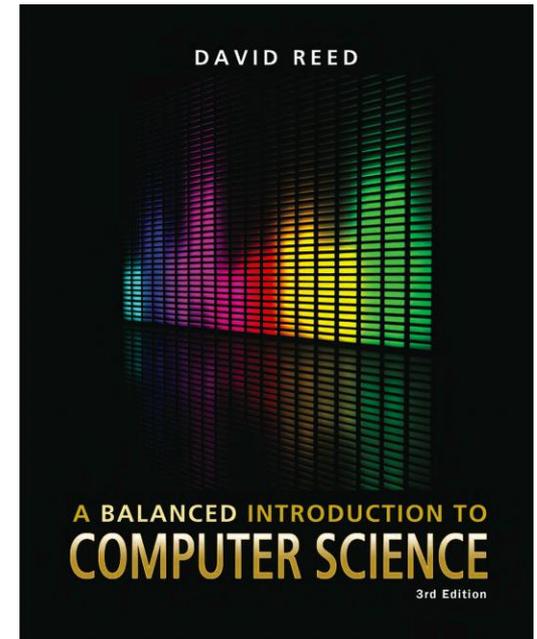


# **A Balanced Introduction to Computer Science, 3/E**

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## Chapter 2 HTML and Web Pages

# HTML & Web Pages



*recall:* a Web page is a text document that contains additional formatting information in the HyperText Markup Language (HTML)

- HTML specifies formatting within a page using *tags*
- in its simplest form, a tag is a word or symbol surrounded by brackets (<>)

```
sample.html
Last Saved: 6/15/10 1:40:42 AM
File Path: /Volumes/Ch1/sample.html

1 <!doctype html>
2 <!-- sample.html      Dave Reed -->
3 <!-- Sample Web page. -->
4 <!-- ..... -->
5
6 <html>
7 <head>
8   <title> Sample Web Page </title>
9 </head>
10
11 <body>
12   <div style="text-align:center">
13     <h2>Dave's Page</h2>
14     
15   </div>
16
17   <p>Hello and welcome to my page! If you
18   would like, you can find out more about me
19   <a href="personal.html">here</a>.</p>
20 </body>
21 </html>
```

A Web page is a text document that contains HTML formatting.



A Web browser is a program that interprets the HTML and displays the page.

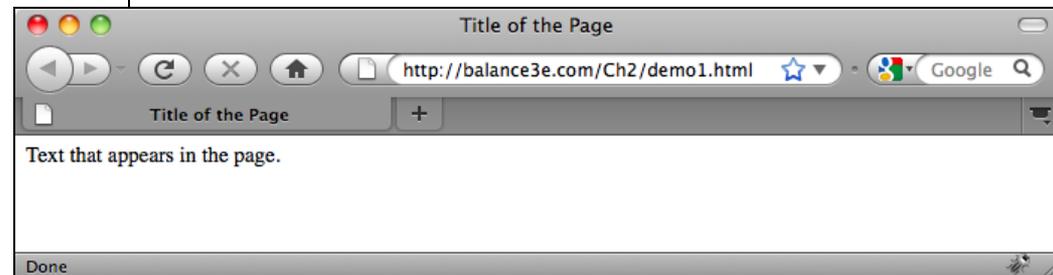
# HTML Tags



required tags in a Web page:

- `<html>` and `</html>` enclose the entire HTML document
- the HEAD section (enclosed between `<head>` and `</head>`) contains information that the browser uses to control the look of the page
  - ▣ the HEAD can contain a title for the browser window, enclosed between `<title>` and `</title>`
- the BODY section (enclosed between `<body>` and `</body>`) contains the text that will appear in the page

```
1. <!doctype html>
2. <!-- demo1.html           Dave Reed -->
3. <!-- This is a simple Web page.      -->
4. <!-- ===== -->
5.
6. <html>
7. <head>
8.   <title> Title of the Page </title>
9. </head>
10.
11. <body>
12.   Text that appears in the page.
13. </body>
14. </html>
```



