

**Solution Manual for Building Cross Platform Mobile and Web Apps for
Engineers and Scientists An Active Learning Approach 1st Edition by
Lingras and Triff ISBN 1305105966 9781305105966**

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Chapter 2

Self-test exercises

ST1. Who invented the World Wide Web?

Answer: Tim Berners-Lee

ST2. What does the acronym http stand for?

Answer: HyperText Transfer Protocol

ST3. What does the acronym ftp stand for?

Answer: File Transfer Protocol

ST4. What does the acronym scp stand for?

Answer: Secure Copy Protocol

ST5. What are HTML5 tags?

Answer: HTML5 tags are enclosed in a pair of angled brackets <...> and are instructions to the web browsers on the display and behavior of a web page.

ST6. List four HTML5 tags.

Answer:

<head> ...</head>

<body>...</body>

<!DOCTYPE>

<title>...</title>

<html>...</html>

ST7. What is the purpose of comments in an HTML5 document? What is the syntax for a comment?

Answer: Comments are used as documentation, so other developers can understand the HTML5 code in the web page. Comments are ignored by the web browser when displaying the web page and are not rendered on the page. A comment is enclosed in <!-- and -->.

ST8. Which tag is used to create a table in an HTML5 document?

Answer: `<table>...</table>`

ST9. Which tag is used to create an unordered list in an HTML5 document?

Answer: `...`

ST10. Which tag is used to create an ordered list in an HTML5 document?

Answer: `...`

ST11. Which tag is used to create a list item in an HTML5 document?

Answer: `...`

ST12. What is the difference between an ordered and unordered list in an HTML5 document?

Answer: Labels in an ordered list follow a numeric or alphabetical order, such as 1, 2, 3, ... or a, b, c. The unordered list is labeled with symbols such as bullets.

ST13. What does the acronym CSS stand for?

Answer: Cascading Style Sheet

ST14. What is a stylesheet?

Answer: HTML5 defines the structure of a web page. A stylesheet specifies how the elements of a web page should be displayed.

ST15. Which tag is used to include an image in an HTML5 document?

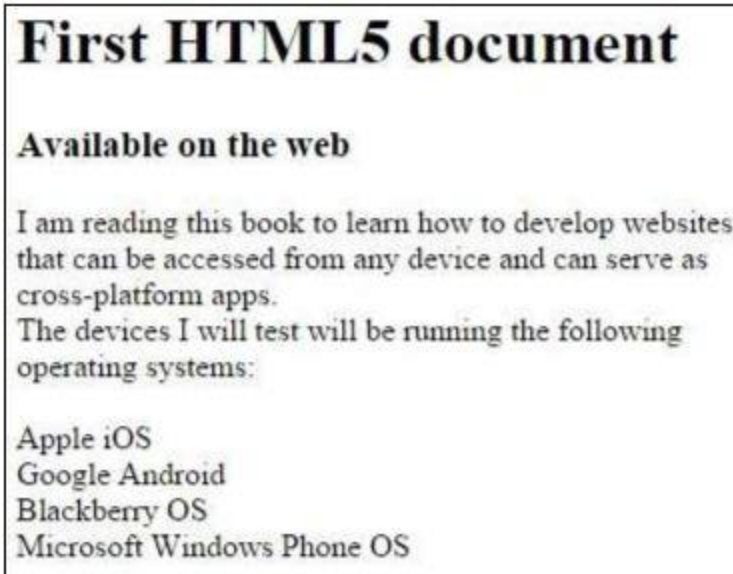
Answer: ``

ST16. Which tag is used to include a video in an HTML5 document?

Answer: `<video>;</video>` and `<source>`

Programming exercises

PE1. Create a web page that looks like:



Get an account from your system administrator and upload your web page to your account.

Answer:

```
<!DOCTYPE html>
<html>
  <head>
    <title>First HTML5 document</title>
  </head>
  <body>
    <h1>First HTML5 document</h1>
    <h3>Available on the web</h3>

    <p>
      I am reading this book to learn how to develop
      websites that can be accessed from any device
      and can serve as cross-platform apps.
      <br>
      The devices I will test will be running the following operating
      systems:
      <br><br>
      Apple iOS
      <br>
      Google Android
      <br>
      Blackberry OS
      <br>
      Microsoft Windows Phone OS
    </p>
```

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

You will need a username and password from the system administrator.

You will need to find the name of the folder where you are supposed to copy the web pages so that they can be viewed on the World Wide Web.

You need a program such as WinSCP to upload the web page.

Finally, you need to set the permissions of the web pages, so the web server can access them.

PE2. View your web page from as many devices and web browsers as possible.

Answer: You can either test them on physical devices, or download and install the emulators as described in Chapter 2

PE3. Write HTML5 code that will create the following display:

1. Apple iOS
2. Google Android
3. Blackberry OS
4. Microsoft Windows Phone OS

Answer:

```
<ol>  
  <li>  
    Apple iOS  
  </li>  
  <li>  
    Google Android  
  </li>  
  <li>  
    Blackberry OS  
  </li>  
  <li>  
    Microsoft Windows Phone OS  
  </li>  
</ol>
```

PE4. Write HTML5 code that will create the following display:

1. Apple iOS
 - iPad
 - iPhone
 - iPod touch
2. Google Android
 - Nexus 7
 - Samsung Galaxy Notes 8
 - Samsung Galaxy Notes 4
 - HP Slate 7
3. Blackberry OS
 - Blackberry Z10
 - Blackberry Q10
4. Microsoft Windows Phone OS/RT
 - Nokia
 - Samsung ATIV
 - Surface

(Hint: You can nest an ... pair of tags inside a pair of ...)

