Canvas

What is HTML Canvas?

The HTML <canvas> element is used to draw graphics JavaScript.
The <canvas> element is only a container for graphics. You must use JavaScript to actually draw the graphics.
Canvas has several methods for drawing paths, boxes, circles, text, and adding images.

Canvas is a rectangular area on an HTML page. By default, a canvas has no border and no content.
The markup looks like this:

<canvas id="myCanvas" width="200" height="100"></canvas>

Note: Always specify an id attribute (to be referred to in a script), and a width and height attribute to define the size of the canvas. To add a border, use the style attribute.
Here is an example of a basic, empty canvas:

HTML Canvas

```
🔲 index.html                                          ● ● ●


<!DOCTYPE html>
<html>
<body>

<canvas id="myCanvas" width="200" height="100" style="border:1px solid #000000;">
Your browser does not support the HTML canvas tag.
</canvas>

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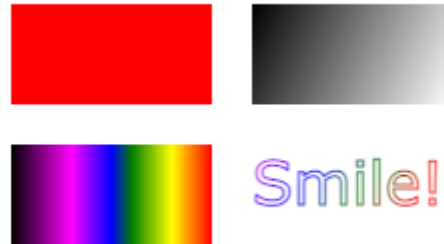
Output

Canvas

The HTML `<canvas>` element is used to draw graphics on a web page.
The graphic to the left is created with `<canvas>`.
It shows four elements: a red rectangle, a gradient rectangle, a multicolor rectangle, and a multicolor text.

Link to

- For Shapes
- https://www.w3schools.com/html/html5_svg.asp

- For Emojis & Characterset/Symbol
- https://www.w3schools.com/html/html_emojis.asp

Developing HTML Forms

- An HTML form is used to collect user input.

- The user input is most often sent to a server for processing.
The <form> Element
The HTML <form> element is used to create an HTML form for user input:

- <form>
  .
  form elements
  .
  </form>

- The <form> element is a container for different types of input elements, such as: text fields, checkboxes, radio buttons, submit buttons, etc.
The <input> Element
The HTML <input> element is the most used form element.
An <input> element can be displayed in many ways, depending on the type attribute.
Here are some examples:

Form Controls

- TextField:
  - Are used to accept user input. It is a single line input control.
