

# **Web Engineering LAB**



**Lab # 03**  
**HTML: Images, Tables, Forms**  
**CSS: Introduction**

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# Content

<b>IMAGES</b>	<b>3</b>
HOW TO ADD IMAGES TO PAGES	3
WHERE TO PLACE IMAGES IN YOUR CODE	4
THREE RULES FOR CREATING IMAGES	5
IMAGE FORMAT : JPEG	5
IMAGE FORMAT : GIF / PNG	5
IMAGE DIMENSIONS	5
HTML 5: FIGURE AND FIGURE CAPTION	5
EXAMPLE	6
<b>TABLES</b>	<b>7</b>
TABLE ROW	7
TABLE DATA	7
TABLE HEADING	7
SPANNING COLUMNS	8
SPANNING ROWS	8
LONG TABLE	8
<b>FORMS</b>	<b>10</b>
HOW FORM WORKS?	10
FORM CONTROLS	11
FORM STRUCTURE	11
TEXT INPUT	11
TEXT AREA	13
RADIO BUTTON	13
Dropdown List Box	14
LABELLING FORM CONTROLS	14
GROUPING FORM ELEMENTS	14
HTML 5: ELEMENTS	14
<b>DOCTYPES</b>	<b>14</b>
<b>GROUPING TEXT &amp; ELEMENTS IN A BLOCK &lt;DIV&gt;</b>	<b>15</b>
<b>INTRODUCING CSS</b>	<b>17</b>
CSS RULE	17
CSS DECLARATION	17
USING EXTERNAL CSS	18
USING INTERNAL CSS	19
<b>LAB TASKS:</b>	<b>20</b>

## Images

There are many reasons why you might want to add an image to a web page: you might want to include a logo, photograph, illustration, diagram, or chart.

### How to add images to pages

To add an image into the page you need to use an `<img>` element. This is an empty element (which means there is no closing tag). It must carry the following attributes:

- `src`
- `alt`
- `title`

#### `src`

This tells the browser where it can find the image file. This will usually be a relative URL pointing to an image on your own site.

#### `alt`

This provides a text description of the image which describes the image if you cannot see it.

#### `title`

You can also use the `title` attribute with the `<img>` element to provide additional information about the image. Most browsers will display the content of this attribute in a tool tip when the user hovers over the image.

#### Example:

```
1 
4 |
```



### Height & Width of Images

You will also often see an `<img>` element use two other attributes that specify its size:

- `height` : This specifies the height of the image in pixels.
- `width`: This specifies the width of the image in pixels.

Note: Images often take longer to load than the HTML code that makes up the rest of the page. It is, therefore, a good idea to specify the size of the image so that the browser can render the rest of the text on the page while leaving the right amount of space for the image that is still loading.

Example:

```
1 
5 |
```

### Where to Place Images in Your Code

Where an image is placed in the code will affect how it is displayed. Here are three examples of image placement that produce different results:

#### Before a paragraph

The paragraph starts on a new line after the image.

#### Inside the start of a paragraph

The first row of text aligns with the bottom of the image.

#### In the middle of a paragraph

The image is placed between the words of the paragraph that it appears in.

Example:

```
1 
3
4 <p>There are around 10,000 living species of birds that inhabit
5 different ecosystems from the Arctic to the Antarctic. Many
6 species undertake long distance annual migrations, and many more
7 perform shorter irregular journeys.</p>
8
9 <hr />
10
11 <p>There are around 10,000 living species of birds
13 that inhabit different ecosystems from the Arctic to the
14 Antarctic. Many species undertake long distance annual migrations,
15 and many more perform shorter irregular journeys.</p>
16
17 <hr />
18
19 <p>There are around 10,000 living species of birds that inhabit
20 different ecosystems from the Arctic to the Antarctic.
21 
22 Many species undertake long distance annual migrations, and many
23 more perform shorter irregular journeys.</p>
24 |
```



There are around 10,000 living species of birds that inhabit different ecosystems from the Arctic to the Antarctic. Many species undertake long distance annual migrations, and many more perform shorter irregular journeys.