Answer:

```
<ol>
  <li>
    Apple iOS
    <ul>
      <li>iPad</li>
      <li>iPhone</li>
      <li>iPod touch</li>
    </ul>
  </li>
  <li>
    Google Android
    <ul>
      <li>Nexus 7</li>
      <li>Samsung Galaxy Notes 8</li>
      <li>Samsung Galaxy Notes 4</li>
      <li>HP Slate 7</li>
    </ul>
  </li>
  <li>
    Blackberry OS
    <ul>
      <li>Blackberry Z10</li>
      <li>Blackberry Q10</li>
    </ul>
  </li>
  <li>
    Microsoft Windows Phone OS/RT
    <ul>
      <li>Nokia</li>
      <li>Samsung ATIV</li>

```

```

        <li>Surface</li>
    </ul>
</li>
</ol>

```

PE5. Write HTML5 code that will create the following display:

| | | | | |
|-------------------------------|----------------|------------------------|------------------------|------------|
| Apple iOS | iPad | iPhone | iPod touch | |
| Google Android | Nexus 7 | Samsung Galaxy Notes 8 | Samsung Galaxy Notes 4 | HP Slate 7 |
| Blackberry OS | Blackberry Z10 | Blackberry Q10 | | |
| Microsoft Windows Phone OS/RT | Nokia | Samsung ATIV | Surface | |

Answer:

```

<table border="1">
  <tr>
    <td>Apple iOS</td>
    <td>iPad</td>
    <td>iPhone</td>
    <td>iPod touch</td>
    <td> </td>
  </tr>
  <tr>
    <td>Google Android</td>
    <td>Nexus 7</td>
    <td>Samsung Galaxy Notes 8</td>
    <td>Samsung Galaxy Notes 4</td>
    <td>HP Slate 7</td>
  </tr>
  <tr>
    <td>Blackberry OS</td>
    <td>Blackberry Z10</td>
    <td>Blackberry Q10</td>
    <td> </td>
    <td> </td>
  </tr>
  <tr>
    <td>Microsoft Windows Phone OS/RT</td>
    <td>Nokia</td>
    <td>Samsung ATIV</td>
    <td>Surface</td>
    <td> </td>
  </tr>
</table>

```

PE6. Write the CSS3 and HTML5 that will create the following display:

Programming Exercises

Devices

Answer:

HTML5:

```
<!DOCTYPE html>
<html>
<head>
  <link rel="stylesheet" type="text/css"
        href="devices0.css">
</head>
<body>
  <h1>Programming exercises</h1>
  <p>Devices</p>
</body>
</html>
```

CSS3:

```
h1, p {
  text-align: center;
}
```

PE7. Write the CSS3 for the web page from the previous exercise web page that will create the following display:



Answer:

HTML5:

Same as PE7

CSS3:

```
h1, p {
  text-align: center;
  color: white;
}

body {
  background-color: black;
}
```

PE8. Write the CSS3 for your answer to PE5 that will create the following display:

| | | | | |
|-------------------------------|----------------|------------------------|------------------------|------------|
| Apple iOS | iPad | iPhone | iPod touch | |
| Google Android | Nexus 7 | Samsung Galaxy Notes 8 | Samsung Galaxy Notes 4 | HP Slate 7 |
| Blackberry OS | Blackberry Z10 | Blackberry Q10 | | |
| Microsoft Windows Phone OS/RT | Nokia | Samsung ATIV | Surface | |

Answer:

```
body {
  background-color: black;
}

table {
  background-color: gold;
  border-radius: 5px;
  border-collapse: collapse;
}

table td {
  border: 1px solid black;
  padding: 5px;
}
```


Programming projects

PRJ1. **Compute the load distribution on a beam.** Assume that you have a one-dimensional beam resting on two rigid supports. The beam has a length described by the variable *length*. We have put a weight *w* at a distance *d*, where $d < length$, from the left end of the beam. You should find out the reaction forces on the left and right ends of the beam. You can make this project as complicated as you are capable of solving. You can have multiple weights, uniformly distributed load, and uniformly varying loads.

Use tables, ordered and unordered lists, other relevant tags such as `<mark>`, ``, `<sup>`, and CSS3 to improve the appearance of the web page.

Hint: You can search for the term "load distribution on beams" on the web. You will find many relevant websites.

PRJ2. **Binary operator.** Create a web page that describes various binary operators such as "and", "or", "not", "xor".

Use tables, ordered and unordered lists, other relevant tags such as `<mark>`, ``, `<sup>`, and CSS3 to improve the appearance of the web page.

Hint: You can search for the term "binary operators" on the web. You will find many relevant websites that will help you create content for your web page.

PRJ3. **Electricity calculations:** Create a web page that describes the physical relationship between current, voltage, resistance, and amount of electricity consumed.

Use tables, ordered and unordered lists, other relevant tags such as `<mark>`, ``, `<sup>`, and CSS3 to improve the appearance of the web page.

Hint: You can search for the term "current voltage resistance electricity consumption" on the web. You will find many relevant websites.

PRJ4. **Amortization calculations:** Create a web page that describes how to compute the annual cost of a project that costs *p* and is funded by a loan at an interest *i* over *y* number of years.

Use tables, ordered and unordered lists, other relevant tags such as `<mark>`, ``, `<sup>`, and CSS3 to improve the appearance of the web page.

Hint: You can search for the term "amortization calculations" on the web. You will find many relevant websites.