4. HTML

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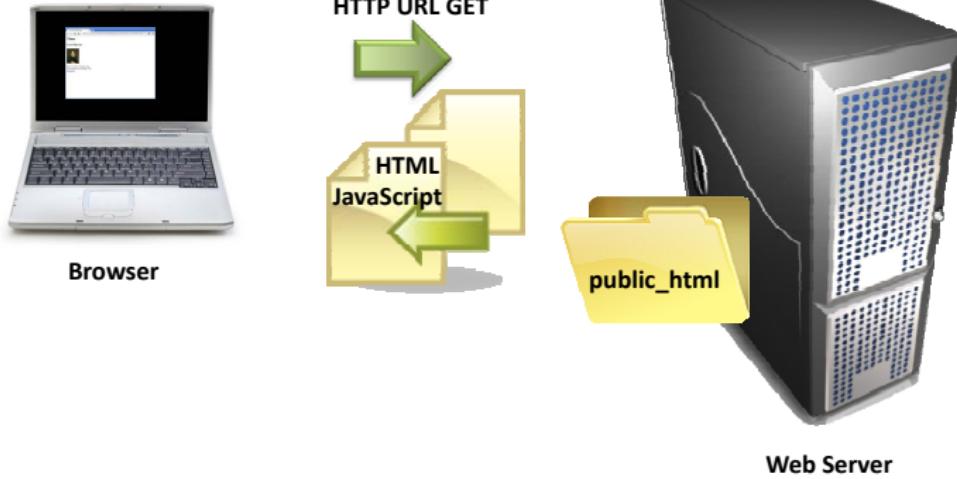
The World Wide Web

The World Wide Web

A Web server stores HTML files. The server and the location of a file or program on the server is known by the uniform resource locator or URL.

Request

A Web browser (Internet Explorer, Firefox, Google Chrome, Safari) on the client machine contacts the server via an Internet protocol called the hypertext transfer protocol or HTTP by giving the URL of the desired file or program and by choosing a method (GET or POST) that indicates where parameters are passed, if any.

Response

The server returns the HTML file or an HTML file resulting from the execution of the program for the browser to render or process.

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HTML

The hypertext markup language (HTML) is a markup language for web pages.

Origin

Like the World Wide Web, HTML was created at the CERN, the European organization for nuclear research, by Tim Berners Lee, for the World Wide Web as a simplified (18 elements) version of the Standard Generalized Markup Language, an ISO-standard for defining generalized markup languages for documents. It introduced the hyperlink element.

Text

An HTML document is a formatted text.

```
1  To Time
2  Lord Byron
3  Time! on whose arbitrary wing
4  The varying hours must flag or fly
```

Load this file into a browser

HTML

An HTML document is a formatted text.

```
 1  <HTML>
 2  <HEAD><TITLE>My First HTML Page</TITLE></HEAD>
 3  <BODY>
 4  <H1>To Time</H1>
 5  <H2>Lord Byron</H2>
 6  <IMG SRC="images/byron.jpg" WIDTH="100">
 7  <P>
 8  Time! on whose arbitrary wing <BR>
 9  The varying hours must flag or fly<BR>
10  (<A HREF="http://readytogoebooks.com/LB-Tme56.htm"><I>
        Full text</I></A>)
11  </P>
12  <P><a href="attribution.html">Atribution</a></P>
13  </P>
14  </BODY>
15  </HTML>
```

Load this HTML file into a browser

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HTML

HTML is used to annotate a text with elements that indicate to a browser in which way the text should be displayed and interpreted. Elements may have parameters called attributes.

Elements

Elements indicate paragraphs (<H1>, <H2>, etc.), section headers (<P>), new lines (<BR>), or give rendering directives (<I>, <B>, etc.)

```
1 <H1>To Time</H1>
2 <H2>Lord Byron</H2>
3 <P>
4 Time!  on whose arbitrary wing <BR>
5 The varying hours must flag or fly<BR>
6 </P>
```

Tags and Nesting

HTML uses opening tags and closing tags (not always!) to delimitate elements. The elements are properly nested (not always!) under the main <HTML> element.

```
 1 </HTML>
 2 <HEAD><BODY></HEAD>
 3 <H1>To Time
 4 <H2>Lord Byron
 5 <P>
 6 </H2>
 7 Time!  on whose arbitrary wing <BR>
 8 The varying hours must flag or fly<BR>
 9 </P>
10 <HTML>
11 </BODY>
```

HTML

An HTML document consists of a head and a body.

```
1  <HTML>
2      <HEAD>
3      </HEAD>
4      <BODY>
5      </BODY>
6  </HTML>
```

Head

The head element of an HTML documents can contain its title
(<TITLE>), JavaScript code (<SCRIPT>), CSS style (<STYLE> or
<LINK>), and related URLs (<LINK> and <BASE>).

```
1  <HEAD>
2  <TITLE>
3  My First HTML Page
4  </TITLE>
5  </HEAD>
```