- CheckBox
  - Checkboxes are used when you want the user to select one or more options of a limited number of choices.
- RadioButton
  - Radio Buttons are used when you want the user to select one of a limited number of choices.
- Select
  - Are used when you want users to choose options from a selectable lists.
- TextArea
  - Are used to accept user input. TextArea allows entry of multiple lines.

Form Controls (Contd.)

- PushButton
  - Each push button may have client side script associated with the element's event attributes. When an event occurs (e.g., the user presses the button, releases it, etc.), the associated script is triggered.
- Submit Button
  - When activated, a submit button submits a form. A form may contain more than one submit button.
- Reset Button
  - When activated, a reset button resets all controls to their initial values.

Form Controls (Contd)

Form Component	Tag	Attribute			Usage	Output
TextField	<input>	type	name	value	<input type="text" name="t1" value="Paul">	Paul
Checkbox	<input>	type	name	value	<input type="checkbox" name="c1" value="v1">	☑
RadioButton	<input>	type	name	value	<input type="radio" name="r1" value="v2">	◉
ComboBox	<select>	name			<select name="s1"><option value="v1">Display item</option></select>	Select an item ▼
	<option>	value				
TextArea	<textarea>	row	col	name	<textarea name="n1" row="5" col="20">	
PushButton	<input>	type	name	value	<input type="button" name="b1" value="Click">	Click
					<input type="submit" name="s1" value="Submit">	Submit
					<input type="reset" value="Reset">	Reset

Form (Contd.)

- A form is defined with the <form> tag.

Form Controls using Attributes:

INPUT Attribute definitions

- type = text|password|checkbox|radio|submit|reset|file|hidden|image|button
  - This attribute specifies the 'type of control' to create. The default value for this attribute is "text".

- name = *cdata*
  - This attribute assigns the 'control name'.

- value = *cdata*
  - This attribute specifies the 'initial value' of the control. It is optional except when the 'type' attribute has the value "radio" or "checkbox".

