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| --- | --- | --- |
| **Ex. No. 1**  **Date:** | **WEBSITE CREATION** | **Page No.:** |

**Aim:**

To create a website for the department using HTML, CSS and JavaScript.

**Programming Fundamentals:**

**HTML BASICS:**

## Basic HTML

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| --- | --- |
| **Tag** | **Description** |
| <!DOCTYPE> | Defines the document type |
| <html> | Defines an HTML document |
| <head> | Defines information about the document |
| <title> | Defines a title for the document |
| <body> | Defines the document's body |
| <h1> to <h6> | Defines HTML headings |
| <p> | Defines a paragraph |
| <br> | Inserts a single line break |
| <hr> | Defines a thematic change in the content |
| <!--...--> | Defines a comment |

## Formatting

|  |  |
| --- | --- |
| **Tag** | **Description** |
| <acronym> | Not supported in HTML5. Use <abbr> instead. Defines an acronym |
| [<abbr>](https://www.w3schools.com/tags/tag_abbr.asp) | Defines an abbreviation or an acronym |
| [<address>](https://www.w3schools.com/tags/tag_address.asp) | Defines contact information for the author/owner of a document/article |
| [<b>](https://www.w3schools.com/tags/tag_b.asp) | Defines bold text |
| [<bdi>](https://www.w3schools.com/tags/tag_bdi.asp) | Isolates a part of text that might be formatted in a different direction from other text outside it |
| [<bdo>](https://www.w3schools.com/tags/tag_bdo.asp) | Overrides the current text direction |
| [<big>](https://www.w3schools.com/tags/tag_big.asp) | Not supported in HTML5. Use CSS instead. Defines big text |
| [<blockquote>](https://www.w3schools.com/tags/tag_blockquote.asp) | Defines a section that is quoted from another source |
| [<center>](https://www.w3schools.com/tags/tag_center.asp) | Not supported in HTML5. Use CSS instead. Defines centered text |
| [<cite>](https://www.w3schools.com/tags/tag_cite.asp) | Defines the title of a work |
| [<code>](https://www.w3schools.com/tags/tag_code.asp) | Defines a piece of computer code |
| [<del>](https://www.w3schools.com/tags/tag_del.asp) | Defines text that has been deleted from a document |
| [<dfn>](https://www.w3schools.com/tags/tag_dfn.asp) | Represents the defining instance of a term |
| [<em>](https://www.w3schools.com/tags/tag_em.asp) | Defines emphasized text |
| [<font>](https://www.w3schools.com/tags/tag_font.asp) | Not supported in HTML5. Use CSS instead. Defines font, color, and size for text |
| [<i>](https://www.w3schools.com/tags/tag_i.asp) | Defines a part of text in an alternate voice or mood |
| [<ins>](https://www.w3schools.com/tags/tag_ins.asp) | Defines a text that has been inserted into a document |
| [<kbd>](https://www.w3schools.com/tags/tag_kbd.asp) | Defines keyboard input |
| [<mark>](https://www.w3schools.com/tags/tag_mark.asp) | Defines marked/highlighted text |
| [<meter>](https://www.w3schools.com/tags/tag_meter.asp) | Defines a scalar measurement within a known range (a gauge) |
| [<pre>](https://www.w3schools.com/tags/tag_pre.asp) | Defines preformatted text |
| [<progress>](https://www.w3schools.com/tags/tag_progress.asp) | Represents the progress of a task |
| [<q>](https://www.w3schools.com/tags/tag_q.asp) | Defines a short quotation |
| [<rp>](https://www.w3schools.com/tags/tag_rp.asp) | Defines what to show in browsers that do not support ruby annotations |
| [<rt>](https://www.w3schools.com/tags/tag_rt.asp) | Defines an explanation/pronunciation of characters (for East Asian typography) |
| [<ruby>](https://www.w3schools.com/tags/tag_ruby.asp) | Defines a ruby annotation (for East Asian typography) |
| [<s>](https://www.w3schools.com/tags/tag_s.asp) | Defines text that is no longer correct |
| [<samp>](https://www.w3schools.com/tags/tag_samp.asp) | Defines sample output from a computer program |
| [<small>](https://www.w3schools.com/tags/tag_small.asp) | Defines smaller text |
| [<strike>](https://www.w3schools.com/tags/tag_strike.asp) | Not supported in HTML5. Use <del> or <s> instead. Defines strikethrough text |
| [<strong>](https://www.w3schools.com/tags/tag_strong.asp) | Defines important text |
| [<sub>](https://www.w3schools.com/tags/tag_sub.asp) | Defines subscripted text |
| [<sup>](https://www.w3schools.com/tags/tag_sup.asp) | Defines superscripted text |
| [<template>](https://www.w3schools.com/tags/tag_template.asp) | Defines a template |
| [<time>](https://www.w3schools.com/tags/tag_time.asp) | Defines a date/time |
| [<tt>](https://www.w3schools.com/tags/tag_tt.asp) | Not supported in HTML5. Use CSS instead. Defines teletype text |
| [<u>](https://www.w3schools.com/tags/tag_u.asp) | Defines text that should be stylistically different from normal text |
| [<var>](https://www.w3schools.com/tags/tag_var.asp) | Defines a variable |
| [<wbr>](https://www.w3schools.com/tags/tag_wbr.asp) | Defines a possible line-break |