# HTML Elements



tags and the text they enclose form an *HTML element*

```
<title> Title of the Page </title>
```

 is a TITLE element

```
<head>  
  <title> Title of the Page </title>  
</head>
```

is a HEAD element (which contains a nested TITLE element)

most HTML elements have opening and closing tags, but not all

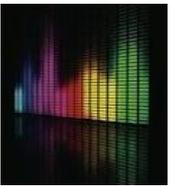
```
<!-- demo1.html    Dave Reed -->
```

 is a COMMENT element

- a comment is ignored by the browser (it does not appear in the rendered page)
- comments are used by the page developer to document page features



# Headings & Alignment



in a large document, it is useful to divide the text into sections and then provide each with a heading describing the content that follows

- `<h1> ... </h1>` enclose a top-level heading (large and bold)
- `<h2> ... </h2>` enclose a sub-heading (slightly smaller and bold)
- ... .
- `<h6> ... </h6>` enclose the smallest sub-heading

the HORIZONTAL-RULE element `<hr>` draws a dividing line in the page

by default, headings and other elements are left-justified in the page

- can change the alignment of an element by adding a *style attribute* that qualifies the appearance of the element

```
<h1 style="text-align:center"> Centered Heading </h1>
```

```
<p style="text-align:right">
```

```
  This paragraph is right justified. Each line will be shifted  
  to line up at the right margin.
```

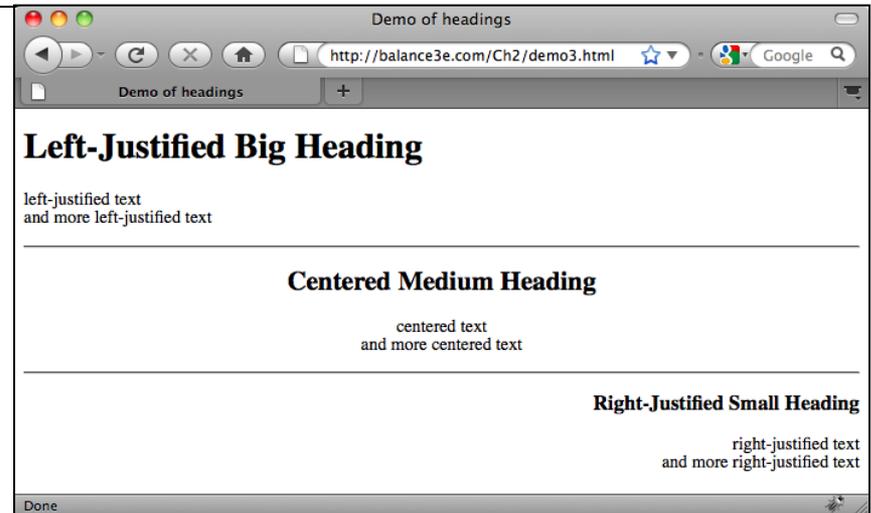
```
</p>
```

# Headings & Alignment (cont.)



the DIV element groups multiple elements, so they can be formatted together

```
1. <!doctype html>
2. <!-- demo3.html Dave Reed -->
3. <!-- This page demos headings and alignment. -->
4. <!-- =====>
5.
6. <html>
7. <head>
8. <title> Demo of headings </title>
9. </head>
10.
11. <body>
12. <h1>Left-Justified Big Heading</h1>
13. <p>
14. left-justified text <br>
15. and more left-justified text
16. </p>
17.
18. <hr>
19.
20. <h2 style="text-align:center">Centered Medium Heading</h2>
21. <p style="text-align:center">
22. centered text <br>
23. and more centered text
24. </p>
25.
26. <hr>
27.
28. <div style="text-align:right">
29. <h3>Right-Justified Small Heading</h3>
30. <p>
31. right-justified text <br>
32. and more right-justified text
33. </p>
34. </div>
35. </body>
36. </html>
```



# Font Formatting



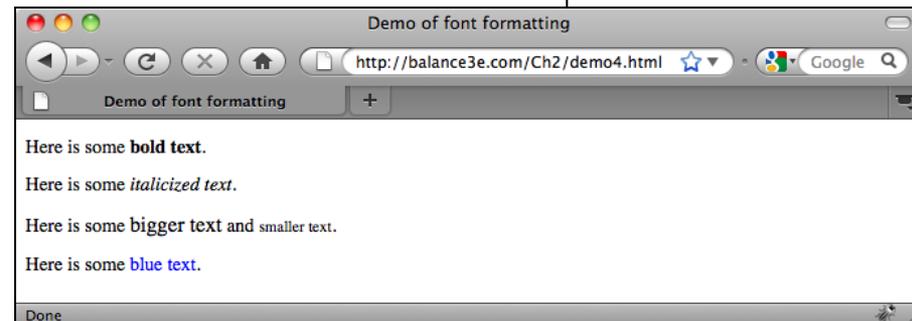
text can be formatted in a variety of ways

