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1. What are the main differences between the GIF, JPG, and PNG formats? Why might you use one over the other?

**GIF**: Graphics Interchange Format

* Like PNG, but GIF has simple animation graphics and a better transparency.
* Great for shape edges of text.
* GIF is less clear than JPG, due to having up to only 256 colors per frame.
  + Thus, it’s not preferable when it comes to using it for photograph.
* **GIF is used to create the best animation graphics. It’s wildly used for online diagrams.**

**JPG, JPEG**: Joint Photographic Expert Group

* It is a lossy compressed file format.
  + There will be minor color and detail loss through compression.
* Unlike GIF, it’s not good for sharp edges and text.
* **Useful for photography, and images with complex colors and dynamics to it.**
* **JPG generate very high-quality images due to the amount of colors available in the color pool, thus, it’s used mostly for high quality static images.** 
  + It has sixteen million colors available.

**PNG**: Portable Network Graphics

* It is a lossless compression file format.
* Different PNG version support different amount of colors:
  + PNG-8 supports only 256 colors.
  + PNG-24 supports up to 16 million colors, so there is almost unlimited choices for colors regarding PNG-24.
* It’s great for sharp edges and text of transparency.
* **Due to its lossless compression file format and transparency, PNG is commonly used for the web graphics.**

1. Describe the difference between absolute and relative positioning in CSS.

**Absolute Positioning:**

* In absolute positioning, the element is absolutely eradicated from the normal flow of positioning when it (the element) is positioned.
* The element is not present in the normal flow, so there is no longer any space left for the positioned element.
* A positioned element is shifted to the container block, concerning the position itself.

**Relative Positioning**:

* In relative positioning, the element shifted to a place where it would have been through relocating out from its regular flow position.
* The content present in the positioned element will remember the old position of the element.
* From leaving space, it protects the element that would dwell.

1. Both HTML5 and XHTML use a DOCTYPE tag to identify the type of document the browser is processing. What are the differences in the DOCTYPE tag between the two standards? Why are the differences necessary?

* HTML5 is the fifth version of HTML. HTML5 does not require to be installed with plugins. Also, the elements in HTML run by itself without the flash plugins.
* XHTML is short for extensible hypertext markup language. XHTML follows the XML procedures and syntax. The elements that are opened in XHTML must be properly closed, and the element content must be nested in blocks.

Comparison Table:

|  |  |
| --- | --- |
| XHTML | HTML5 |
| Elements and attributes must be in lowercase and Doctype, title, head, and body are mandatory. | Elements must be in upper case and HTML Doctype must be used as well. |
| An application of Standard extensible markup language (XML). | An application of Standard generalized markup language (SGML). |
| XHTML is a combination of XML and HTML. XHTML is similar to HTML4. | Incorporates new features and contains new tags for menus, footer, and header. HTML5 is an upgraded version of HTML4. |
| Must have one root element to support the case. | Not mandatory to have a root element. |

1. Describe the differences between fixed layout and fluid layout in CSS. What are the relative advantages/disadvantages of these two approaches?

**Fixed Layout**:

* Created through the combination of both the pixels and percentage values.
* Pixel units are helpful for sidebar columns, which contains graphic images.
* A fixed website layout has a wrapper, which has a fixed width.
* The components inside a fixed website has either percentage widths or fixed widths.
* **PRO**: The container or wrapper element is set to not move. Regardless of the type of screen resolution the visitor has, they will see the same width as everyone else.
* **PRO**: Percentage values are more helpful for navigating locations and for the main content.
* **PRO**: Most components inside have percentage widths, which helps to adjust based on the user’s screen resolution.
* **CON**: Using Fixed layout can create unnecessary white space with larger screen resolutions, so layout may not be suitable for all users.
* **CON**: Additionally, users with smaller screen resolutions might need a horizontal scroll bar because the fixed layout width is too big.
* **CON**: It ruins the concept of many design principles, such as screen resolution balance.

**Fluid Layout**:

* Also called a **liquid layout**.
* Created using percentage values rather than using pixel units.
* **PRO**: Using this layout aids in adjusting to various sizes of browsers easily. There would not be any need to scroll horizontally, or there is no unused whites space.
* **PRO**: Users can adjust to various sizes of browsers, that means a horizontal scroll view is not necessary to implement at all.
* **PRO**: It’s user friendly because users because it can be adjusted to the user setting.
* **CON**: The web designer will have less control on what the user will see. As such, it will cause problems to some users due to the layouts are fine only on the specific screen resolution.
* **CON**: Lack of content may create unnecessary white space. As such, it will diminish aesthetic appeal with colossal screen resolutions.

1. What are the advantages of using CSS framework for layout? What are the disadvantages?

**Advantages**:

* Helps when it comes to facilitate cross-browser functionality.
* Increases the productivity as a user can reuse the structure instead of reprogramming it.
* Provides symmetrical layout via the grid-based CSS framework. As such, it helps to line up the elements such as text easily.
* Frameworks can help in groundwork setup for the users. As such, it speeds up the process of development.

**Disadvantages**:

* Framework has a regular set of codes, grids, and more. These limits the client to design what they want.
* The programmer may use extra code, which are not necessary for the user.
* A client is constrained to use the framework semantics, meanwhile it’s also using a non-standard naming format.
* Frameworks come with more code than it is needed for a certain project, thus one needs to use only the necessary code by removing the unwanted code.

1. Create CSS styles to apply to the following HTML so that all paragraph text is red, and all <div> containers inside of paragraphs color text blue. The <div> elements outside of a paragraph should color the text green.

**HTML codes**:

*<body>*

*<p> This should be red </p>*

*<p> This should be red*

*<div> This should be blue </div>*

*</p>*

*<div> This should be green*

*<p> This should be red*

*<div> This should be blue </div>*

*</p>*

*</div>*

*</body>*

**Revised HTML Codes (Added Classes):**

*<html>*

*<head>*

*<title>Q6</title>*

*<link href="Q6.css" rel="stylesheet" type="text/css" />*

*</head>*

*<body>*

*<p class = "red"> This should be red </p>*

*<p class = "red"> This should be red*

*<div class = "blue"> This should be blue </div>*

*</p>*

*<div class = "green"> This should be green*

*<p class = "red"> This should be red*

*<div class = "blue"> This should be blue </div>*

*</p>*

*</div>*

*</body>*

*</html>*

**CSS Codes**:

*.blue {*

*color: blue;*

*}*

*.red {*

*color: red;*

*}*

*.green {*

*color: green;*

*}*