## Forms and Input

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| --- | --- |
| **Tag** | **Description** |
| [<form>](https://www.w3schools.com/tags/tag_form.asp) | Defines an HTML form for user input |
| [<input>](https://www.w3schools.com/tags/tag_input.asp) | Defines an input control |
| [<textarea>](https://www.w3schools.com/tags/tag_textarea.asp) | Defines a multiline input control (text area) |
| [<button>](https://www.w3schools.com/tags/tag_button.asp) | Defines a clickable button |
| [<select>](https://www.w3schools.com/tags/tag_select.asp) | Defines a drop-down list |
| [<optgroup>](https://www.w3schools.com/tags/tag_optgroup.asp) | Defines a group of related options in a drop-down list |
| [<option>](https://www.w3schools.com/tags/tag_option.asp) | Defines an option in a drop-down list |
| [<label>](https://www.w3schools.com/tags/tag_label.asp) | Defines a label for an <input> element |
| [<fieldset>](https://www.w3schools.com/tags/tag_fieldset.asp) | Groups related elements in a form |
| [<legend>](https://www.w3schools.com/tags/tag_legend.asp) | Defines a caption for a <fieldset> element |
| [<datalist>](https://www.w3schools.com/tags/tag_datalist.asp) | Specifies a list of pre-defined options for input controls |
| [<output>](https://www.w3schools.com/tags/tag_output.asp) | Defines the result of a calculation |

## Frames

|  |  |
| --- | --- |
| **Tag** | **Description** |
| [<frame>](https://www.w3schools.com/tags/tag_frame.asp) | Not supported in HTML5. Defines a window (a frame) in a frameset |
| [<frameset>](https://www.w3schools.com/tags/tag_frameset.asp) | Not supported in HTML5. Defines a set of frames |
| [<noframes>](https://www.w3schools.com/tags/tag_noframes.asp) | Not supported in HTML5. Defines an alternate content for users that do not support frames |
| [<iframe>](https://www.w3schools.com/tags/tag_iframe.asp) | Defines an inline frame |

## Images

|  |  |
| --- | --- |
| **Tag** | **Description** |
| [<img>](https://www.w3schools.com/tags/tag_img.asp) | Defines an image |
| [<map>](https://www.w3schools.com/tags/tag_map.asp) | Defines a client-side image-map |
| [<area>](https://www.w3schools.com/tags/tag_area.asp) | Defines an area inside an image-map |
| [<canvas>](https://www.w3schools.com/tags/tag_canvas.asp) | Used to draw graphics, on the fly, via scripting (usually JavaScript) |
| [<figcaption>](https://www.w3schools.com/tags/tag_figcaption.asp) | Defines a caption for a <figure> element |
| [<figure>](https://www.w3schools.com/tags/tag_figure.asp) | Specifies self-contained content |
| [<picture>](https://www.w3schools.com/tags/tag_picture.asp) | Defines a container for multiple image resources |
| [<svg>](https://www.w3schools.com/tags/tag_svg.asp) | Defines a container for SVG graphics |