- size = *cdata*
  - This attribute tells the initial width of the control. The width is given in pixels except when 'type' attribute has the value "text" or "password". In that case, its value refers to the (integer) number of characters.

Form Controls using Attributes:

INPUT Attribute definitions

- maxlength = *number*
  - When the 'type' attribute has the value "text" or "password", this attribute specifies the maximum number of characters the user may enter. This number may exceed the specified 'size', in which case the user should offer a scrolling mechanism. The default value for this attribute is an unlimited number.

- Checked
  - When the 'type' attribute has the value "radio" or "checkbox", this boolean attribute specifies that the button is on.

- src = *url*
  - When the 'type' attribute has the value "image", this attribute specifies the location of the image to be used to decorate the graphical submit button.

Form Controls using Attributes:

SELECT Attribute definitions

- name = *cdata*
  - This attribute assigns the control name.

- size = *number*
  - If a SELECT element is presented as a scrolled list box, this attribute specifies the number of rows in the list that should be visible at the same time.

- Multiple
  - If set, this boolean attribute allows multiple selections. If not set, the SELECT element only permits single selections.
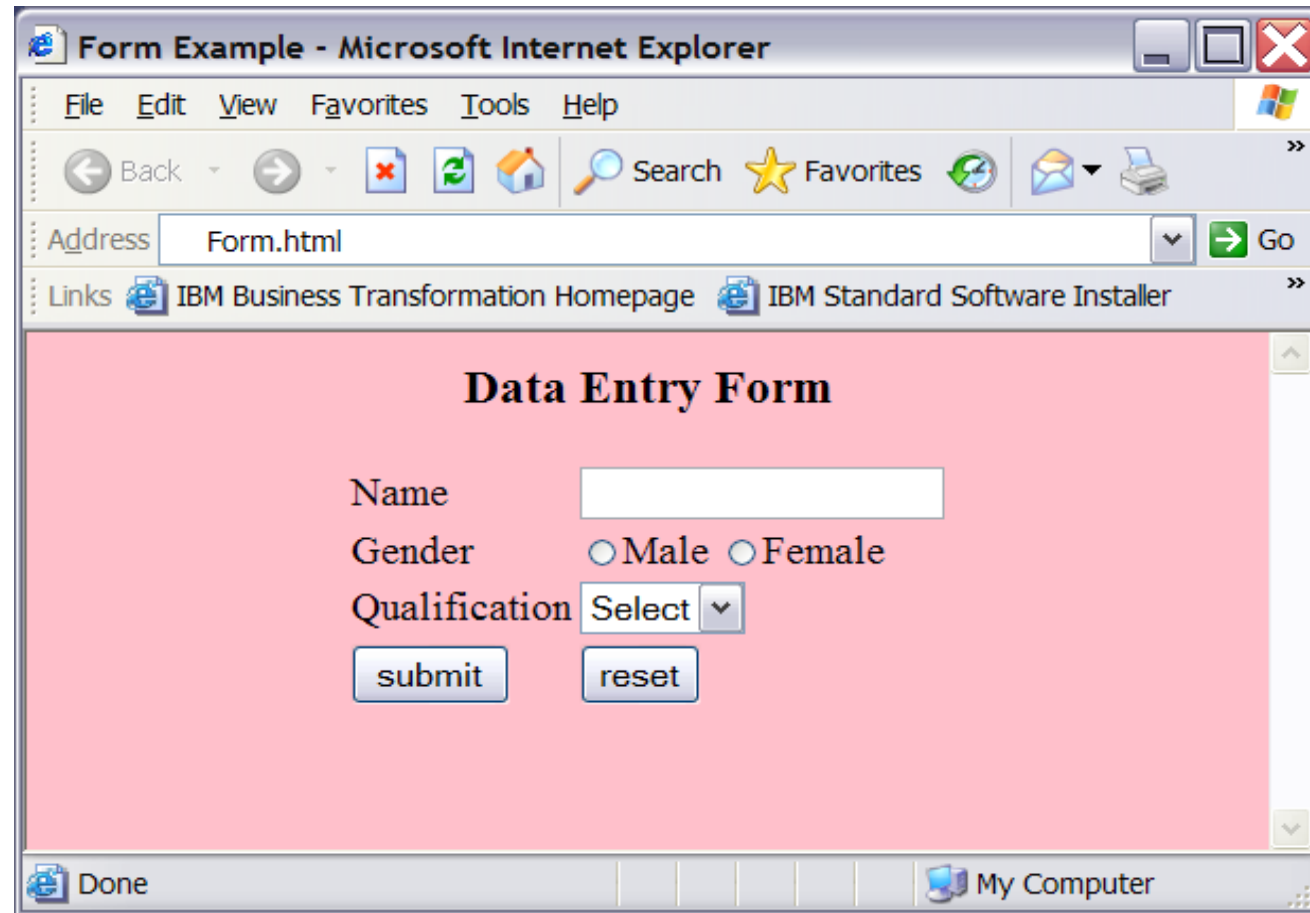
Pre – Selected Options:

- Zero or more choices may be pre-selected for the user. Users should determine which choices are pre-selected as follows:

  - If no 'OPTION' element has the 'selected' attribute set, the initial state has the first option selected.
  - If one 'OPTION' element has the 'selected' attribute set, it should be pre-selected.
  - If the 'SELECT' element has the 'multiple' attribute set and more than one 'OPTION' element has the 'selected' attribute set, they should all be pre-selected.
  - It is considered an error if more than one 'OPTION' element has the 'selected' attribute set and the 'SELECT' element does not have the 'multiple' attribute set.

Example of a Form