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### Three Rules for Creating Images

There are three rules to remember when you are creating images for your website which are as follow:

- Save images in the right format
- Save images at the right size
- Use the correct resolution

#### Image Format : JPEG

Whenever you have many different colors in a picture you should use a JPEG. A photograph that features snow or an overcast sky might look like it has large areas that are just white or gray, but the picture is usually made up of many different colors that are subtly different.

#### Image Format : GIF / PNG

Use GIF or PNG format when saving images with few colors or large areas of the same color. When a picture has an area that is filled with exactly the same color, it is known as flat color. Logos, illustrations, and diagrams often use flat colors. (Note that photographs of snow, sky, or grass are not flat colors, they are made up of many subtly different shades of the same color and are not as suited to GIF or PNG format.)

#### Image Dimensions

The images you use on your website should be saved at the same width and height that you want them to appear on the page.

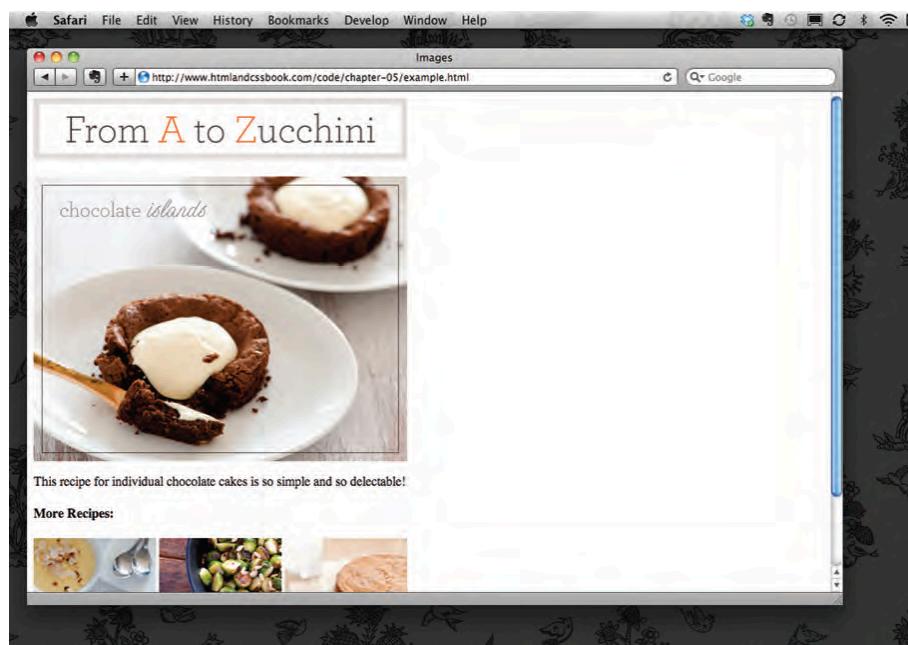
#### HTML 5: Figure and Figure Caption

Images often come with captions. HTML5 has introduced a new `<figure>` element to contain images and their caption so that the two are associated. You can have more than one image inside the `<figure>` element as long as they all share the same caption. The `<figcaption>` element has been added to HTML5 in order to allow web page authors to add a caption to an image.

```
1 <figure>
2   
3   <br />
4
5   <figcaption> This is the caption!!
6   </figcaption>
7
8 </figure>
```

## Example

```
1 <html>
2   <head>
3     <title>Images</title>
4   </head>
5   <body>
6     <h1>
7       
8     </h1>
9     <figure>
10       
13       <p>
14         <figcaption>
15           This recipe for individual chocolate
16             cakes is so simple and so delectable!
17         </figcaption>
18       </p>
19     </figure>
20     <h4>More Recipes:</h4>
21     <p>
22       
25       
28       
31     </p>
32   </body>
33 </html>
```



## Tables

There are several types of information that need to be displayed in a grid or table. For example: sports results, stock reports, train timetables.