## Audio / Video

|  |  |
| --- | --- |
| **Tag** | **Description** |
| [<audio>](https://www.w3schools.com/tags/tag_audio.asp) | Defines sound content |
| [<source>](https://www.w3schools.com/tags/tag_source.asp) | Defines multiple media resources for media elements (<video>, <audio> and <picture>) |
| [<track>](https://www.w3schools.com/tags/tag_track.asp) | Defines text tracks for media elements (<video> and <audio>) |
| [<video>](https://www.w3schools.com/tags/tag_video.asp) | Defines a video or movie |

## Links

|  |  |
| --- | --- |
| **Tag** | **Description** |
| [<a>](https://www.w3schools.com/tags/tag_a.asp) | Defines a hyperlink |
| [<link>](https://www.w3schools.com/tags/tag_link.asp) | Defines the relationship between a document and an external resource (most used to link to style sheets) |
| [<nav>](https://www.w3schools.com/tags/tag_nav.asp) | Defines navigation links |

## Lists

|  |  |
| --- | --- |
| **Tag** | **Description** |
| [<ul>](https://www.w3schools.com/tags/tag_ul.asp) | Defines an unordered list |
| [<ol>](https://www.w3schools.com/tags/tag_ol.asp) | Defines an ordered list |
| [<li>](https://www.w3schools.com/tags/tag_li.asp) | Defines a list item |
| [<dir>](https://www.w3schools.com/tags/tag_dir.asp) | Not supported in HTML5. Use <ul> instead. Defines a directory list |
| [<dl>](https://www.w3schools.com/tags/tag_dl.asp) | Defines a description list |
| [<dt>](https://www.w3schools.com/tags/tag_dt.asp) | Defines a term/name in a description list |
| [<dd>](https://www.w3schools.com/tags/tag_dd.asp) | Defines a description of a term/name in a description list |

## Tables

|  |  |
| --- | --- |
| **Tag** | **Description** |
| [<table>](https://www.w3schools.com/tags/tag_table.asp) | Defines a table |
| [<caption>](https://www.w3schools.com/tags/tag_caption.asp) | Defines a table caption |
| [<th>](https://www.w3schools.com/tags/tag_th.asp) | Defines a header cell in a table |
| [<tr>](https://www.w3schools.com/tags/tag_tr.asp) | Defines a row in a table |
| [<td>](https://www.w3schools.com/tags/tag_td.asp) | Defines a cell in a table |
| [<thead>](https://www.w3schools.com/tags/tag_thead.asp) | Groups the header content in a table |
| [<tbody>](https://www.w3schools.com/tags/tag_tbody.asp) | Groups the body content in a table |
| [<tfoot>](https://www.w3schools.com/tags/tag_tfoot.asp) | Groups the footer content in a table |
| [<col>](https://www.w3schools.com/tags/tag_col.asp) | Specifies column properties for each column within a <colgroup> element |
| [<colgroup>](https://www.w3schools.com/tags/tag_colgroup.asp) | Specifies a group of one or more columns in a table for formatting |

## Styles and Semantics

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| **Tag** | **Description** |
| [<style>](https://www.w3schools.com/tags/tag_style.asp) | Defines style information for a document |
| [<div>](https://www.w3schools.com/tags/tag_div.asp) | Defines a section in a document |
| [<span>](https://www.w3schools.com/tags/tag_span.asp) | Defines a section in a document |
| [<header>](https://www.w3schools.com/tags/tag_header.asp) | Defines a header for a document or section |
| [<footer>](https://www.w3schools.com/tags/tag_footer.asp) | Defines a footer for a document or section |
| [<main>](https://www.w3schools.com/tags/tag_main.asp) | Specifies the main content of a document |
| [<section>](https://www.w3schools.com/tags/tag_section.asp) | Defines a section in a document |
| [<article>](https://www.w3schools.com/tags/tag_article.asp) | Defines an article |
| [<aside>](https://www.w3schools.com/tags/tag_aside.asp) | Defines content aside from the page content |
| [<details>](https://www.w3schools.com/tags/tag_details.asp) | Defines additional details that the user can view or hide |
| [<dialog>](https://www.w3schools.com/tags/tag_dialog.asp) | Defines a dialog box or window |
| [<summary>](https://www.w3schools.com/tags/tag_summary.asp) | Defines a visible heading for a <details> element |
| [<data>](https://www.w3schools.com/tags/tag_data.asp) | Links the given content with a machine-readable translation |