```html
<html>
<head>
<title>
Form Example</title>
</head>
<body bgcolor=pink >
<center>
<h3> Data Entry Form</h3>
<form>
<table>
<tr><td>Name</td><td> <input type="text"
    name="t1"> </td></tr>
<tr><td>Gender</td><td> <input type="radio"
    name="r1" value="m"> Male
<input type="radio" name="r1"
    value="f">Female</td></tr>
<tr><td>Qualification</td><td><select name="s">
<option >Select</option>
<option value="M.Sc">M Sc</option>
<option value="M.A.">MA</option>
<option value="other">other</option></select>
</td></tr>
<tr><td> <input type="submit" value="submit">
    </td>
<td> <input type="reset" value="reset"> </td></tr>
</table>
</center>
</form>
</body>
</html>
```

Output of the Form

Fieldset & Legend Tag

- The fieldset tag is used to group the form elements whilst the legend tag provides a label for the fieldset.

- The HTML legend tag is used for labelling the fieldset element.

- By using the fieldset tag and the legend tag, you can make your forms much easier to understand for your users.

Output Required

Code Snippet

```html
 <html>
<body>
<fieldset style="text-align:right;">
<legend><b>Address Details</b></legend>
Favorite Address <input type="text" /><br/>
Least Favorite Address <input type="text" /><br/>
Current Address <input type="text" /><br/>
Your Next Address <input type="text" /><br/>
</fieldset>
<br>
```

```html
<fieldset align="left">
<legend>Personal Info</legend>
Name : <input type="text">
Age : <input type="text">
Gender :
<input type="radio" name="r1">Male
<input type="radio" name="r1">Female
</fieldset>
</body>
</html>
```

<fieldset> tag is used to group the form elements

<html>

<body>

<fieldset style="text-align:right;">

<legend>Address Details</legend>

Favorite Address <input type="text" />

Least Favorite Address <input type="text" />

Current Address <input type="text" />

Your Next Address <input type="text" />

</fieldset>

<fieldset align="left">

<legend>Personal Info</legend>

Name : <input type="text">

Age : <input type="text">

Gender :

<input type="radio" name="r1">Male

<input type="radio" name="r1">Female

</fieldset>

</body>

</html>

<legend> tag is used give a suitable label to the group.