- bold (`<b> ... </b>`), italics (`<i> ... </i>`), underlined (`<u> ... </u>`)

colored text is enclosed in `<span style="color:????"> ... </span>`

- common colors can be used (e.g., red, green, orange, lightblue, darkblue)

```
1. <!doctype html>
2. <!-- demo4.html Dave Reed -->
3. <!-- This page demos font formatting. -->
4. <!-- ===== -->
5.
6. <html>
7. <head>
8. <title> Demo of font formatting </title>
9. </head>
10.
11. <body>
12. <p>Here is some <b>bold text</b>.</p>
13.
14. <p>Here is some <i>italicized text</i>.</p>
15.
16. <p>Here is some <big>bigger text</big> and <small>smaller text</small>.</p>
17.
18. <p>Here is some <span style="color:blue">blue text</span>.</p>
19. </body>
20. </html>
```



# Hyperlinks



a *hyperlink*, or just *link*, is a connection to another Web page

- by default, a link appears as underlined text in the page
- when the user clicks on the link, the corresponding page is retrieved and displayed

a link is specified using ANCHOR tags `<a>` and `</a>`

- text that appears within the tags is displayed as the link in the page
- must have an HREF attribute that specifies the associated Web address

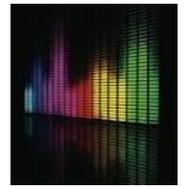
```
<a href="http://www.creighton.edu">Creighton University</a>
```

```
<a href="personal.html">Local Page</a>
```

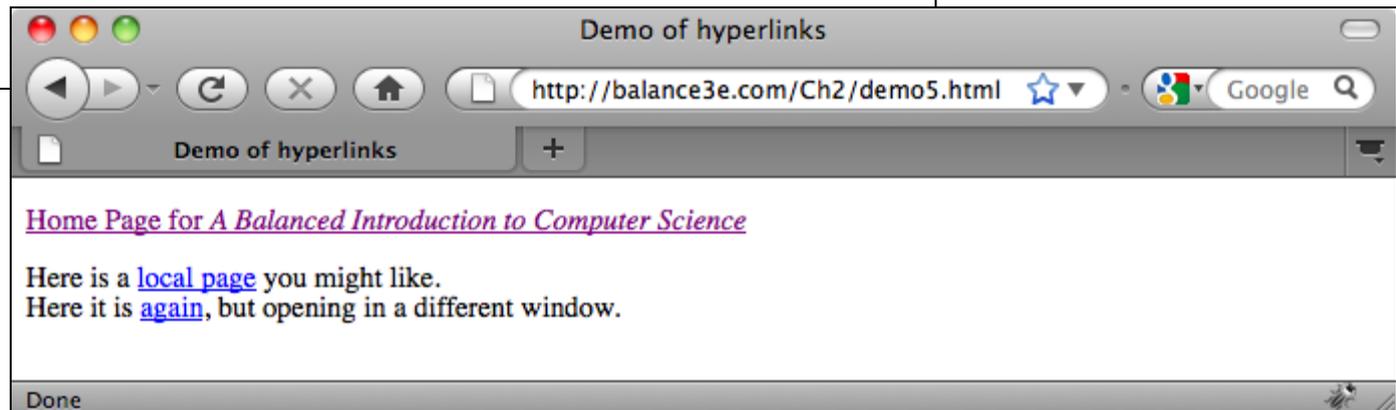
note: the browser displays links underlined and in color

- by default, links whose pages have not yet been visited are blue
- by default, links whose pages have previously been visited are purple

# Hyperlinks (cont.)



```
1. <!doctype html>
2. <!-- demo5.html           Dave Reed -->
3. <!-- This page demos hyperlinks.      -->
4. <!-- ===== -->
5.
6. <html>
7. <head>
8.   <title> Demo of hyperlinks </title>
9. </head>
10.
11. <body>
12.   <p>
13.     <a href="http://balance3e.com">Home Page for
14.       <i>A Balanced Introduction to Computer Science</i></a>
15.   </p>
16.
17.   <p>
18.     Here is a <a href="local.html">local page</a> you might like. <br>
19.     Here it is <a href="local.html" target="_blank">again</a>, but
20.     opening in a different window.
21.   </p>
22. </body>
23. </html>
```