A table represents information in a grid format. Examples of tables include financial reports, TV schedules, and sports results. Each block in the grid is referred to as a table cell. In HTML a table is written out row by row.

The `<table>` element is used to create a table. The contents of the table are written out row by row.

### Table Row

You indicate the start of each row using the opening `<tr>` tag. (The `tr` stands for table row.) It is followed by one or more `<td>` elements (one for each cell in that row). At the end of the row you use a closing `</tr>` tag.

### Table Data

Each cell of a table is represented using a `<td>` element. (The `td` stands for table data.) At the end of each cell you use a closing `</td>` tag.

```
1 <html>
2 <head>
3   <title>tables</title>
4 </head>
5 <body>
6   <table>
7     <tr>
8       <td>15</td>
9       <td>15</td>
10      <td>30</td>
11    </tr>
12    <tr>
13      <td>45</td>
14      <td>60</td>
15      <td>45</td>
16    </tr>
17    <tr>
18      <td>60</td>
19      <td>90</td>
20      <td>90</td>
21    </tr>
22  </table>
23 </body>
24 </html>
25
```

15	15	30
45	60	45
60	90	90

### Table Heading

The `<th>` element is used just like the `<td>` element but its purpose is to represent the heading for either a column or a row. (The `th` stands for table heading.)

Even if a cell has no content, you should still use a `<td>` or `<th>` element to represent the presence of an empty cell otherwise the table will not render correctly. (The first cell in the first row of this example shows an empty cell.)

You can use the scope attribute on the `<th>` element to indicate whether it is a heading for a column or a row. It can take the values: `row` to indicate a heading for a row or `col` to indicate a heading for a column.

```
1 <table>
2   <tr>
3     <th></th>
4     <th scope="col">Saturday</th>
5     <th scope="col">Sunday</th>
6   </tr>
7   <tr>
8     <th scope="row">Tickets sold:</th>
9     <td>120</td>
10    <td>135</td>
11  </tr>
12  <tr>
13    <th scope="row">Total sales:</th>
14    <td>$600</td>
15    <td>$675</td>
16  </tr>
17 </table>
```

## Saturday Sunday

**Tickets sold:** 120      135

**Total sales:** \$600      \$675

### Spanning Columns

Sometimes you may need the entries in a table to stretch across more than one column. The `colspan` attribute can be used on a `<th>` or `<td>` element and indicates how many columns that cell should run across.

The `colspan` attribute can be used on a `<th>` or `<td>` element and indicates how many columns that cell should run across.

### Spanning Rows

You may also need entries in a table to stretch down across more than one row. The `rowspan` attribute can be used on a `<th>` or `<td>` element to indicate how many rows a cell should span down the table.

### Long Table

There are three elements that help distinguish between the main content of the table and the first and last rows (which can contain different content).

`<thead>`

The headings of the table should sit inside the `<thead>` element.

`<tbody>`

The body should sit inside the `<tbody>` element.

`<tfoot>`

The footer belongs inside the `<tfoot>` element.

Example:

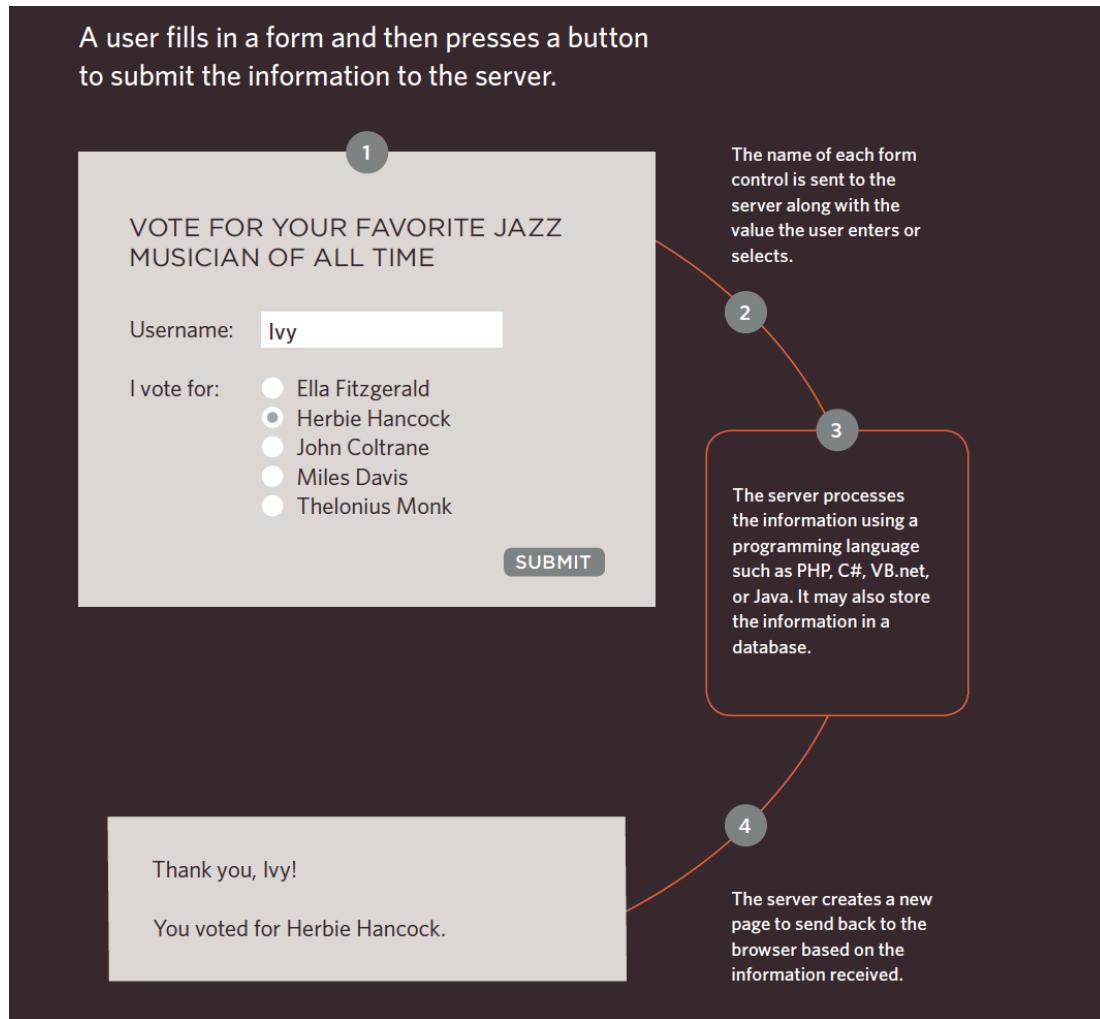
```
1 <table width="400" cellpadding="5" cellspacing="0" border="2">
2   <thead>
3     <tr>
4       <th>Date</th>
5       <th>Income</th>
6       <th>Expenditure</th>
7     </tr>
8   </thead>
9
10  <tbody>
11    <tr>
12      <th>1st January</th>
13      <td>250</td>
14      <td>36</td>
15    </tr>
16
17    <tr>
18      <th>2nd January</th>
19      <td>285</td>
20      <td>48</td>
21    </tr>
22
23      <!-- additional rows as above -->
24
25    <tr>
26      <th>31st January</th>
27      <td>129</td>
28      <td>64</td>
29    </tr>
30  </tbody>
31
32  <tfoot>
33    <tr>
34      <td></td>
35      <td>7824</td>
36      <td>1241</td>
37    </tr>
38  </tfoot>
39 </table>
```

## Forms

HTML borrows the concept of a form to refer to different elements that allow you to collect information from visitors to your site.

Whether you are adding a simple search box to your website or you need to create more complicated insurance applications, HTML forms give you a set of elements to collect data from your users.

### How Form Works?



## Form Controls

There are several types of form controls that you can use to collect information from visitors to your site.

### ADDING TEXT:

#### Text input (single-line)

Used for a single line of text such as email addresses and names.



