]" size="3" multiple>
        <option value="R" selected>red</option>
        <option value="G">green</option>
        <option value="B" selected>blue</option>
      </select>
    </form>
  </body>
</html>
```
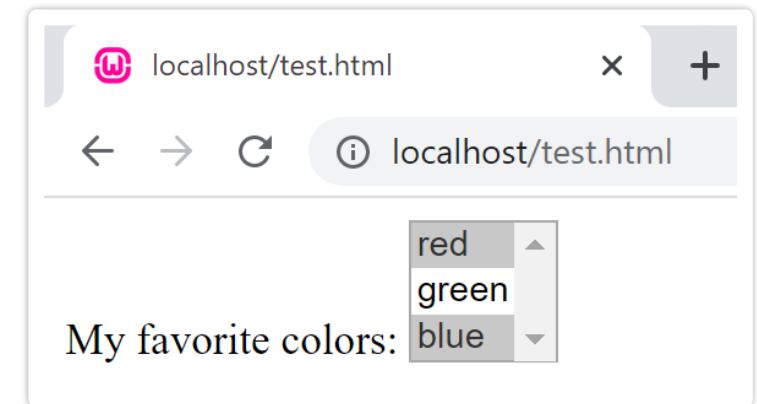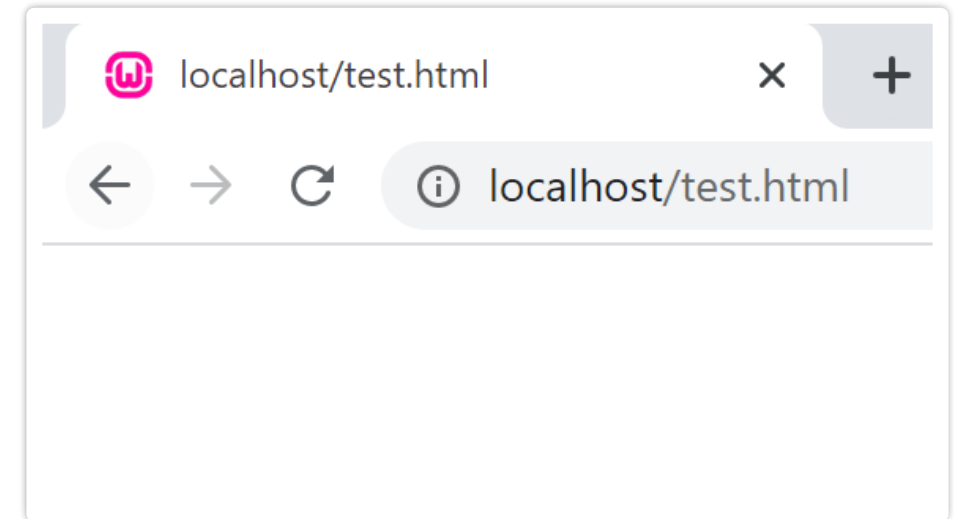
# Hidden Field

- To provide information that is not entered by the visitor.

```
<!DOCTYPE html>
<html>
  <body>
    <form>
        <input type="hidden"
               name="language"
               value="english">
    </form>
  </body>
</html>
```


School of
**Computing and
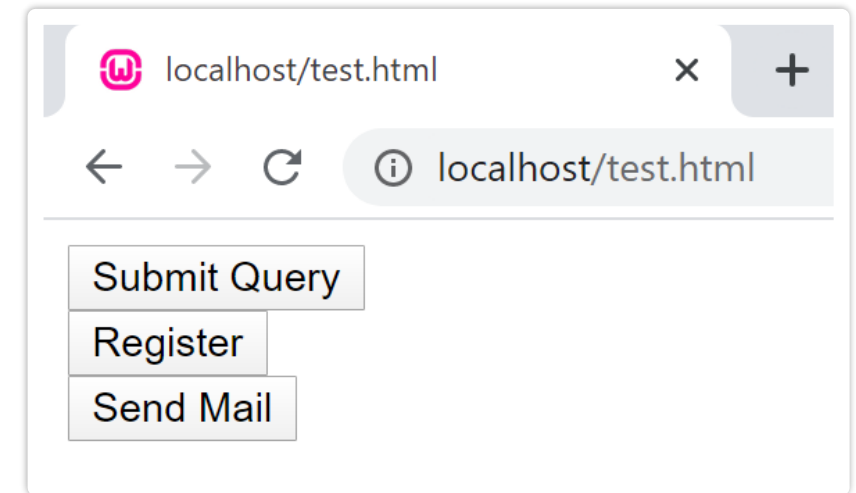Information Systems**

Submit Button

- Another example:

```
<!DOCTYPE html>
<html>
  <body>
    <form action="/test.php">
      <input type="submit" name="operation"
        value="Submit Query"><br>
      <input type="submit" name="operation"
        value="Register"><br>
      <input type="submit" name="operation"
        value="Send Mail"><br>
    </form>
  </body>
</html>
```
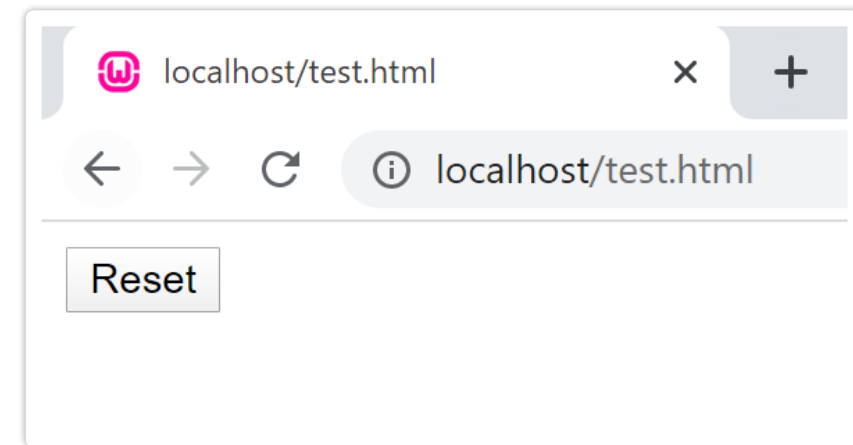
Reset Button