# Images



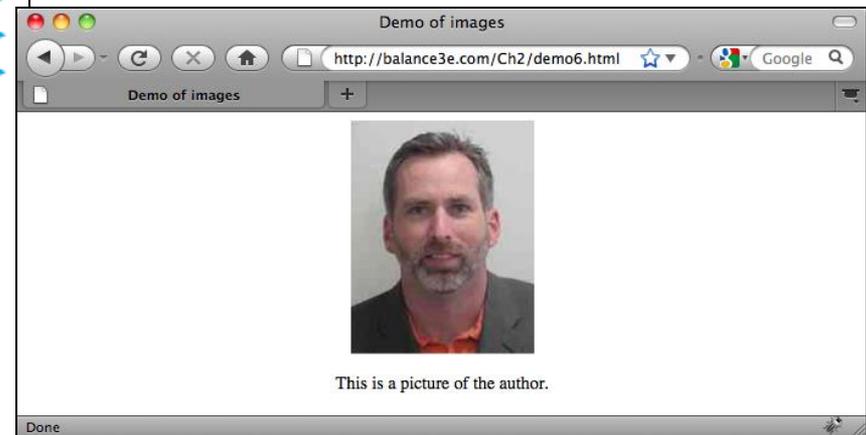
Web pages can contain other types of media besides text and links

- images are embedded in a page using an IMG tag ( `<img>` )

IMG attributes

- SRC specifies the location of the image file
- ALT specifies alternate text that is displayed if the image fails to load

```
1. <!doctype html>
2. <!-- demo6.html                Dave Reed -->
3. <!-- This page demos images.   -->
4. <!-- =====>
5.
6. <html>
7.   <head>
8.     <title> Demo of images </title>
9.   </head>
10.
11.  <body>
12.    <div style="text-align:center">
13.      
14.
15.      <p>This is a picture of the author.</p>
16.    </div>
17.  </body>
18. </html>
```



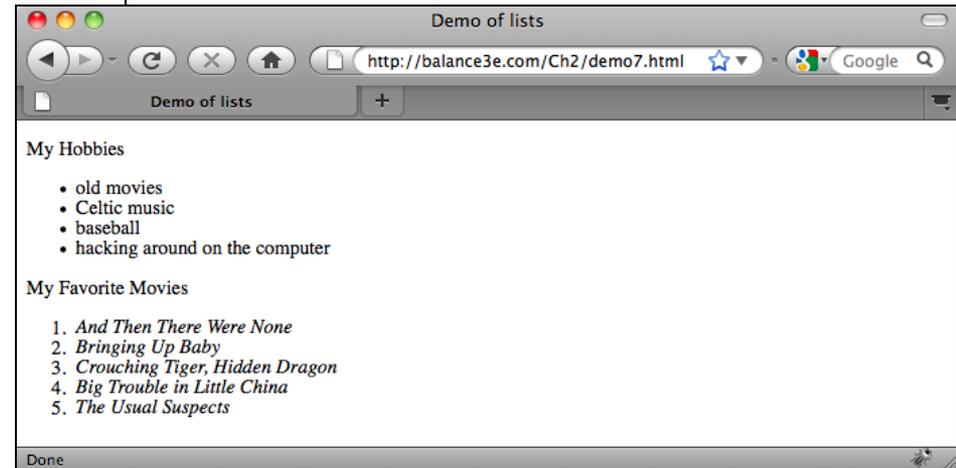
# Lists



HTML lists organize items in sequence

- `<ul>...</ul>` enclose an unordered list; `<ol>...</ol>` enclose an ordered list
- `<li>...</li>` enclose a list item

```
1. <!doctype html>
2. <!-- demo7.html Dave Reed -->
3. <!-- This page demos unordered and ordered lists. -->
4. <!-- ===== -->
5.
6. <html>
7. <head>
8. <title> Demo of lists </title>
9. </head>
10.
11. <body>
12. <p>My Hobbies</p>
13. <ul>
14. <li> old movies </li>
15. <li> Celtic music </li>
16. <li> baseball </li>
17. <li> hacking around on the computer </li>
18. </ul>
19.
20. <p>My Favorite Movies</p>
21. <ol>
22. <li> <i>And Then There Were None</i> </li>
23. <li> <i>Bringing Up Baby</i> </li>
24. <li> <i>Crouching Tiger, Hidden Dragon</i> </li>
25. <li> <i>Big Trouble in Little China</i> </li>
26. <li> <i>The Usual Suspects</i> </li>
27. </ol>
28. </body>
29. </html>
```