## Meta Info

|  |  |
| --- | --- |
| **Tag** | **Description** |
| [<head>](https://www.w3schools.com/tags/tag_head.asp) | Defines information about the document |
| [<meta>](https://www.w3schools.com/tags/tag_meta.asp) | Defines metadata about an HTML document |
| [<base>](https://www.w3schools.com/tags/tag_base.asp) | Specifies the base URL/target for all relative URLs in a document |
| [<basefont>](https://www.w3schools.com/tags/tag_basefont.asp) | Not supported in HTML5. Use CSS instead. Specifies a default color, size, and font for all text in a document |

## Programming

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| **Tag** | **Description** |
| [<script>](https://www.w3schools.com/tags/tag_script.asp) | Defines a client-side script |
| [<noscript>](https://www.w3schools.com/tags/tag_noscript.asp) | Defines an alternate content for users that do not support client-side scripts |
| [<applet>](https://www.w3schools.com/tags/tag_applet.asp) | Not supported in HTML5. Use <embed> or <object> instead. Defines an embedded applet |
| [<embed>](https://www.w3schools.com/tags/tag_embed.asp) | Defines a container for an external (non-HTML) application |
| [<object>](https://www.w3schools.com/tags/tag_object.asp) | Defines an embedded object |
| [<param>](https://www.w3schools.com/tags/tag_param.asp) | Defines a parameter for an object |

**Cascading Style Sheet(CSS):**

Cascading Style Sheet(CSS) is used to set the style in web pages that contain HTML elements, here we will see in how many ways we can add CSS for our HTML, there three different ways to do so one by one we will see those procedure.

***Types:***

***External CSS:*** External CSS contains a separate CSS file with a .css extension which contains only style property with the help of tag attributes.

selector{

property1: value1;

property2: value2;

}

***Include external CSS file:*** The external CSS file is linked to the HTML document using a link tag.

<link rel="stylesheet" type="text/css" href="/style.css" />

***Internal CSS or Embedded:*** CSS is embedded within the HTML file using a style HTML tag.

<style type="text/css">

div { color: #444;}

</style>

***Inline CSS:*** It contains CSS properties in the body section specified within HTML tags.

<tag style="property: value"> </tag>

**Selectors:**Used to find or select the HTML elements you want to style. These are categorized as follows:

|  |  |  |
| --- | --- | --- |
| **Basic Selectors** | **Description** | **Syntax** |
| [Universal](https://www.geeksforgeeks.org/css-selector/) | Selects all elements on the pages. | \*{property:value;} |
| [Type](https://www.geeksforgeeks.org/css-element-selector/) | Selects all HTML tag/element of given type in your document. | p {property:value;} |
| [Id](https://www.geeksforgeeks.org/css-id-selector/) | Selects an element based on the value of its unique id attribute | #id {property:value;} |
| [Class](https://www.geeksforgeeks.org/css-class-selector/) | Selects all elements in the document that have the given class attribute. | .class {property:value;} |
| [Attribute](https://www.geeksforgeeks.org/css-attribute-selector/) | Selects all elements that have a specified attribute. | a[attribute=value] {property:value;} |

**Font Properties:**CSS font properties are used to set the font’s content of the HTML element as per requirement.

|  |  |  |
| --- | --- | --- |
| **Property** | **Description** | **Syntax** |
| [Font-family](https://www.geeksforgeeks.org/css-font-family-property/) | Specifies the font family to be used for the element’s text content. | font-family: family-name |generic-family |initial |inherit; |
| [Font-style](https://www.geeksforgeeks.org/css-font-style-property/) | Styles the text content in a normal, italic, or oblique face from its font-family. | font-style: normal |italic |oblique |initial |inherit; |
| [Font-variant](https://www.geeksforgeeks.org/css-font-variant-property/) | Converts all lowercase letters into uppercase letters. | font-variant: normal| small caps | initial; |
| [Font-weight](https://www.geeksforgeeks.org/css-font-weight-property/) | Specifies thickness or weight of the font | font-weight: normal| bold |number |initial |inherit |unset; |
| [Font-size](https://www.geeksforgeeks.org/css-font-size-property/) | Specifies the size of the text in HTML document. | font-size: small |medium |large |