- It does not send any form data to the server.
- When selected, this button resets all the components in the HTML form to their default values.

```
<!DOCTYPE html>
<html>
  <body>
    <form action="/test.php">
      <input type="reset">
    </form>
  </body>
</html>
```

Exercise 4: Form - II

- Create a customer feedback form as shown on the left.
- You have text input for title and name. There is a dropdown list for the type of feedbacks.
- Type includes Inquiries, Feedback and Suggestions.
- Next you have a text area for customer to enter their comments.
- Remember to create relevant Labels for each input.
- Lastly create a reset input type and a submit input type.

School of
**Computing and
Information Systems**

Table

- Allows data to be arranged in rows and columns

<table>	Defines a table
<tr></tr>	Defines a new **T**able **R**ow.
<th></th>	Used to create the titles of your table data (Table Header)
<td></td>	Denotes Table Data. Enclose your data within the tags.
</table>	Indicates the end of the table

Table

```
<!DOCTYPE html>
<html>
  <body>
    <table>
      <tr>
        <td>Fire/Ambulance</td>
        <td>995</td>
      </tr>
    </table>
  </body>
</html>
```

Table

```
<!DOCTYPE html>
<html>
  <body>
    <table>
      <tr>
        <td>Fire/Ambulance</td>
        <td>995</td>
      </tr>
      <tr>
        <td>Police</td>
        <td>999</td>
      </tr>
    </table>
  </body>
</html>
```


School of
**Computing and
Information Systems**

SMU
SINGAPORE MANAGEMENT
UNIVERSITY
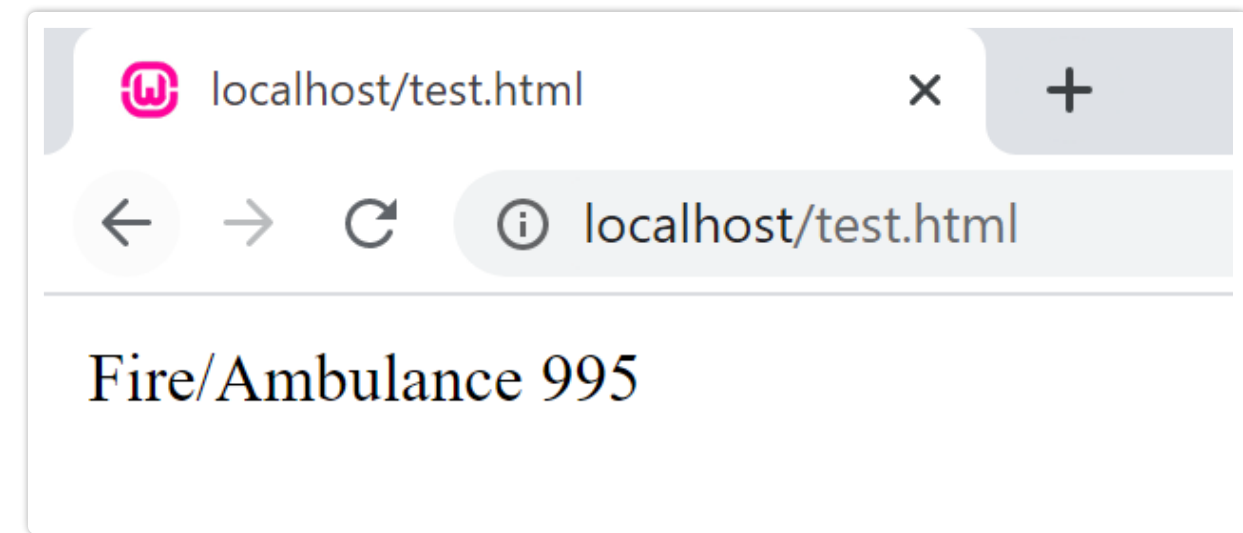
Table

```
<!DOCTYPE html>
<html>
  <body>
    <table>
      <tr>
        <th>Purpose</th>
        <th>Telephone Number</th>
      </tr>
      <tr>
        <td>Fire/Ambulance</td>
        <td>995</td>
      </tr>
      <tr>
        <td>Police</td>
        <td>999</td>
      </tr>
    </table>
  </body>
</html>
```
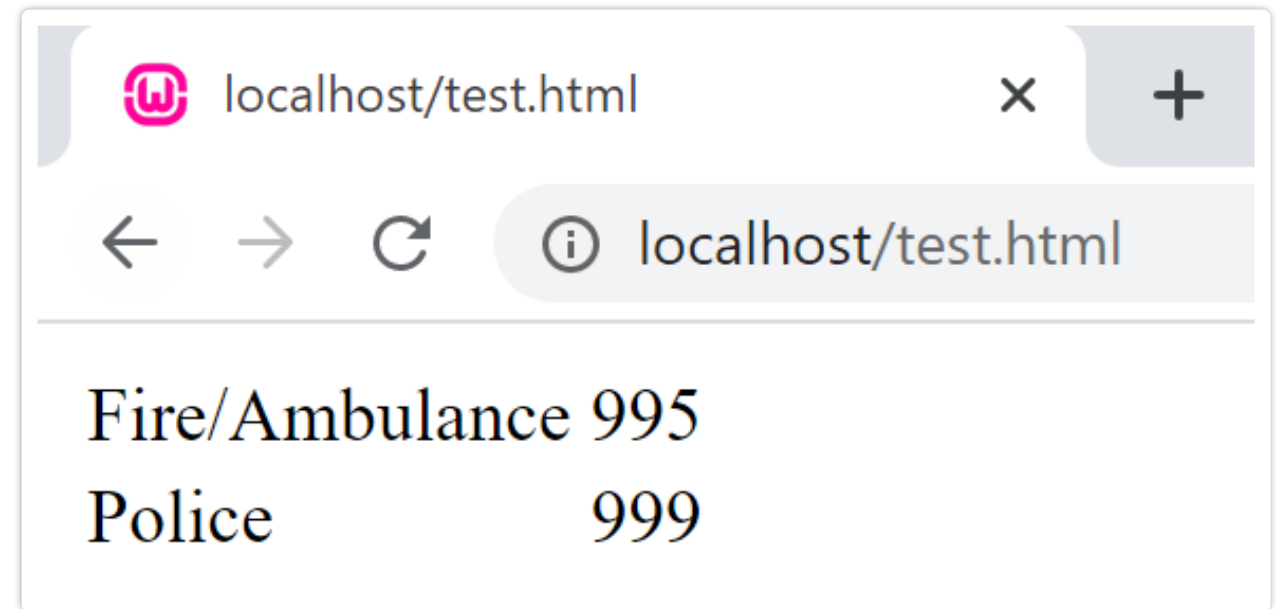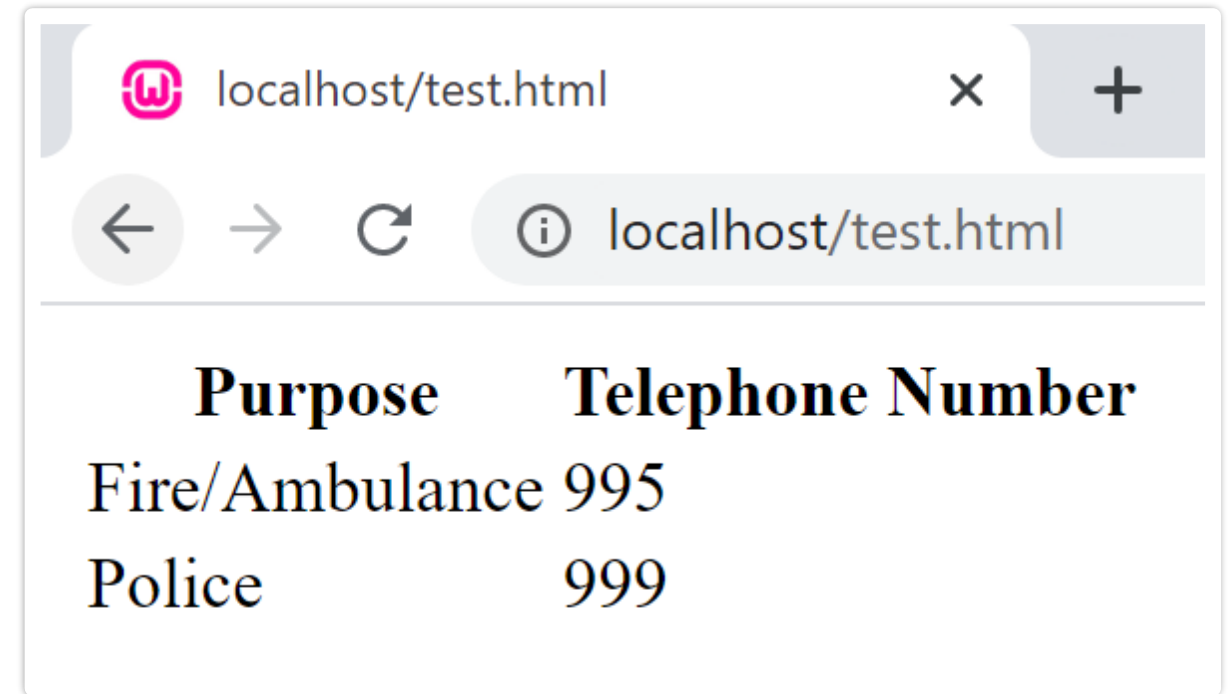
localhost/test.html

localhost/test.html

Purpose	Telephone Number
Fire/Ambulance	995
Police	999

Exercise 5: Table

