Module 3 – Mernstack – CSS and CSS3

CSS Selectors & Styling

Theory Assignments

1: What is a CSS selector? Provide examples of element, class, and ID selectors.

- Elements :- elements selectors use tag names(e.g.,'p').
- Class :- class selectors use class name.
- Id :- id selectors use '#id-name'.

2: Explain the concept of CSS specificity. How do conflicts between multiple styles get resolved?

- CSS specificity is how browser decide which styles rules to apply when multiple rules could fit an element. Its like a point system. Ids are the most specific ,then classes/attributes ,and finally elements .if there's a tie the rules that appears later in your css wins.

3: What is the difference between internal, external, and inline CSS? Discuss the advantages and disadvantages of each approach.

- Inline css :- styles directly in html tags(e. g .'<p style =”color:blue;”>').
  - Advantage :- quick for single elements .
  - Disadvantage :- messy, hard to mange.
- Internal css :- styles within '<style>' tags in the '<head>' section.
  - Advantage :- styles multiple elements on one page
  - Disadvantage :- only for one page.
- External css :- styles in a separate '.cc' file linked to your html.
  - Advantage :- reusable across multiple pages, easy to maintain.
  - Disadvantage :- requires a separate file.

CSS Box Model

Theory Assignment

1: Explain the CSS box model and its components (content, padding, border, margin). How does each affect the size of an element?

The css box model define how elements:

- Content :- the content is inside .
- Padding :- padding adding space inside .
- Border :- border creating a frame.
- Margin :- margin creating space outside.

How They Affect Size

- By default (`box-sizing: content-box`):

2: What is the difference between border-box and content-box box-sizing in CSS? Which is the default?

- Content-box:- (default) sizes an elements by its content, adding padding and border outside.
- Border-box :- includes padding and border within the specified width and height ,simplifying size control.

CSS Flexbox

Theory Assignment

1: What is CSS Flexbox, and how is it useful for layout design? Explain the terms flex-container and flex-item.

CSS flexbox is a layout tool that makes it super easy to arrange items in a container, especially for responsive design.

- Flex-container :- the flex container is the parent element holding the items,
- Flex-items :- the flex items are the individual elements inside, allowing for flexible sizing and alignments.

2: Describe the properties justify-content, align-items, and flex-direction used in Flexbox.

In CSS Flexbox, three of the most commonly used properties are justify-content, align-item and flex-direction.

- Justify-content :- control the horizontal alignment of flex item along the main axis (the direction items flow).
- Align-items :- Controls the vertical alignment of flex items along the cross axis (perpendicular to the main axis).
- Flex-direction :- it decides if items go in a row or a column in flexbox.

CSS Grid

Theory Assignment

1: Explain CSS Grid and how it differs from Flexbox. When would you use Grid over Flexbox?

- Css grid is a two – dimensional layout layout system (rows and columns) while flexbox is one-dimensional (either row or column). Use grid for complex layouts with rows and columns, and flexbox for simpler, linear layouts.
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2: Describe the grid-template-columns, grid-template-rows, and grid-gap properties. Provide examples of how to use them.

- Grid-template-columns and grid-template-rows :- defines the columns and rows of your grid.
- Grid-gap :- it sets the space between grid items.

- **Examples:-**

```
.container{
Display : grid;
Grid-template-columns: 100px 100px 100px:// three columns , each 100px wide
Grid-template-rows: 50px 50px ;// two rows , each 50px tall
Grid-gap: 20px;//20px gab b/w grid items.
}
```

Responsive Web Design with Media Queries
Theory Assignment

1: What are media queries in CSS, and why are they important for responsive design?

- Media queries are special CSS rules that change the style of a webpage depending on the device screen size (like mobile, tablet, desktop) or other conditions (like orientation, resolution).
- They help make your website responsive, meaning it looks good on all devices**.**

➢ **Important responsive design:-**

- Not all users use the same device (mobile, tablet, laptop, big monitor).
- A responsive website adjusts automatically → so text, images, and layout always look good.
- Without media queries, a site may look fine on desktop but broken on mobile**.**

2: Write a basic media query that adjusts the font size of a webpage for screens smaller than 600px.

➢ basic media query

```
/* Default style (for larger screens) */
body {
  font-size: 18px;
}

/* Media query for small screens (600px or less) */
@media (max-width: 600px) {
  body {
    font-size: 14px;
  }
}
```

- On screens wider than 600px → text will be 18px.
- On screens 600px or smaller (like mobiles) → text will shrink to 14px.

Typography and Web Fonts

Theory Assignment

1: What is the font-family property in CSS? How do you apply a custom Google Font to a webpage?

- The font-family property decides which font is used for text on a webpage.
  - To use a google fonts:
    1. Go to google fonts and choose a font.
    2. Copy the ‘<link>’ tag from google fonts and paste I into the ‘<head>’ of your html.
    3. In your css, use the ‘font-family’ property with the font’s name.