**Text-properties:**CSS text formatting properties are used to format and style text by setting their color, alignment, spacing, etc. as per requirement.

|  |  |  |
| --- | --- | --- |
| **Property** | **Description** | **Syntax** |
| [Text-color](https://www.geeksforgeeks.org/css-color-property/) | Sets the color of the text. | color: value; |
| [Text-alignment](https://www.geeksforgeeks.org/css-text-align-property/) | Defines the horizontal alignment of the text. | text-align: left|right|center| justify|initial|inherit; |
| [Text-decoration](https://www.geeksforgeeks.org/css-text-decoration-property/) | Add or remove text- decorations. | text-decoration: decoration-type; |
| [Text-transformation](https://www.geeksforgeeks.org/css-text-transform-property/) | Changes the case(uppercase|lowercase) of text. | text-transform: none|capitalize|uppercase| lowercase|initial|inherit; |
| [Text-indentation](https://www.geeksforgeeks.org/css-text-indent-property/) | Indents the first line of text block. | text-indent: length|initial|inherit; |
| [Letter spacing](https://www.geeksforgeeks.org/css-letter-spacing-property/) | Specifies spacing between the characters of the text. | letter-spacing: normal|length| initial|inherit; |
| [Line height](https://www.geeksforgeeks.org/css-line-height-property/) | Specifies the space between the lines of the text. | line-height: normal|number|length| percentage|initial|inherit; |
| [Text-shadow](https://www.geeksforgeeks.org/css-text-shadow-property/) | Adds shadow to the text. | text-shadow: h-shadow v-shadow blur-radius color|none|initial|inherit |
| [Word spacing](https://www.geeksforgeeks.org/css-word-spacing-property/) | Specifies space between words of lines. | word-spacing: normal|length| initial|inherit; |

**Background properties:**The CSS background properties are used to design the background and define the background effects for elements.

|  |  |  |
| --- | --- | --- |
| **Property** | **Description** | **Syntax** |
| [Background-color](https://www.geeksforgeeks.org/css-background-color-property/) | Specifies the background color of an element. | background-color: color\_name; |
| [Background-image](https://www.geeksforgeeks.org/css-background-image-property/) | Adds one or more background images to an element. | background-image: url(‘url’); |
| [Background-repeat](https://www.geeksforgeeks.org/css-background-repeat-property/) | Adds or remove repeat the background image both horizontally and vertically. | background-repeat: repeat|repeat-x|repeat-y| no-repeat|initial|inherit; |
| [Background-position](https://www.geeksforgeeks.org/css-background-position-property/) | Specifies the positioning of the image in a certain way. | background-position: value; |
| [Background-origin](https://www.geeksforgeeks.org/css-background-origin-property/) | Used to adjust the background image of the webpage. | background-origin: padding-box |border-box |content-box | initial| inherit; |
| [Background-attachment](https://www.geeksforgeeks.org/css-background-attachment-property/) | Specifies the kind of attachment of the background image in its container/td> | background-attachment: scroll|fixed|local|initial|inherit; |
| [Background-clip](https://www.geeksforgeeks.org/css-background-clip-property/) | Used to define how far the background (color or image) should extend. | background-clip: border-box|padding-box|content-box|initial|inherit; |

**Box Properties:** The CSS box model is essentially a box that wraps around every HTML element consisting of the border, padding, margin, and content. The CSS properties used to attain the box model are:

|  |  |  |
| --- | --- | --- |
| **Property** | **Description** | **Syntax** |
| [Margin](https://www.geeksforgeeks.org/css-margins-padding/) | Used to set the margin | margin: value; |
| [Padding](https://www.geeksforgeeks.org/css-margins-padding/) | Specifies the space between the border and the content of the selector. | padding: value; |
| [Border](https://www.geeksforgeeks.org/css-border-property/) | Sets the element’s border width and set the style, and color of an element’s border. | border: value; |
| [Width](https://www.geeksforgeeks.org/css-width-property/) | Used to set an element’s width. | width: value; |
| [Height](https://www.geeksforgeeks.org/css-height-property/) | Used to set an element’s height | height: value; |