```
<html>

<body>

<fieldset style="text-align:right;">

<legend><b>Address Details</b></legend>

Favorite Address <input type="text" /><br/>

Least Favorite Address <input type="text" /><br/>

Current Address <input type="text" /><br/>

Your Next Address <input type="text" /><br/>

</fieldset>

<br>
```
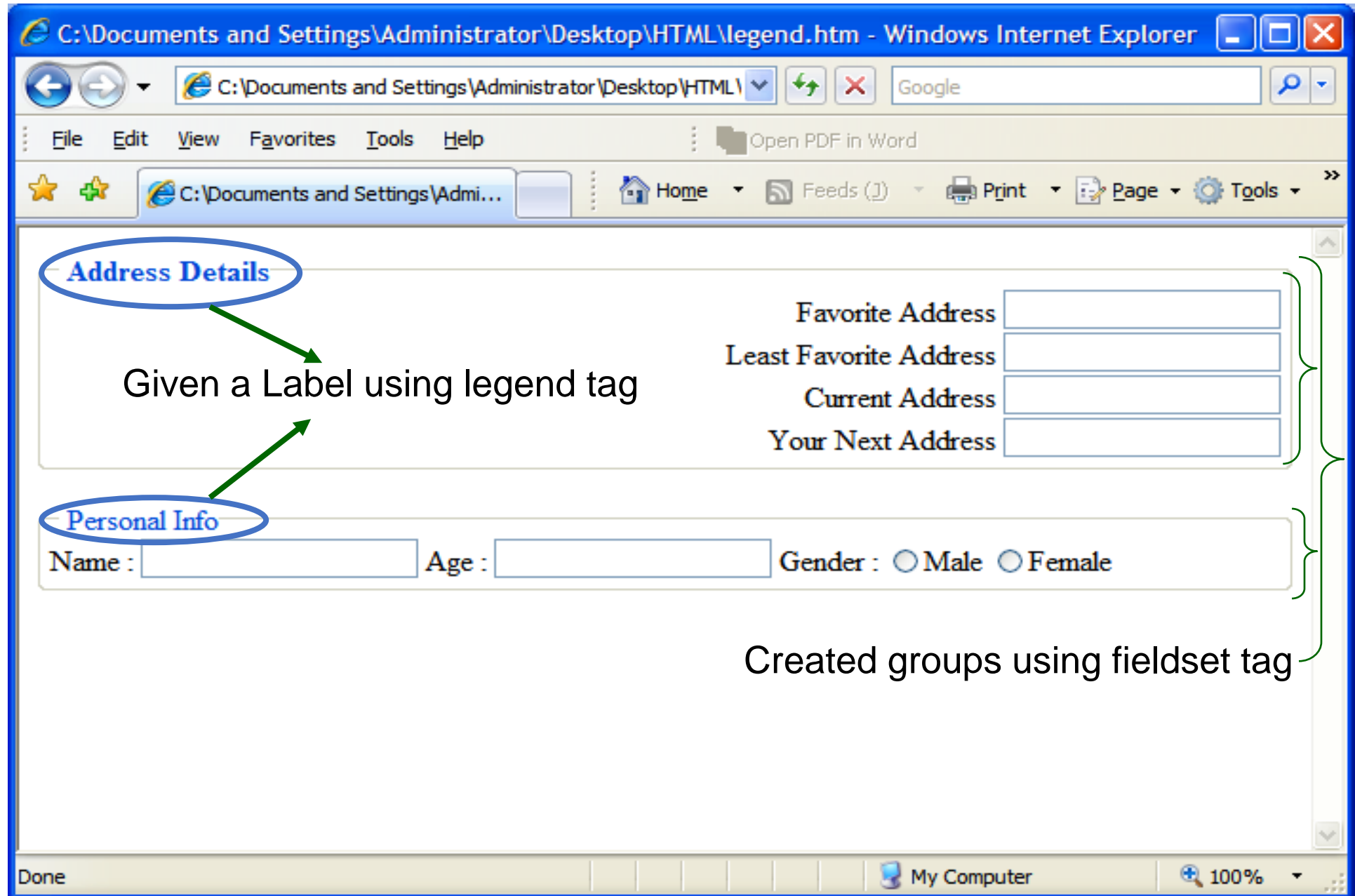
```
<fieldset align="left">

<legend>Personal Info</legend>

Name : <input type="text">

Age : <input type="text">

Gender :

<input type="radio" name="r1">Male

<input type="radio" name="r1">Female

</fieldset>

</body>

</html>
```

HTML Form

index.html

```
<!DOCTYPE html>
<html lang="en">

<body>
    <form>
        <h2>HTML Forms</h2>
        <br>
        Enter Your Name :
        <br>
        <label for="fname">First name:</label><br>
        <input type="text" id="fname" name="fname" value="Code"><br>
        <label for="lname">Last name:</label><br>
        <input type="text" id="lname" name="lname" value="March">
        <br><br>
        Enter Your Email:
        <input type="email"><br><br>
        Do you Exercise at the Home?
        <br>
        <input type="radio" id="Yes"
        name="Do you Exercise at the Home?" value="Yes">
        <label for="html">Yes</label>
        <input type="radio" id="No"
        name="Do you Exercise at the Home?" value="No">
        <label for="No">No</label>
        <br><br>
        How do you like to read your favorite Topics?
        <br>
        <input type="checkbox" id="Books" name="Books" value="Books">
        <label for="Books">Books</label><br>
        <input type="checkbox" id="Online Resources"
        name="Online Resources" value="Online Resources">
        <label for="Online Resources">Online Resources</label><br>
        <input type="checkbox" id="Applications"
        name="Applications" value="Applications">
        <label for="Applications">Applications</label>
        <br>
        <br>
        <input type="submit" value="Submit">
    </form>
</body>