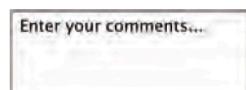
#### Password input

Like a single line text box but it masks the characters entered.



#### Text area (multi-line)

For longer areas of text, such as messages and comments.



### MAKING CHOICES:

#### Radio buttons

For use when a user must select one of a number of options.



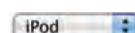
#### Checkboxes

When a user can select and unselect one or more options.



#### Drop-down boxes

When a user must pick one of a number of options from a list.



### SUBMITTING FORMS:

#### Submit buttons

To submit data from your form to another web page.



#### Image buttons

Similar to submit buttons but they allow you to use an image.



### UPLOADING FILES:

#### File upload

Allows users to upload files (e.g. images) to a website.



## Form Structure

Form controls live inside a `<form>` element. This element should always carry the `action` attribute and will usually have a `method` and `id` attribute too.

### action

Every `<form>` element requires an `action` attribute. Its value is the URL for the page on the server that will receive the information in the form when it is submitted.

### method

Forms can be sent using one of two methods: `get` or `post`.

### id

`id` attribute value is used to identify the form distinctly from other elements on the page.

## Text Input

The `<input>` element is used to create several different form controls. The value of the `type` attribute determines what kind of input they will be creating.

## type

The different input types are as follows:

- <input type="button">
- <input type="checkbox">
- <input type="color">
- <input type="date">
- <input type="datetime-local">
- <input type="email">
- <input type="file">
- <input type="hidden">
- <input type="image">
- <input type="month">
- <input type="number">
- <input type="password">
- <input type="radio">
- <input type="range">
- <input type="reset">
- <input type="search">
- <input type="submit">
- <input type="tel">
- <input type="text" (default value)
- <input type="time">
- <input type="url">
- <input type="week">

## name

When users enter information into a form, the server needs to know which form control each piece of data was entered into. (For example, in a login form, the server needs to know what has been entered as the username and what has been given as the password.) Therefore, each form control requires a name attribute.

## maxlength

You can use the maxlength attribute to limit the number of characters a user may enter into the text field.

```
1 <html>
2 <head>
3     <title>form_examples</title>
4 </head>
5 <body>
6 <form action="http://www.example.com/login.php">
7     <p>Username:<br/>
8         <input type="text" name="username" size="15" maxlength="30" />
9     </p>
10    <p>Password:<br/>
11        <input type="password" name="password" size="15" maxlength="30" />
12    </p>
13 </form>
14
15 </body>
16 </html>
17 |
```

Username: ahmad

Password: .....

### Text Area

The <textarea> element is used to create a multi-line text input. Unlike other input elements this is not an empty element.

#### Example

```
1 <html>
2 <head>
3     <title>form_examples</title>
4 </head>
5 <body>
6     <form action="http://www.example.com/comments.php">
7         <p>What did you think of this gig?</p>
8         <textarea name="comments" cols="20" rows="4">
9             Enter your comments...
10        </textarea>
11    </form>
12
13 </body>
14 </html>
```

### Radio Button

<input> type="radio" Radio buttons allow users to pick just one of a number of options.

#### Example

```
1 <html>
2 <head>
3     <title>form_examples</title>
4 </head>
5 <body>
6     <form action="http://www.example.com/profile.php">
7         <p>Please select your favorite genre:<br />
8             <input type="radio" name="genre" value="rock" checked="checked" /> Rock
9             <input type="radio" name="genre" value="pop" /> Pop
10            <input type="radio" name="genre" value="jazz" /> Jazz
11        </p>
12    </form>
13 </body>
14 </html>
```

## Dropdown List Box

The `<select>` element is used to create a drop down list box. It contains two or more `<option>` elements. The `name` attribute indicates the name of the form control being sent to the server, along with the value the user selected.

The `<option>` element uses the `value` attribute to indicate the value that is sent to the server along with the name of the control if this option is selected.

## Labelling Form Controls

Each form control should have its own `<label>` element as this makes the form accessible to vision-impaired users.