**Shadow properties:**These shadow properties are used to add shadow to text or boxes or frames of elements.

|  |  |  |
| --- | --- | --- |
| **Property** | **Description** | **Syntax** |
| [Text shadow](https://www.geeksforgeeks.org/css-text-shadow-property/) | Adds shadow to text. | text-shadow: h-shadow v-shadow blur-radius color| none |initial | inherit; |
| [Box shadow](https://www.geeksforgeeks.org/css-box-shadow-property/) | Gives shadow-like effect to the box or frames of an element. | box-shadow: h-offset v-offset blur spread color |none |inset |initial | inherit; |

**Gradient:** The CSS gradient property is used to create transition between two or more specified colors

|  |  |  |
| --- | --- | --- |
| **Gradient** | **Description** | **Syntax** |
| [Linear Gradient](https://www.geeksforgeeks.org/css-linear-gradient-function/) | Creates smooth color transitions. | background-image: linear-gradient(direction, color-stop1, color-stop2, …); |
| [Radial Gradient](https://www.geeksforgeeks.org/css-radial-gradient-function/) | Used to obtain an elliptical shape gradient. | background-image: radial-gradient(shape size at position, start-color, …, last-color); |

**Border Properties:**The CSS border properties allow you to specify how the border of the box representing an element should look.

|  |  |  |
| --- | --- | --- |
| **Property** | **Description** | **Syntax** |
| [Border Color](https://www.geeksforgeeks.org/css-border-color-property/) | Specifies the color of the border of the box. Works only when the border-style property is defined. | border-color: color-value; |
| [Border Style](https://www.geeksforgeeks.org/css-border-style-property/) | Sets the style of the border as solid, dotted, rigged, etc. | border-style: value; |
| [Border Width](https://www.geeksforgeeks.org/css-border-width-property/) | Sets the width of the border of the element. | border-width: length |thin |medium |thick |initial |inherit |

**Classification Properties:**The CSS classification properties allow you to specify how and where an element is displayed.

|  |  |  |
| --- | --- | --- |
| **Property** | **Description** | **Syntax** |
| [Display](https://www.geeksforgeeks.org/css-display-property/) | Defines how elements are displayed in the web page. | display: inline|block|flex| grid|table|group|none|inherit; |
| [Float](https://www.geeksforgeeks.org/css-float/) | Defines flow of content | float: none|left|right| initial| inherit; |
| [Position](https://www.geeksforgeeks.org/css-positioning-elements/) | Specifies the positioning method of html entity on the web page. | position: fixed|static|absolute |relative |sticky; |
| [Clear](https://www.geeksforgeeks.org/css-clear-property/) | Sets the sides of an element where no other floating elements are allowed. | clear: left|right|both|none; |
| [Visibility](https://www.geeksforgeeks.org/css-visibility-property/) | Set an element as visible or not. | visibility: visible|hidden|collapse|initial|inherit; |
| [Cursor](https://www.geeksforgeeks.org/css-cursor-property/) | Specifies the type or shape of cursor | cursor: auto|default|pointer|crosshair|help | e-resize | all-scroll |progress |initial |inherit; |

**CSS Functions:** CSS has a range of inbuilt functions. These are used as a value for various CSS properties. Some of the CSS functions can be nested as well. It ranges from simple color functions to mathematical, shape, color, transform, gradient, and animations functions. Some of the key functions are:

|  |  |  |
| --- | --- | --- |
| **Function** | **Description** | **Syntax** |
| [attr()](https://www.geeksforgeeks.org/css-attr-function/) | Retrieves the value of an attribute of the selected elements | attr( attr\_name ); |
| [calc()](https://www.geeksforgeeks.org/css-calc-function/) | Takes a single mathematical expression as its parameter and performs operations | calc( Expression ); |
| [max()](https://www.geeksforgeeks.org/css-max-function/) | Returns the largest number of the given set of comma separated numbers. | max(value 1, value2, value3…) |
| [url()](https://www.geeksforgeeks.org/css-url-function/) | Takes a string URL as a parameter and is used to load images, fonts and content | url( <string> <url-modifier>\* ) |
| [var()](https://www.geeksforgeeks.org/css-var-function/) | Inserts the value of a custom property. Its name must start with two dashes. | var( custom\_property, value ) |

**JavaScript Fundamentals**

Syntax:

<script type = "text/javascript">

//JavaScript coding can be done inside this tag

</script>

OR

<script src="script.js"></script>

***Javascript Variables***

JavaScript allows the usage of variables in the following three ways:

1. var

var x = 140; // variable x can be reassigned a new value and also redeclared

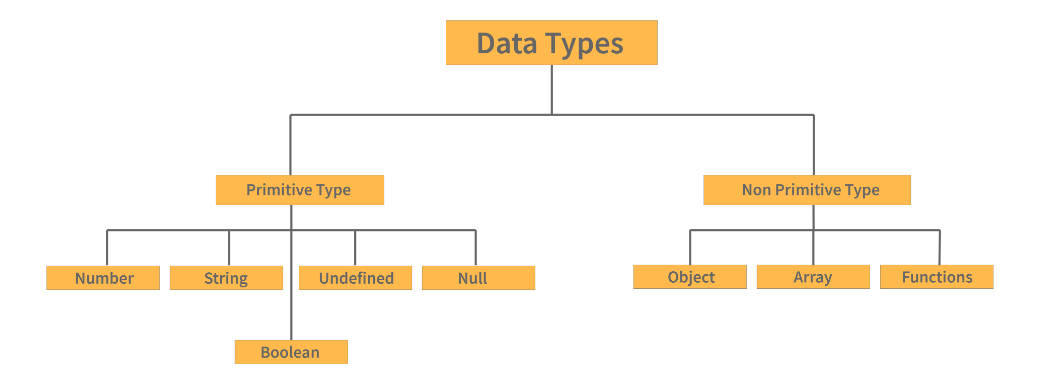
1. const: They can neither be reassigned values, that is, their value remains fixed throughout the execution of the code, nor can they be redeclared.

const x = 5; // variable x cannot be reassigned a new value or redeclared

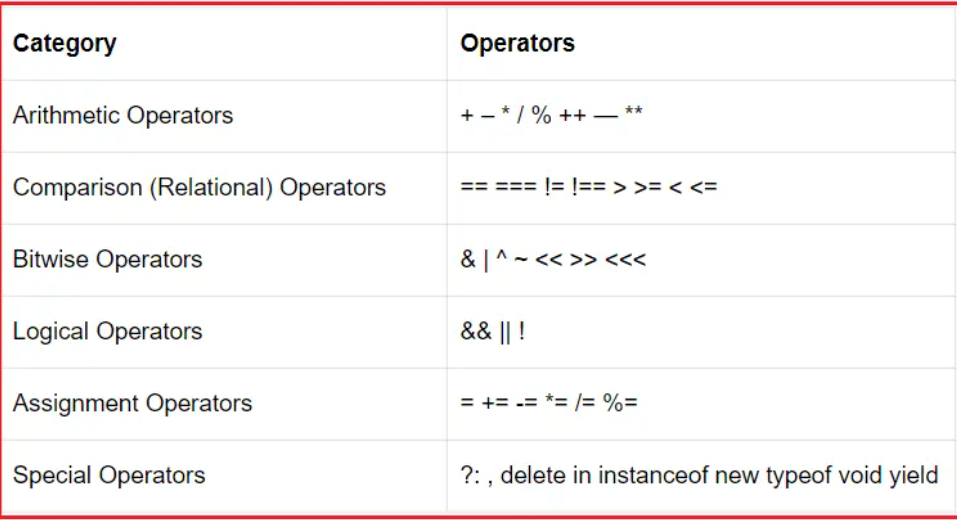
1. let: The let variable, like const, cannot be redeclared. But they can be reassigned a value. An example of a variable declared using the "let" keyword in JavaScript is shown below:

let x = 202; // variable x cannot be redeclared but can be reassigned a new value

***Javascript Data Types***



***Javascript Operators***



### *JavaScript If-Else Statements*

if (check condition) {

// block of code to be executed if the given condition is satisfied

} else {

// block of code to be executed if the given condition is not satisfied

}

***Loops in JavaScript:***

***For loop***

for (initialization of the loop variable; condition checking for the loop; updation after the loop) {

// code to be executed in loop

}

***While loop***

// Initialization of the loop variable is done before the while loop begins

while(condition checking for the loop){

// 1. code to be executed in loop

// 2. updation of the loop variable

}

***Do-while loop***

// Initialization of the loop variable is done before the do-while loop begins

do{

// 1. code to be executed in loop

// 2. updation of the loop variable

}while(condition checking for the loop);

the continue statement: Skip parts of the loop if certain conditions are met.

break statement: Used to stop and exit the cycle when specific conditions are met.