</html>
```

Form tag

input type: text

input type: email

input type: radio button

input type: CheckBox

input type: submit

Output

HTML Forms

h2 tag

Enter Your Name :
First name:
Code
Last name:
March

text

Enter Your Email: codemarch123@gmail.com

email

Do you Exercise at the Home?
● Yes ○ No

radio buttons

How do you like to read your favorite Topics?
☑ Books
☑ Online Resources
☑ Applications

check Boxes

Submit

Submit Button

Form attribute

List of All <form> Attributes

Attribute	Description
accept-charset	Specifies the character encodings used for form submission
action	Specifies where to send the form-data when a form is submitted
autocomplete	Specifies whether a form should have autocomplete on or off
enctype	Specifies how the form-data should be encoded when submitting it to the server (only for method="post")
method	Specifies the HTTP method to use when sending form-data
name	Specifies the name of the form
novalidate	Specifies that the form should not be validated when submitted
rel	Specifies the relationship between a linked resource and the current document
target	Specifies where to display the response that is received after submitting the form

method

- **Notes on GET:**
- Appends the form data to the URL, in name/value pairs
- NEVER use GET to send sensitive data! (the submitted form data is visible in the URL!)
- The length of a URL is limited (2048 characters)
- Useful for form submissions where a user wants to bookmark the result
- GET is good for non-secure data, like query strings in Google
- **Notes on POST:**
- Appends the form data inside the body of the HTTP request (the submitted form data is not shown in the URL)
- POST has no size limitations, and can be used to send large amounts of data.
- Form submissions with POST cannot be bookmarked

Html style

HTML styles

The HTML style attribute is used to add styles to an element,
such as color, font, size, and more.

The HTML Style Attribute
Setting the style of an HTML element, can be done with the style attribute.
The HTML style attribute has the following syntax:

<tagname style="property:value;">

The **property** is a CSS property. The **value** is a CSS value.

<body style="background-color:powderblue;">
<h1 style="background-color:powderblue;">This is a heading</h1>
<p style="background-color:tomato;">This is a paragraph.</p>

Background Color

The CSS background-color property defines the background color for an HTML element

Text Color

The CSS color property defines the text color for an HTML element:

Fonts

The CSS font-family property defines the font to be used for an HTML element

Text Size

The CSS font-size property defines the text size for an HTML element:

Text Alignment

The CSS text-align property defines the horizontal text alignment for an HTML element:

- Use the `style` attribute for styling HTML elements
- Use `background-color` for background color
- Use `color` for text colors
- Use `font-family` for text fonts
- Use `font-size` for text sizes
- Use `text-align` for text alignment

Summary

- HTML is used for publishing web page.

- A tag is a reference in an HTML document which describes the style and structure of the document.

- <TABLE> with <TR>,<TH>,<TD> tags are used to construct a tabular structure in HTML.