- Create a HTML page that contains your academic timetable. An example is shown below.

	8.30 - 10.00	10.15 - 11.45	12.00 - 1.30	1.45 - 3.15	3.30 - 5.00	5.15 - 6.45
Monday	IS 113					
Tuesday				IS 202		
Wednesday		MGMT 226				
Thursday					POSC 001	
Friday						

Exercise 5: Table

- **Hints**:

  - Use the border attribute of <table> tag:
    <table border="1">
    or the following CSS (out of scope for WAD1):

    ```
    <style>
      table{border: 1px solid black;}
      th,td{border: 1px solid black;}
    </style>
    ```

  - Explore by yourself the use of *colspan* attribute of <td>

School of
**Computing and
Information Systems**

SMU
SINGAPORE MANAGEMENT
UNIVERSITY

References and Homework

- HTML Tutorial
  - http://www.w3schools.com/html
- More?
  - Type "html tutorial" in Google search engine

Key Points

- HTML
  - Stands for Hyper Text Markup Language
  - Tags mostly come in pair

- HTML Tags
  - List: `<ul>`,`<ol>`
  - Link: `<a>`
  - Image: `<img>`
  - Form: `<form>`, `<input>`, `<select>`, `<option>`
  - Table: `<table>`, `<tr>`, `<th>`, `<td>`
  - Etc.