***JavaScript Arrays***

Arrays are the next item on our JavaScript cheat sheet. Arrays are used in a variety of programming languages. They are a method of categorising variables and attributes. Arrays can be defined as a collection of objects of the same type. In JavaScript, here's how one can make an array of cars:

var cars = ["Mercedes", "Tesla","Volvo"];

* pop(): This method is used for removing the last element of an array.
* push(): This method is used for adding a new element at the very end of an array.
* concat(): This method is used for joining various arrays into a single array.
* reverse(): This method is used for reversing the order of the elements in an array.
* shift(): This method is used for removing the first element of an array.
* slice(): This method is used for pulling a copy of a part of an array into a new array.
* splice(): This method is used for adding elements in a particular way and position.
* toString(): This method is used for converting the array elements into strings.
* unshift(): This method is used for adding new elements at the beginning of the array.
* valueOf(): This method is used for returning the primitive value of the given object.
* indexOf(): This method is used for returning the first index at which a given element is found in an array.
* lastIndexOf(): This method is used for returning the final index at which a given element appears in an array.
* join(): This method is used for combining elements of an array into one single string and then returning it.
* sort(): This method is used for sorting the array elements based on some condition.

***JavaScript Functions***

JavaScript Functions can be defined as chunks of code written in JavaScript to perform a single task. A function in JavaScript looks like this:

function nameOfTheFunction(parameters) {

// Job or Task of the function

}

**Coding:**

**Output:**

**Result:**

Thus the concepts of HTML, CSS and JavaScript are used to create the department website.

|  |  |
| --- | --- |
| **Rubrics** | |
| **User Interface [20]** |  |
| **Compilation [10]** |  |
| **Validation [20]** |  |
| **Viva [25]** |  |
| **Record Submission [25]** |  |
| **Total [100]** |  |

**Viva Questions:**

**HTML:**

1. What does HTML stand for? Explain its purpose in web development.
2. How do you create a hyperlink in HTML?
3. What is the difference between inline and block-level elements in HTML?
4. How do you add comments in HTML?
5. Explain the usage of the <img> tag and how you can specify alternate text for an image.
6. What are semantic elements in HTML? Provide examples of a few semantic tags.
7. How can you create a table in HTML? Provide an example.
8. What is the purpose of the <!DOCTYPE> declaration in an HTML document?
9. Describe the difference between the id and class attributes in HTML.
10. Create the following table:

|  |  |  |
| --- | --- | --- |
| Day | Session | Agenda |
| Mon | FN | Language Training |
| AN | Aptitude |
| Tues | FN | Skill Rack |
| AN | Programming Training |
| Wed | FN | Group Discussion |
| AN | Public Speaking |

**CSS:**

1. What does CSS stand for? Why is it important in web development?
2. How do you link an external CSS file to an HTML document?
3. Explain the usage of the box model in CSS.
4. What is the difference between padding and margin in CSS?
5. How can you apply CSS styles to specific HTML elements based on their class or ID?
6. Describe the difference between inline, block, and inline-block display properties in CSS.
7. How do you create a CSS animation? Provide an example.
8. Explain the concept of CSS specificity and how it affects the application of styles.
9. What is a media query in CSS? How does it help in making a website responsive?
10. Apply animations to a button using CSS, so it changes color gradually when hovered over and returns to its original color when the mouse pointer moves away.

**JavaScript:**

1. What is JavaScript, and what are its main features?
2. How do you declare a variable in JavaScript?
3. Explain the difference between let, const, and var in variable declaration.
4. How can you check the data type of a variable in JavaScript?
5. What are the different ways to create a function in JavaScript?
6. How do you add an event listener to an HTML element in JavaScript?
7. Explain the concept of scope in JavaScript.
8. What is the purpose of the ‘this’ keyword in JavaScript?
9. How can you handle errors in JavaScript using try-catch blocks?
10. Implement a JavaScript countdown timer that starts from a specified time and updates every second until it reaches zero.