

Subject Code: CS3 Computer Science 3
Module Code: 3.0 Tables
Lesson Code: 3.1 table, tr, td, th, colgroup, col
Time Frame: 30 mins.

TARGET

Time Allocation: 1 min.

After completing this module, you are expected to:

- use tables as presentation of data rather than laying out a web page;
- describe the recommended use of a table on a web page;
- create basic table with the table, table row, table header, and table cell elements.

HOOK

Time Allocation: 2 mins.

Before we continue into the markup for tables, let us check in with your progress so far. We have covered a lot of territory: how to establish the basic structure of an HTML document, how to markup text to give it meaning and structure, how to make links, and how to embed images on the page.

HTML (Hyper Text Mark-up Language) defines the structure and layout of a Web page by using a variety of tags and attributes. Tables are one of the most useful and complex structures in HTML for presenting tabular data. The table structure allows us to arrange data in tabular model, using a model of horizontal rows and vertical columns and each row is divided into cells. A table cell may contain any kind of information, including numbers, text elements, even pictures and multimedia elements.

This learning module will cover the basic structure of a table. Below is an example of a table created in HTML.

Roll No	Name	Team
1001	John	Red
1002	Peter	Blue
1003	Henry	Green
1004	Ford	Yellow

Figure 1. Sample HTML Table.



Time Allocation: 15 mins.

Basic for creating a table

A table is used to organize information. Tables were used to format web page layouts before browsers support CSS. An HTML table is composed of rows and columns, like spreadsheet. Each individual table cell is at the intersection of a specific row and column.

Tables consist of three tags to work. For easy tracking of your table, especially if it's the first time you create a table, it is a big help if you construct it in stages as shown below:

First, start your code with the `<table>` tag as shown below:

```
<table>
</table>
```

Next, create the rows. There is no tag for columns, so you work in rows, that are divided into cells. The tag for rows is `<tr>` (table row), thus, to create two rows to our table, it now becomes:

```
<table>
  <tr></tr>
  <tr></tr>
</table>
```

Cells in tables are created by dividing the rows with the tag `<td>` (table data). A row with two cells will look like this:

```
<tr>
  <td></td>
  <td></td>
</tr>
```

For example, consider, how the information in the table below is organized:

Row 1, Column 1	Row 1, Column 2
Row 2, Column 1	Row 2, Column 2

The above table was created with the following source code.

HTML Table Source Code 3.1.1 shows sample code of basic HTML table.

```

1  <table style="border:1px solid black">
2
3  <tr>
4      <td>Row1, Column1</td>
5      <td>Row1, Column2</td>
6  </tr>
7
8  <tr>
9      <td>Row2, Column1</td>
10     <td>Row2, Column2</td>
11 </tr>
12
13 </table>

```

What does this code mean?

The `<table style="border:1px solid black">` Size of the border (1 pixel), line style (solid), and color (black).

`<tr>` Starts the first row.

`<td>Row 1, Column 1</td><td>Row 1, Column 2</td>` The `<td>` statement is to start the first column and `</td>` is to end the first column.

`</tr>` Ends the first row.

The next line is similar to what was explained above.

Putting a style on an HTML table

Styling tables have lots of beneficial effects making the page more readable. When you apply style border code to the table element (i.e. the `<table>` tag), the border only appears around the actual table - not the individual cells. For the table cells to have borders you need to apply the border code against the individual table cells.

Cell borders

A good thing to have in your table is a border. This is done by styling the individual cells, i.e. `<td>`. Minimum requirement is to specify the style, of the border, (e.g. a solid line or a dotted line or something else?), the width of the border and its color. A solid line, 1 px wide, looks like this:

```
<td style="border-style: solid; border-width:1px black;">
```

By incorporating the style on the cell as shown in the code above, it will have the following effect as shown in the example table below:

Row 1, Column 1	Row 1, Column 2
Row 2, Column 1	Row 1, Column 2

Table Heading

Table heading are defined using the `<th>` tag. This tag replaces the `<td>` tag used to represent an actual data cell. Normally you will put your top row as table heading as shown below, otherwise you can use `<th>` element in any row. Headings, which are defined in `<th>` tag are centered and bold by default.

HTML Table Source Code 3.1.2 shows sample code of HTML table with table header.

```

1 <table style="border:1px solid black">
2
3     <tr>
4         <th STYLE="border-style:solid; border-width:1px">Header 1</th>
5         <th STYLE="border-style:solid; border-width:1px">Header 2</th>
6     </tr>
7
8     <tr>
9         <td STYLE="border-style:solid; border-width:1px">Row1, Column1</td>
10        <td STYLE="border-style:solid; border-width:1px">Row1, Column2</td>
11    </tr>
12
13    <tr>
14        <td STYLE="border-style:solid; border-width:1px">Row2, Column1</td>
15        <td STYLE="border-style:solid; border-width:1px">Row2, Column2</td>
16    </tr>
17
18 </table>

```

This will produce the following output:

Header 1	Header 2
Row1, Column1	Row1, Column2
Row2, Column1	Row2, Column2

Now that we have already discussed how to create a basic table, let us now discuss how to describe the table content and how to group all the cells in a column for styling.