- To create a List of items in HTML, tags used are <OL>and <UL>.

- Tags that separate from one line to others are <P>, <BR>, <HR>.

- It is used to include preformatted text into your HTML document.

- <BLOCKQUOTE> tag is used to include indented text in a document.

- The purpose of Logical Character Style tags is to convey the basic semantic meaning of a piece of text rather than the absolute appearance.

- Physical Character Style tags is used to give your text a different look but exacting look.

- <Font> tag is used to change the font size, color and face in a document.

Summary (Contd.)

- Special characters are those that has a special meaning in HTML and those are not found on English keyboards.

- HTML uses the <a> (anchor) tag to create a link to another document.

- In Html images are defined by using the <img> tag

- The <img> tag is a open tag (does not have a </img>)

- Web style sheets are a form of separation of presentation and content for web design .

- CSS syntax is made up of three parts: Selector, property and value

- Internal style sheets are used when a unique style is required for a document.

- Internal style are defined in the <head> tag section by using the <style> tag

Summary (Contd.)

- Internal style sheets are used when a unique style is required for a document.

- Internal style are defined in the <head> tag section by using the <style> tag

- With the class selector you can define different styles for the same type of HTML element

- <Span> is a inline tag.

- Span is used to format small chunks of data within another element.An HTML form is a section of a document containing normal content, markup, special elements called controls.

- Some of the common controls are checkboxes, radio buttons, Textfields, etc.

- Fieldset & Legend tags are used for grouping form elements and giving a suitable name to the group respectively.

Test Your Understanding

1. Select the correct option for making a hyperlink?

a. W3Schools

b. W3Schools.com

c. <a>http://www.w3schools.com

d. W3Schools.com

2. Style Sheet can decide presentation of a web page

a.   false

b.   true

Test Your Understanding (Contd.)

3. The <style> tag should be embedded within:

a. <body>

b. <form>

c. <head>

d. <img>

4. With the _____selector you can define different styles for the same type of HTML element.

a.   Form

b.   Button

c.   Span

d.   class

Test Your Understanding (Contd.)

5. The _____ attribute of table tag separates text from the cell border
    a. CELLPADDING
    b. CELLSPACING
    c. BORDERSPACING
    d. TABLESPACING

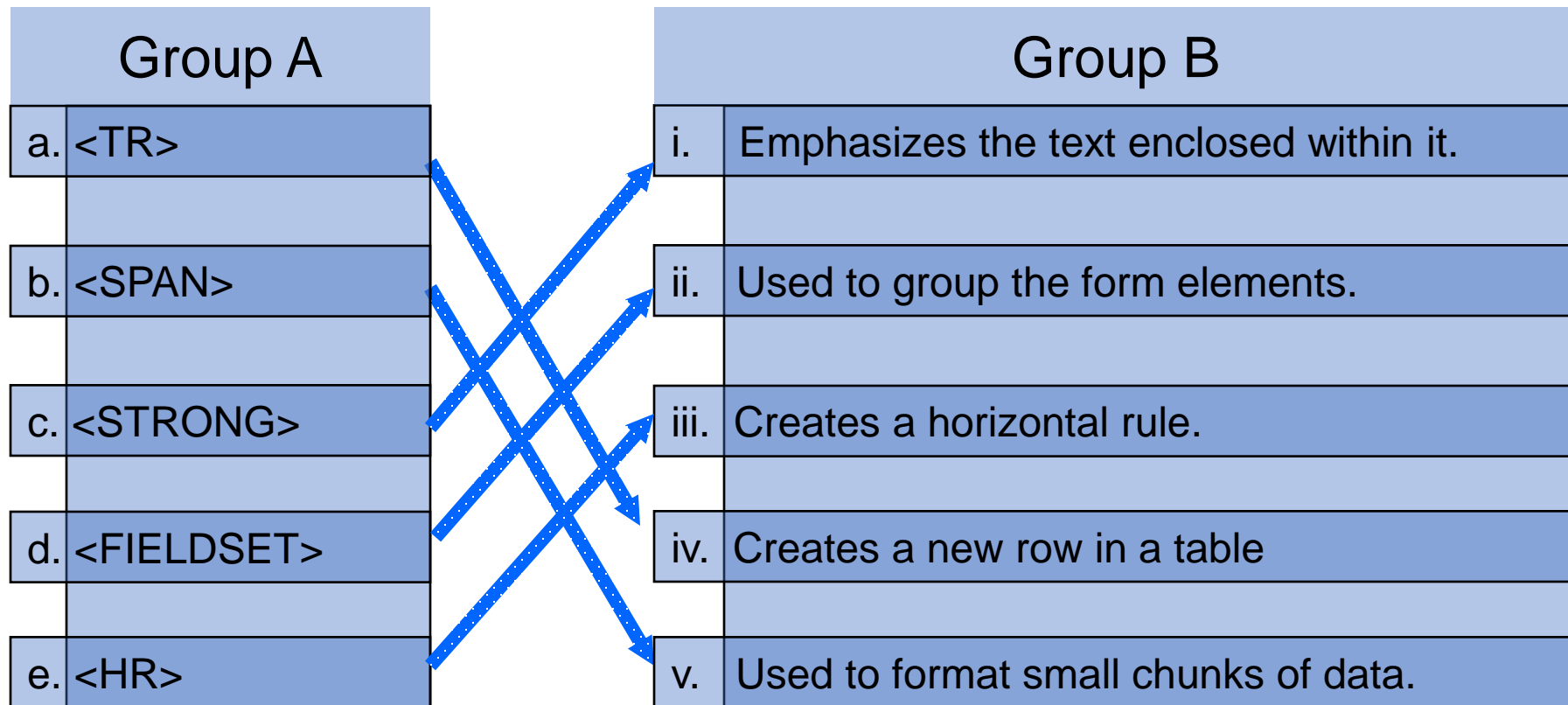6. What is the default font size in a web page.
    a. 1
    b. 2
    c. 3
    d. 5

Test Your Understanding (Contd.)

Match Group A with B

Group A	Group B
a. \<TR\>	i. Emphasizes the text enclosed within it.
b. \<SPAN\>	ii. Used to group the form elements.
c. \<STRONG\>	iii. Creates a horizontal rule.
d. \<FIELDSET\>	iv. Creates a new row in a table
e. \<HR\>	v. Used to format small chunks of data.

References

- http://www.pierobon.org/iis/url.htm
- http://w3schools.com/html
- http://www.ology.org/tilt/cgh/ - Things to consider while developing web page using HTML.
- http://www.tizag.com/htmlT
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