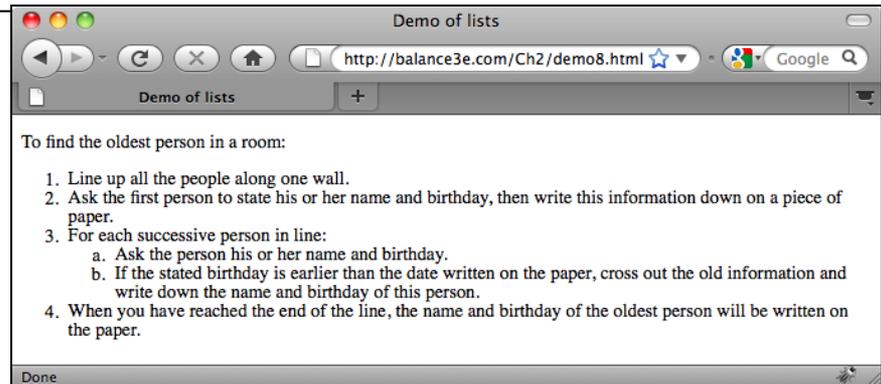
# Lists (cont.)



a style attribute can be used to format the list elements

<code>&lt;ul style="list-style-type:square"&gt;</code>	→ Items preceded by squares.
<code>&lt;ol style="list-style-type:lower-alpha"&gt;</code>	→ Items preceded by lowercase letters (a, b, c, d, ...).
<code>&lt;ol style="list-style-type:upper-alpha"&gt;</code>	→ Items preceded by uppercase letters (A, B, C, D, ...).
<code>&lt;ol style="list-style-type:lower-roman"&gt;</code>	→ Items preceded by lowercase roman letters (i,ii,iii,iv,...).
<code>&lt;ol style="list-style-type:upper-roman"&gt;</code>	→ Items preceded by uppercase roman letters (I, II, III, ...).

```
1. <!doctype html>
2. <!-- demo8.html          Dave Reed -->
3. <!-- This page demos formatted lists. -->
4. <!-- ===== -->
5.
6. <html>
7.   <head>
8.     <title> Demo of lists </title>
9.   </head>
10.
11.  <body>
12.    <p>To find the oldest person in a room:</p>
13.
14.    <ol>
15.      <li> Line up all the people along one wall. </li>
16.      <li> Ask the first person to state his or her name and birthday,
17.        then write this information down on a piece of paper. </li>
18.      <li> For each successive person in line:
19.        <ol style="list-style-type:lower-alpha">
20.          <li> Ask the person his or her name and birthday. </li>
21.          <li> If the stated birthday is earlier than the date
22.            written on the paper, cross out the old information
23.            and write down the name and birthday of this person. </li>
24.        </ol> </li>
25.      <li> When you have reached the end of the line, the name and
26.        birthday of the oldest person will be written on the paper. </li>
27.    </ol>
28.  </body>
29. </html>
```



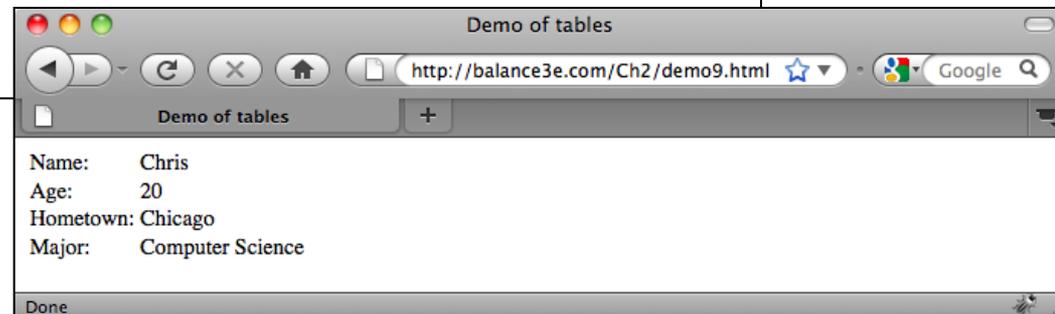
# Tables



text can be aligned into rows and columns using a TABLE element

- `<table>` and `</table>` encapsulate the table data
- `<tr>` and `</tr>` encapsulate a row within the table
- `<td>` and `</td>` encapsulate table data within a row (i.e., a column entry)

```
1. <!doctype html>
2. <!-- demo9.html                Dave Reed -->
3. <!-- This page demos a borderless table. -->
4. <!-- ===== -->
5.
6. <html>
7.   <head>
8.     <title> Demo of tables </title>
9.   </head>
10.
11.   <body>
12.     <table>
13.       <tr> <td> Name: </td> <td> Chris </td> </tr>
14.       <tr> <td> Age: </td> <td> 20 </td> </tr>
15.       <tr> <td> Hometown: </td> <td> Chicago </td> </tr>
16.       <tr> <td> Major: </td> <td> Computer Science </td> </tr>
17.     </table>
18.   </body>
19. </html>
```



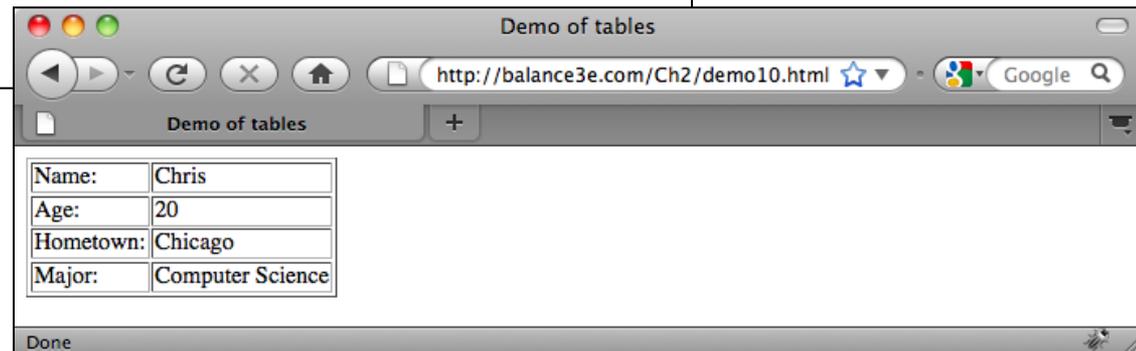
# Tables with Borders



borders can be added to tables using a style attribute

- `style="border:solid"` adds a border to the table or table data items

```
1. <!doctype html>
2. <!-- demo10.html           Dave Reed -->
3. <!-- This page demos a borderless table. -->
4. <!-- ===== -->
5.
6. <html>
7. <head>
8.   <title> Demo of tables </title>
9. </head>
10.
11. <body>
12.   <table style="border:solid">
13.     <tr> <td style="border:solid"> Name: </td>
14.         <td style="border:solid"> Chris </td> </tr>
15.     <tr> <td style="border:solid"> Age: </td>
16.         <td style="border:solid"> 20 </td> </tr>
17.     <tr> <td style="border:solid"> Hometown: </td>
18.         <td style="border:solid"> Chicago </td> </tr>
19.     <tr> <td style="border:solid"> Major: </td>
20.         <td style="border:solid"> Computer Science </td> </tr>
21.   </table>
22. </body>
23. </html>
```



# Tables for Alignment



```
1. <!doctype html>
2. <!-- demo11.html                Dave Reed -->
3. <!-- This page demos a table for alignment. -->
4. <!-- ===== -->
5.
6. <html>
7. <head>
8.   <title> Demo of tables </title>
9. </head>
10.
11. <body>
12.   <table>
13.     <tr>
14.       <td></td>
15.       <td>Thanks for visiting my site. <br> Please contact
16.         <i>help@dave-reed.com</i> if you have any questions.</td>
17.     </tr>
18.   </table>
19. </body>
20. </html>
```

tables can be used to align elements in the page

- here, an image is aligned to the left of some text