The `<label>` element can be used in two ways. It can:

1. Wrap around both the text description and the form input (as shown on the first line of the example to your right).
2. Be kept separate from the form control and use the `for` attribute to indicate which form control it is a label for (as shown with the radio buttons).

```
18 <label>Age: <input type="text" name="age" /></label>
19
20 <br/ >
21
22
23 Gender:
24 <input id="female" type="radio" name="gender" value="f">
25 <label for="female">Female</label>
26
27 <input id="male" type="radio" name="gender" value="m">
28 <label for="male">Male</label>
29
```

## Grouping Form Elements

You can group related form controls together inside the `<fieldset>` element. This is particularly helpful for longer forms. Most browsers will show the fieldset with a line around the edge to show how they are related. The appearance of these lines can be adjusted using CSS.

The `<legend>` element can come directly after the opening `<fieldset>` tag and contains a caption which helps identify the purpose of that group of form controls.

## HTML 5: Elements

HTML5 introduces new form elements which make it easier for visitors to fill in forms.

- Form Validation
- Date Input
- Email & URL input
- Search Input

## DOCTYPES

Because there have been several versions of HTML, each web page should begin with a DOCTYPE declaration to tell a browser which version of HTML the page is using (although

browsers usually display the page even if it is not included).

The screenshot shows a code editor with a tab bar at the top. The tabs are labeled 'HTML5' (gray), 'HTML' (blue, currently selected), 'HTML 4' (gray), 'Transitional XHTML 1.0' (gray), 'Strict XHTML 1.0' (gray), and 'XML Declaration' (gray). Below each tab is a snippet of DOCTYPE code:

- HTML5:** `<!DOCTYPE html>`
- HTML:** (No visible code)
- HTML 4:** `<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN" "http://www.w3.org/TR/html4/loose.dtd">`
- Transitional XHTML 1.0:** `<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">`
- Strict XHTML 1.0:** `<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">`
- XML Declaration:** `<?xml version="1.0" ?>`

## Grouping Text & Elements In a Block <div>

The `<div>` element allows you to group a set of elements together in one block-level box. For example, you might create a `<div>` element to contain all of the elements for the header of your site (the logo and the navigation), or you might create a `<div>` element to contain comments from visitors.

In a browser, the contents of the `<div>` element will start on a new line, but other than this it will make no difference to the presentation of the page. Using an id or class attribute on the `<div>` element, however, means that you can create CSS style rules to indicate how much space the `<div>` element should occupy on the screen and change the appearance of all the elements contained within it. It can also make it easier to follow your code if you have used `<div>` elements to hold each section of the page.

```
1 <html>
2 <head>
3   <title>form_examples</title>
4 </head>
5 <body>
6   <div id="header">
7     
8     <ul>
9       <li><a href="index.html">Home</a></li>
10      <li><a href="lectures.html">Lectures</a></li>
11      <li><a href="labs.html">Labs</a></li>
12      <li><a href="contact.html">Contact</a></li>
13    </ul>
14  </div><!-- end of header -->
15 </body>
16 </html>
17
```

## Introducing CSS

CSS allows you to create rules that specify how the content of an element should appear. For example, you can specify that the background of the page is cream, all paragraphs should appear in gray using the Arial typeface, or that all level one headings should be in a blue, italic, Times typeface.

Using CSS, you could add a border around any of the boxes, specify its width and height, or add a background color. You could also control text inside a box — for example, its color, size, and the typeface used.

### CSS Rule

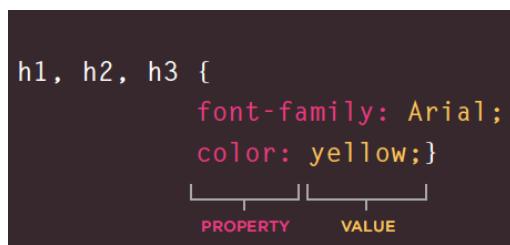
A CSS rule contains two parts: a selector and a declaration.