Describing table content

The first step is to simply provide a description of your table's contents and perhaps the way it is structured if it is out of the ordinary.

Use the **caption** element to give a table description that displays next to the table. You can use it to describe the table's contents or provide hints on how it is structured. When used, the **caption** element must be the first thing within the **table** element.

HTML Table Source Code 3.1.3 shows sample code of HTML table with caption.

```

1 <table style="border:1px solid black">
2
3   <caption>This is the caption</caption>
4
5   <tr>
6     <th STYLE="border-style:solid; border-width:1px">Header 1</th>
7     <th STYLE="border-style:solid; border-width:1px">Header 2</th>
8   </tr>
9
10  <tr>
11    <td STYLE="border-style:solid; border-width:1px">Row1, Column1</td>
12    <td STYLE="border-style:solid; border-width:1px">Row1, Column2</td>
13  </tr>
14
15  <tr>
16    <td STYLE="border-style:solid; border-width:1px">Row2, Column1</td>
17    <td STYLE="border-style:solid; border-width:1px">Row2, Column2</td>
18  </tr>
19
20 </table>

```

This will produce the following output:

This is the caption

Header 1	Header 2
Row1, Column1	Row1, Column2
Row2, Column1	Row2, Column2

HTML <colgroup>, <col>

The HTML <colgroup> tag specifies properties for a group of columns within a table. If you need to apply different properties to a column within a colgroup, you can use the HTML <col> tag within the colgroup tag.

- The <colgroup> element sets a group of columns in HTML tables.
- This element is a parent of <col>.
- The <table> element is a parent of <colgroup> in HTML.
- The <colgroup> element specifies a common formatting style for a group of HTML columns.

The HTML <col> tag allows grouping together attribute specifications for table columns. It does not group columns together structurally – that is the role of the <colgroup> element.

HTML Table Source Code 3.1.4 shows sample code of HTML table with colgroup.

```

1 <table style="border:1px solid black">
2
3   <colgroup>
4     <col span="1" style="background-color: cornsilk;">
5     <col style="background-color: bisque;">
6   </colgroup>
7
8   <tr>
9     <th STYLE="border-style:solid; border-width:1px">Price</th>
10    <th STYLE="border-style:solid; border-width:1px">Item</th>
11    <th STYLE="border-style:solid; border-width:1px">Quantity</th>
12  </tr>
13
14  <tr>
15    <td STYLE="border-style:solid; border-width:1px">100</td>
16    <td STYLE="border-style:solid; border-width:1px">Peanut Butter</td>
17    <td STYLE="border-style:solid; border-width:1px">2</td>
18  </tr>
19
20 </table>

```



Note: a <col> element can be used within <colgroup> to define a different property for a single column in the group.

This will produce the following output:

Price	Item	Quantity
100	Peanut Butter	2

The **span** attribute specifies a number of columns, indicating the span of a column group. This attribute could either be used in the <col> or <colgroup> tags as shown below and in the previous code.

HTML Table Source Code 3.1.4 shows sample code of HTML table emphasizing span attribute.

```

1 <table>
2   <colgroup span="2" style="background-color: darkgray;"></colgroup>
3   <tr>
4     <th>Name</th>
5     <th>City</th>
6   </tr>
7   <tr>
8     <td>James</td>
9     <td>New York</td>
10  </tr>
11  <tr>
12    <td>Laura</td>
13    <td>Chicago</td>
14  </tr>
15 </table>

```

This will produce the following output:

Name	City
James	New York
Laura	Chicago

Remember: always use `<colgroup>` with span when there are no `<col>` elements.



NAVIGATE

Time Allocation: 10 mins.

It's your time to apply what you have learned.

Create a web page for a table with five rows, three columns, and a blue colored border. The three cells in the first row will contain the table header (**Novel, Author, Genre**). The cell in the first column of each row will contain the name of your favorite Novel; the corresponding cells will contain the name of the author and genre. The table will have a caption on the center top of the table. All the three columns are group using `<colgroup>` and with a background color #ffeec. You may refer to the given sample output below:

My Favorite Novels		
Novel	Author	Genre
Novel1	Author1	Genre1
Novel2	Author2	Genre2
Novel3	Author3	Genre3
Novel4	Author4	Genre4



Note: This is a non-graded activity. But you can still submit your output to check whether you have learned something from this module.



Time Allocation: 2 mins.

In summary,

A table is used to organize information. Each individual table cell is at the intersection of a specific row and column.

- Each table begins with a `<table>` tag and ends with a `</table>` tag.
- Each table row begins with a `<tr>` tag and ends with a `</tr>` tag.
- Each cell (table data) begins with a `<td>` tag and ends with a `</td>` tag.
- Table cells can contain text, graphics, and other HTML elements.
- The **caption** tag will serve as a title or explanation for the table and it shows up at the top center of the table.
- Table heading can be defined using `<th>` tag. This tag could replace the `<td>` tag, which is used to represent actual data cell.
- The HTML `<colgroup>` tag is used for specifying properties for a group of columns within a table.
- If you need to apply different properties to a column within a colgroup, you can use the HTML `col` tag within the colgroup tag.



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