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Body

The body contains the main part of the document

```
1  <BODY>
2  <H1>To Time</H1>
3  <H2>Lord Byron</H2>
4  <P>
5  Time!  on whose arbitrary wing <BR>
6  The varying hours must flag or fly<BR>
7  </P>
8  </BODY>
```

Tables

Text can further be arranged in tables with row, header and data elements.

```
 1 <HTML>
 2 <HEAD><TITLE>A Table</TITLE></HEAD>
 3 <BODY>
 4 <TABLE border="1">
 5 <TR><TH>Name</TH><TH>Birth</TH><TH>Death</TH></TR>
 6 <TR><TD>Lord Byron</TD><TD>22 January 1788</TD><TD>19
      April 1824</TD></TR>
 7 <TR><TD>John Milton</TD><TD>9 December 1608</TD><TD>8
      November 1674</TD></TR>
 8 </TABLE>
 9 </BODY>
10 </HTML>
```

Load this HTML file into a browser

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Hyperlinks

HTML is an hypertext language. It allows the inclusion of hyperlinks into a document.

```
1  <A HREF="http://readytogoebooks.com/LB−Tme56.htm">Full
        text</A>
```

Images

Images can be embedded.

```
1  <IMG SRC="images/byron.jpg" WIDTH="100">
```

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Other Stuff

HTML also provides elements for lists (`<UL>`, `<OL>` and `<LI>`), blocks (`<DIV>` and `<SPAN>`), frames (`IFRAME`), graphics (`<CANVAS>`), plugins and multimedia (`<OBJECT>` and `<EMBED>`), and many more.
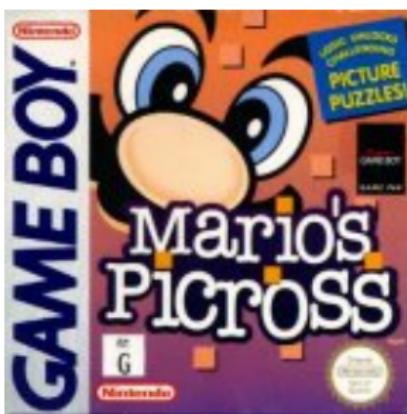
Forms

HTML forms provides the necessary widgets for user input.

```
 1 <HTML><HEAD><TITLE>My First Form</TITLE></HEAD>
 2 <BODY>
 3 <FORM ACTION="nowehere" METHOD="GET">
 4 Username <input TYPE="text" NAME="uname"><BR>
 5 Photo <input TYPE="file" NAME="uname"><BR>
 6 <SELECT>
 7   <OPTION VALUE="JPG">JPEG</OPTION>
 8   <OPTION VALUE="GIF">GIF</OPTION>
 9   <OPTION VALUE="BMP">BMP</OPTION>
10 </SELECT> <BR>
11 <BUTTON TYPE="button">Click Me!</BUTTON><BR>
12 <INPUT TYPE="submit" VALUE="Submit">
13 </FORM>
14 </BODY>
15 </HTML>
```

Load this HTML file into a browser

Cascading Style Sheets

Cascading Style Sheets rules define how to display HTML elements. A rule is formed of a selector, and one or more declarations. The selector can be a predefined class of elements (identified by its tage name), a user-defined class of elements (identified by their "class" attribute), or a single element (identified by its "id" attribute). A declaration indicates the value of a property (background color, font size, text alignment, etc.).

```
1  body  {background−color:yellow;}
2  .h    {font−size:36pt;color:blue;}
3  #p1   {margin−left:50px;}
```

Load the HTML file into a browser
Load the HTML (without CSS) file into a browser

```
 1 <HTML>
 2 <HEAD><TITLE>My First HTML Page</TITLE>
 3 <STYLE>
 4 body {background−color:yellow;}
 5 .h    {font−size:36pt;color:blue;}
 6 #p1   {margin−left:50px;}
 7 </STYLE>
 8 </HEAD>
 9 <IMG SRC="images/byron.jpg" WIDTH="100">
10 <BODY>
11 <H1 class="h">To Time</H1>
12 <H2 class="h">Lord Byron</H2>
13 <P id="p1">
14 Time! on whose arbitrary wing <BR>
15 The varying hours must flag or fly<BR>
16 (<A HREF="http://readytogoebooks.com/LB−Tme56.htm"><I>
       Full text</I></A>)
17 </P>
18 <P><a href="attribution.html">Atribution</a></P>
19 </BODY></HTML>
```

Attribution

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Some of the examples are adapted from Stanford's "CS101 - Introduction to Computing Principles" (http://www.stanford.edu/class/cs101) and W3 Schools JavaScript tutorial (http://www.w3schools.com).