- This rule indicates that all `<p>` elements should be shown in the Arial typeface
- Selectors indicate which element the rule applies to. The same rule can apply to more than one element if you separate the element names with commas.
- Declarations indicate how the elements referred to in the selector should be styled.

### CSS Declaration

CSS declarations sit inside curly brackets and each is made up of two parts: a property and a value, separated by a colon. You can specify several properties in one declaration, each separated by a semi-colon.



- This rule indicates that all `<h1>`, `<h2>` and `<h3>` elements should be shown in the Arial typeface, in a yellow color.
- Properties indicate the aspects of the element you want to change. For example, color, font, width, height and border
- Values specify the settings you want to use for the chosen properties. For example, if you want to specify a color property then the value is the color you want the text in these elements to be.

### Example

This example uses two documents: the HTML file (`example.html`) and a separate CSS file (`example.css`). The fifth line of HTML uses the `<link>` element to indicate where the CSS file is located.

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>Introducing CSS</title>
5   <link href="css/example.css" type="text/css" rel="stylesheet" />
6 </head>
7 <body>
8   <h1>From Garden to Plate</h1>
9   <p>A <i>potager</i> is a French term for an
10    ornamental vegetable or kitchen garden ... </p>
11
12   <h2>What to Plant</h2>
13   <p>Plants are chosen as much for their functionality
14    as for their color and form ... </p>
15 </body>
16 </html>
```

```
1 body {
2   font-family: Arial, Verdana, sans-serif;
3   h1, h2 {
4     color: #ee3e80;
5   }
6   p {
7     color: #665544;
```

# From Garden to Plate

A *potager* is a French term for an ornamental vegetable or kitchen garden ...

## What to Plant

Plants are chosen as much for their functionality as for their color and form ...

### Using External CSS

The `<link>` element can be used in an HTML document to tell the browser where to find the CSS file used to style the page. It is an empty element (meaning it does not need a closing tag), and it lives inside the `<head>` element.

It should use three attributes:

#### `href`

This specifies the path to the CSS file (which is often placed in a folder called `css` or `styles`).

#### `type`

This attribute specifies the type of document being linked to. The value should be `text/css`.

## rel

This specifies the relationship between the HTML page and the file it is linked to. The value should be stylesheet when linking to a CSS file.

## Using Internal CSS

You can also include CSS rules within an HTML page by placing them inside a `<style>` element, which usually sits inside the `<head>` element of the page.

The `<style>` element should use the type attribute to indicate that the styles are specified in CSS. The value should be `text/css`.

```
1  <!DOCTYPE html>
2  <html>
3  <head>
4      <title>Using Internal CSS</title>
5      <style type="text/css">
6          body {
7              font-family: arial;
8              background-color: rgb(185,179,175);}
9          h1 {
10             color: rgb(255,255,255);}
11     </style>
12 </head>
13
14 <body>
15     <h1>Potatoes</h1>
16     <p>There are dozens of different potato
17         varieties. They are usually described as
18         early, second early and maincrop.</p>
19 </body>
20 </html>
```

# Potatoes

There are dozens of different potato varieties. They are usually described as early, second early and maincrop.

## Lab Tasks:

1. Display an image that when clicked will link to a search engine of your choice (should be opened in a new window).
2. Using HTML create the following table:

Quick	brown fox	jumps
	lazy	dog
over the	then	and
fall		
prey to a hunter		

3. Create the following HTML form.

### Registration form

Note: Form is to be completed ...

Personal Details

Name:  Enter name here  
Address:  Enter address here  
Email:  Enter email here  
Phone Number:  Enter phone number here  
IQ:  Enter IQ here

Gender

Male  
 Female  
 Other

Date of Birth:  dd/mm/yyyy

Check List

Check All That Apply

check\_01  
 check\_02  
 check\_03  
 check\_04

Education

Education Level Completed:  University ✓ Education Level Completed:  University ✓

Essay Section

In 50 words or more explain why you want to register

Enter Text Here

Please upload contact details for 2 references

Enter Text Here

Upload Police Clearance Certificate, Bank Statement and Medical Certificates here: