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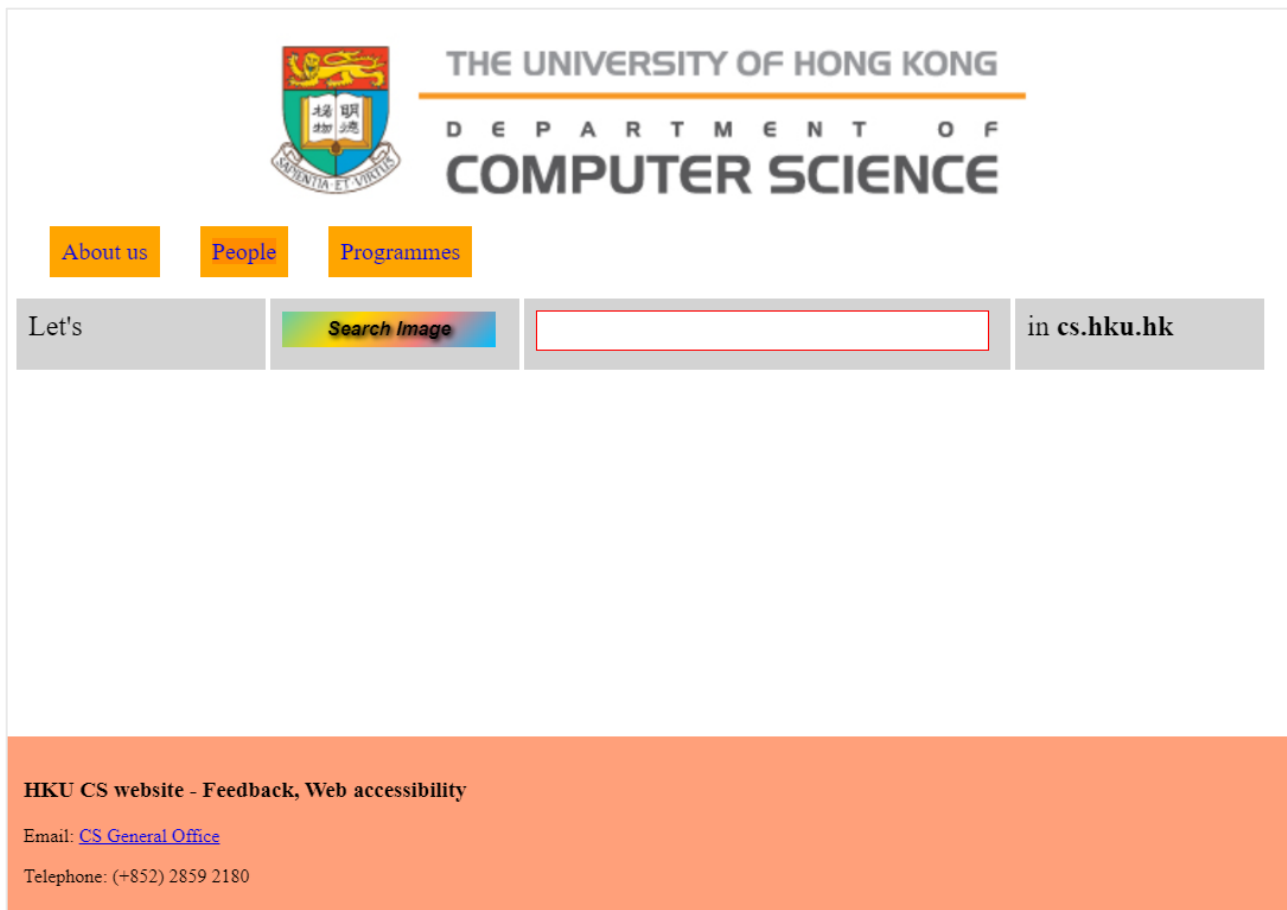
# COMP3322 Modern Technologies on World Wide Web

## Workshop1: Fundamentals of Web Pages – HTML, CSS, and Responsive Web Design

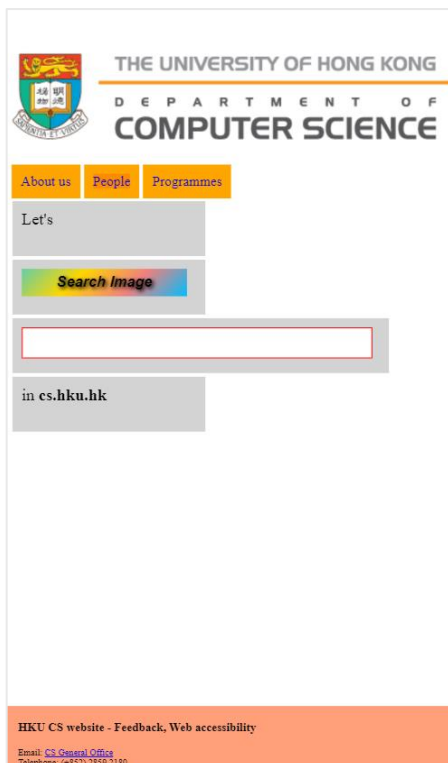
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### Introduction

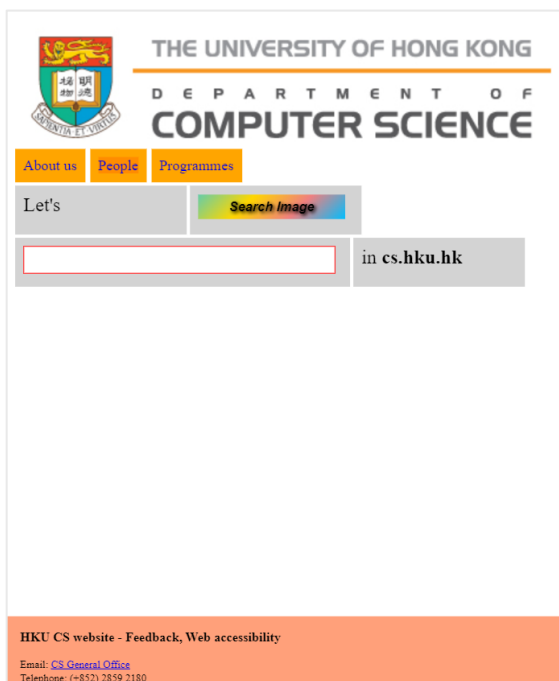
In this workshop, we are going to develop a simple HKU Custom Search Page. We will practice how to use basic HTML elements and CSS styling to format the webpage and use Responsive Web Design to adapt its look on a variety of devices. After finishing this workshop exercise, your page will appear as shown in the following screenshots:



**Screenshot 1: when the screen width is larger than 1080px**



**Screenshot 2: when the screen width is smaller than 580px**



**Screenshot 3: when the screen width is larger than 580px, but smaller than 1080px**

**Note:** The same CSS code may lead to quite different page display on different browsers. You are recommended to use Chrome to develop/test your page.

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## Workshop Exercise

We expect you use the course LAMP container set to work on the workshop.

**[Step1]:** Download "WK1-basic.zip" from HKU Moodle to the public\_html folder of the c3322-WWW container and extract it to a folder named "WK1". In this folder, there are two files **index.html**, **style.css** which are the template files in which you will add more HTML code and CSS code, respectively.

### Section I: Build the HTML page

**[Step2 (Page Title)]:** In **index.html**, set the title of the page to "HKU CS Custom Search".

**[Step3 (Logo)]:** At the top of the page, there is a division **<div>** with the id of "logo". Make the division clickable, and link to **HKU CS Home page (<https://www.cs.hku.hk/>)** when clicked (using the **<a>** element).

**[Step4 (Navigation List)]:** Underneath the HKU logo, there is a division **<div>** with id "navi". In this division, use **<ul>**, **<li>**, and **<a>** elements to implement a navigation list, including three list items as follows. All three list items should be hyperlinks. The mapping between list items and links is as follows:

List Item	Hyperlink
About us	<a href="https://www.cs.hku.hk/about-us/contact-information">https://www.cs.hku.hk/about-us/contact-information</a>
People	<a href="https://www.cs.hku.hk/people/academic-staff">https://www.cs.hku.hk/people/academic-staff</a>
Programmes	<a href="https://www.cs.hku.hk/programmes/beng-compsec/programme-objectives-learning-outcome">https://www.cs.hku.hk/programmes/beng-compsec/programme-objectives-learning-outcome</a>

**[Step 5 (Search (Table))]:** In the division **<div>** with id "searchArea" underneath the navigation list, use the **<form>** element to create a form. Inside the **<form>** element, use **<div>** to create 4 cells.

- The first cell shows "Let's".
- The second cell contains a search button implemented using an **<input>** element with `type="submit"` and `value="Search Image"` (the text displayed on the button).
- The third cell includes an input textbox, where the search string is to be entered; set the "name" attribute of the input textbox to "q".
- The fourth cell contains "in **<b>** cs.hku.hk **</b>**" (cs.hku.hk will be in bold font) and an **<input>** element with the input type of "hidden" (refer to [http://www.w3schools.com/tags/att\\_input\\_type.asp](http://www.w3schools.com/tags/att_input_type.asp)); set the "name" attribute of the hidden input field to "as\_sitesearch" and the "value" attribute to "cs.hku.hk", which provides the search domain parameter to Google server. (You can learn more about

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Google search parameters at <https://moz.com/ugc/the-ultimate-guide-to-the-google-search-parameters>).

Set the **"method"** attribute of the form (the HTTP request method) to **"get"**, and **"action"** attribute of the form to **"http://images.google.com/images"** (where the form data will be sent when the search button is clicked). Then after you type the search string and click the search button, an HTTP request carrying the URL [https://www.google.com/search?q=yoursearchstring&as\\_sitesearch=cs.hku.hk&...](https://www.google.com/search?q=yoursearchstring&as_sitesearch=cs.hku.hk&...) (additional parameters might be appended by your browser) will be sent to the Google server, and a Google result page corresponding to your input and search domain parameter will appear.

**[Step 6 (Contact Information)]**: At the bottom of the page, there is a division **<div>** with id "footer". In this division, add a **<h3>** element containing "HKU CS website - Feedback, Web accessibility", and two **<p>** elements to show the following two lines of contact information.

Email: CS General Office
Telephone: (+852) 2859 2180

In addition, make the CS General Office a hyperlink (<mailto:enquiry@cs.hku.hk>) (using the **<a>** element) and when you click the email address, a mail client should be invoked (Hint: use "mailto:" in the href attribute of the **<a>** element; see [https://www.w3schools.com/tags/att\\_a\\_href.asp](https://www.w3schools.com/tags/att_a_href.asp)).

Access the page at <http://localhost:9080/WK1/>, the page will look as follows:

• [About us](#)  
• [People](#)  
• [Programmes](#)

Let's  
  
in **cs.hku.hk**

**HKU CS website – Feedback, Web accessibility**

Email: [CS General Office](mailto:enquiry@cs.hku.hk)

Telephone: (+852) 2859 2180

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## Section II: Improve the page appearance using CSS styling

**[Step 7 (linking to css file)]:** Add the following in the `<head>` element in `index.html`, such that the html page will be styled by the styling rules in `style.css`.

<code>&lt;link rel="stylesheet" href="style.css" type="text/css"&gt;</code>
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**[Step 8 (logo)]:** In "WK1-basic.zip", you can also find an HKU CS logo image (`hku-cs-logo.png`). Set the image as the background of the "logo" division (Hint: use "background-image" [http://www.w3schools.com/cssref/pr\\_background-image.asp](http://www.w3schools.com/cssref/pr_background-image.asp) and other relevant background properties to achieve the look as in the screenshot). Set the height of "logo" to 150 px. Set the attribute "background-size" to "contain". Position the image to the center, and to the top of the page with a 20px margin (Hint: set "background-position" and "margin-top" of the division).

**[Step 9 (Navigation List)]:** Arrange all list items horizontally (by setting the "display" property of each list item to the appropriate value), without bullet and underline of each clickable list item (Hint: use "text-decoration: none" on the `<a>` element in the list). Set the font size to 20px. Set the right margin of each list item (`<li>` element) to 30px, background color to "orange", with a padding of 10px.

Set the left padding and the left margin of the list (`<ul>` element) to 0px and 30px, respectively.

**[Step 10 (Search textbox and button)]:** Set the width of the search input textbox to 380px, height to 30px, border width to 1px, border style of solid with color "red". The font size of the input text should be 20px.

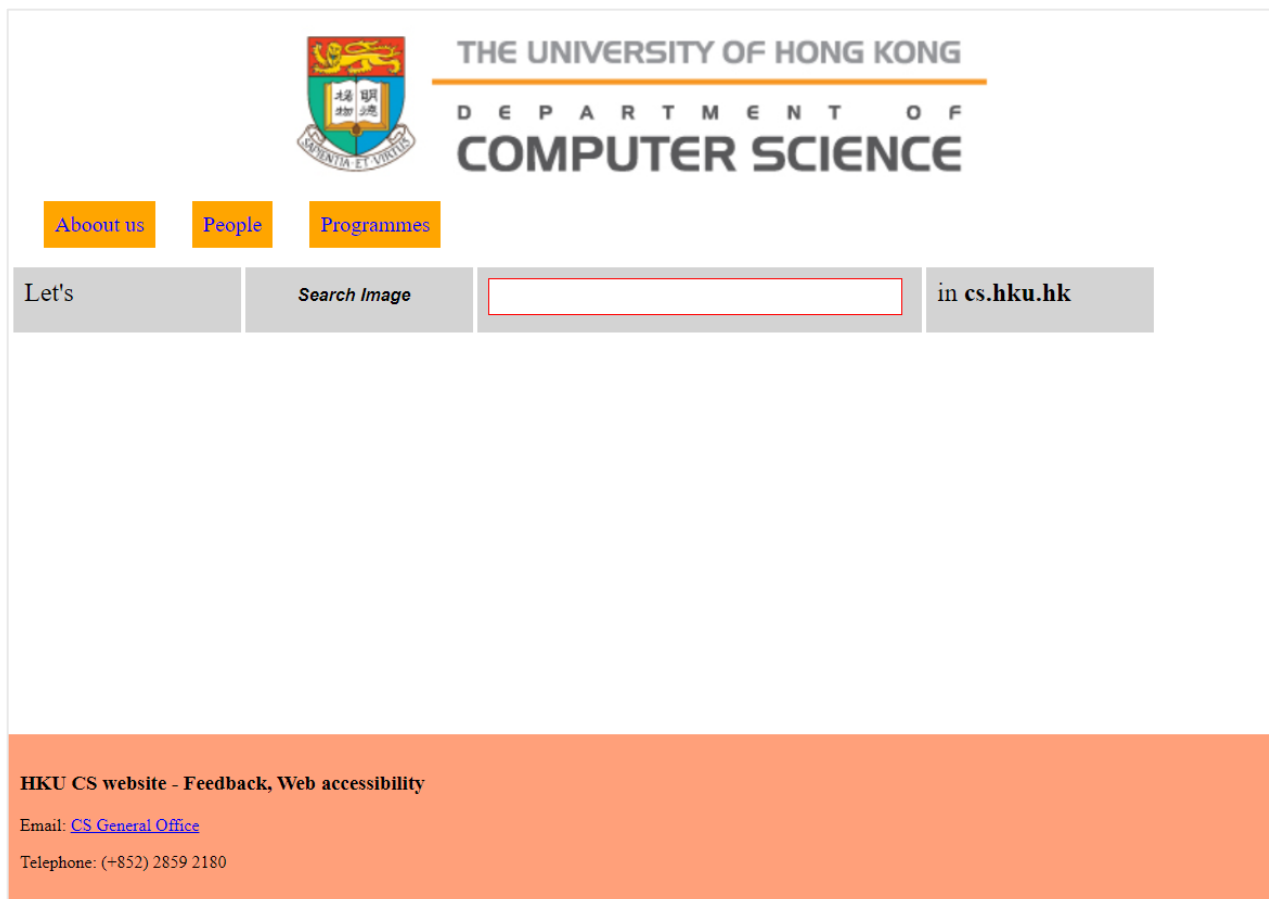
Set the width and height of the search button to 180px and 30px, respectively, the background color of the search button to "lightgray", the font of the text on the search button to bold, italic, 16px with a black color. There is no border for the search button.

**[Step11 (Search Area)]:** Set the attribute "class" of "Let's", searchButton and "in cs.hku.hk" to "col-1". And set the class of searchInput to "col-2". Set the background color of each cell to "lightgray", height to 50px, margin to 2px, and padding to 10px for both left and top. Set the "float" to "left" and "overflow" to "auto" ([https://www.w3schools.com/cssref/pr\\_pos\\_overflow.asp](https://www.w3schools.com/cssref/pr_pos_overflow.asp)). Set the width of "col-1" to 200px and width of "col-2" to 400px. Set the font size of "col-1" to "x-large"

([http://www.w3schools.com/cssref/pr\\_font\\_font-size.asp](http://www.w3schools.com/cssref/pr_font_font-size.asp)). Change the background color of "col-2" cell to "whitesmoke" when the cursor moves over it.

**[Step 12 (Footer)]:** Set the background color of the footer division to "lightsalmon". Set its position property to "absolute", and right/bottom/left to 0px ([https://www.w3schools.com/cssref/pr\\_pos\\_right.asp](https://www.w3schools.com/cssref/pr_pos_right.asp)), and padding to 1rem.

After you have finished the above steps, your page would look as follows:




### Section III: More features with CSS

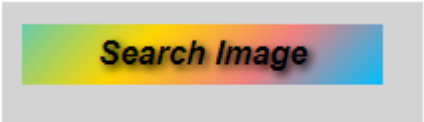
**[Step 13 (Text shadow & Gradient Background)]:** Further style the search button as follows (i.e., add more styling rules to .searchButton):

- The word "Search" should have a black text shadow, with 4px blur-radius, 2px h-shadow and 2px v-shadow (Hint: use text-shadow property at [http://www.w3schools.com/cssref/css3\\_pr\\_text-shadow.asp](http://www.w3schools.com/cssref/css3_pr_text-shadow.asp));

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- The submit button should have a gradient background: a linear gradient in the direction of -45 degree, where the color goes from “deepskyblue” to “lightcoral”, then to “gold”, finally to “mediumaquamarine”; (Hint: Use CSS3 Gradients [https://www.w3schools.com/css/css3\\_gradients.asp](https://www.w3schools.com/css/css3_gradients.asp)).



[**Step 14 (Transition)**]: Set the attribute “target” of the second hyperlink in navigation bar (i.e., “People”) to “\_blank” and add a transition effect. When the cursor is moved over the link, the background color of the link changes from "darkorange" to "orange" with a slow start and 1 second delay before the transition effect occurs. (Hint: Use CSS3 Transitions-timing-function and delay transition effect at [https://www.w3schools.com/css/css3\\_transitions.asp](https://www.w3schools.com/css/css3_transitions.asp)).



[**Step 15 (Responsive Web Design)**]

- Add <meta name="viewport" content="width=device-width, initial-scale=1.0"> into <head> element in **index.html**.
- Add CSS code in **style.css** as follows: when the screen width is no larger than 580px,  
(1) the navigation list becomes more compact with smaller font:

```
li {  
    margin-right: 0;  
    font-size: 15px;  
}  
  
ul {  
    margin-left: 1px;  
    margin-top: 1px;  
    margin-bottom: 1px;  
}
```

- (2) The font size and margin in the footer division become smaller:

```
#footer h3 {
    font-size: small;
    margin-top: 0px;
}

#footer p {
    font-size: x-small;
    margin-top: 0px;
    margin-bottom: 0px;
}
```

- (3) Set all `<div>`s in the `searchArea` using the “clear property” to avoid them placing in the same row, i.e., each `<div>` moves to a new line when the screen is small (Screenshot 2). In addition, set the font size of the first and last `<div>`s to large.
- Add CSS code in **style.css** according to the following descriptions: when the screen width is no larger than 1080px,
    - (1) The navigation list becomes less compact with larger font (i.e., set the right margin of the list to 2px and font size to 18 px), as well as the list items with the left, top and bottom margin of 2px respectively.
    - (2) The font-size of “HKU CS website - Feedback, Web accessibility” in the footer section becomes medium with a top margin of 1px; the font-size of the `<p>` tag in the footer becomes small with the top and bottom margin of 1px.
    - (3) Arrange the `<div>` blocks in the `searchArea` to two rows (Screenshot 3) by setting the “clear property” of the “col-2” class.

After you have finished the above steps, test your webpage on different screen sizes.