

## HTML Tables

### Basic Structure

An HTML table is defined with the `<table>` tag. Within this tag, you can use several other tags to build the table's structure.

### Table Tags

- `<table>`: This tag defines the table itself.
- `<tr>` (Table Row): This tag defines a row in the table.
- `<th>` (Table Header): This tag defines a header cell in a table. It is usually bold and centered.
- `<td>` (Table Data): This tag defines a standard data cell in a table.

### Example of a Simple Table

```
<table>
<tr>
  <th>Header 1</th>
  <th>Header 2</th>
  <th>Header 3</th>
</tr>
<tr>
  <td>Data 1</td>
  <td>Data 2</td>
  <td>Data 3</td>
</tr>
<tr>
  <td>Data 4</td>
  <td>Data 5</td>
  <td>Data 6</td>
</tr>
</table>
```

### Table Attributes

- `border`: Specifies the width of the border around the table and its cells.  
```html  
<table border="1">  
...```
- `cellpadding`: Specifies the space between the cell content and its borders.  
```html

```
<table cellpadding="10">
...
```

- **cellspacing**: Specifies the space between cells.

```
```html
<table cellspacing="10">
...
```

- **width**: Sets the width of the table.

```
```html
<table width="100%">
...
```

- **align**: Aligns the table to the left, right, or center of the page (deprecated in HTML5).

```
```html
<table align="center">
...
```

## Table Headers

Table headers are defined with the `<th>` tag. Headers can span multiple columns or rows.

```
<tr>
  <th colspan="2">Header spanning two columns</th>
</tr>
<tr>
  <th rowspan="2">Header spanning two rows</th>
</tr>
```

## Nested Tables

Tables can be nested within other tables.

```
<table border="1">
  <tr>
    <td>
      <table border="1">
        <tr>
          <td>Nested Table Cell</td>
        </tr>
      </table>
    </td>
  </tr>
</table>
```

## Advanced Features

- **\*\*Caption\*\***: Adds a title to the table using the `<caption>` tag.

```
```html
<table>
  <caption>Table Caption</caption>
</table>
```
```
- **\*\*Column Grouping\*\***: The `<colgroup>` and `<col>` tags allow for styling columns.

```
```html
<table>
  <colgroup>
    <col style="background-color:yellow">
    <col style="background-color:cyan">
  </colgroup>
  <tr>
    <td>Cell 1</td>
    <td>Cell 2</td>
  </tr>
</table>
```
```
- **\*\*Table Sections\*\***: The `<thead>`, `<tbody>`, and `<tfoot>` tags divide the table into sections.

```
```html
<table>
  <thead>
    <tr>
      <th>Header 1</th>
      <th>Header 2</th>
    </tr>
  </thead>
  <tbody>
    <tr>
      <td>Data 1</td>
      <td>Data 2</td>
    </tr>
  </tbody>
  <tfoot>
    <tr>
      <td>Footer 1</td>
      <td>Footer 2</td>
    </tr>
  </tfoot>
</table>
```
```

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

## Accessibility Considerations

- **`<summary>`**: Provide a summary of the table content.
- **`scope` attribute**: Use it in `<th>` to define the range of the header.  
'''html  
    <th scope="col">Column Header</th>  
    <th scope="row">Row Header</th>  
'''
- **`headers` attribute**: Used in `<td>` to associate data cells with header cells.  
'''html  
    <th id="header1">Header 1</th>  
    <td headers="header1">Data</td>  
'''

## Styling Tables

Tables can be styled using CSS to enhance their appearance.

```
<style>
table {
  width: 100%;
  border-collapse: collapse;
}
th, td {
  border: 1px solid black;
  padding: 10px;
  text-align: left;
}
th {
  background-color: #f2f2f2;
}
</style>
```