🎨 CSS Full Detailed Guide (Beginner to Advanced)

📘 1. What is CSS?

CSS (Cascading Style Sheets) is a stylesheet language used to control the presentation (layout, colors, fonts, spacing) of HTML elements on web pages.

🧱 2. CSS Syntax

css
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```css
selector {
  property: value;
}
```

Example:

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```css
p {
  color: red;
  font-size: 16px;
}
```

📂 3. Types of CSS

- **Inline CSS** – within the HTML element using `style` attribute.

- **Internal CSS** – within a `<style>` tag in the `<head>`.

- **External CSS** – in a separate `.css` file linked using `<link>`.

🔍 4. CSS Selectors

- **Universal selector**: `*`

- **Element selector**: `p`, `h1`, `div`

- **Class selector**: `.classname`

- **ID selector**: `#idname`

- **Group selector**: `h1, p`

- **Descendant selector**: `div p`

- **Child selector**: `ul > li`

- **Adjacent sibling**: `h1 + p`

- **Attribute selector**: `input[type="text"]`

- **Pseudo-classes**: `:hover`, `:first-child`, `:nth-child(2)`

- **Pseudo-elements**: `::before`, `::after`

🎨 5. Colors in CSS

- Named colors: `red`, `blue`

- HEX: `#ff0000`

- RGB: `rgb(255, 0, 0)`

- RGBA: `rgba(255, 0, 0, 0.5)`

- HSL: `hsl(0, 100%, 50%)`

✒️ 6. Text & Font Styling

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```css
font-family: Arial, sans-serif;
font-size: 18px;
font-weight: bold;
text-align: center;
text-decoration: underline;
line-height: 1.5;
letter-spacing: 2px;
```

📐 7. Box Model

Every HTML element is a box with:

- Content

- Padding

- Border

- Margin

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```css
div {
  padding: 10px;
  border: 2px solid black;
  margin: 20px;
}
```

🧭 8. Positioning in CSS

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```css
position: static | relative | absolute | fixed | sticky;
```

```css
top: 10px;
left: 20px;
z-index: 2;
```

📏 9. Display & Visibility

- `display`: `block`, `inline`, `inline-block`, `flex`, `grid`, `none`

- `visibility`: `visible`, `hidden`

📦 10. Flexbox Layout

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```css
display: flex;
flex-direction: row | column;
justify-content: center;
align-items: center;
```

🧱 11. Grid Layout

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```css
display: grid;
grid-template-columns: 1fr 1fr;
gap: 20px;
```

📲 12. Responsive Design

- **Media Queries**

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```css
@media (max-width: 768px) {
```

```css
  body {
    background: lightgray;
  }
}
```

- **Units**: em, rem, %, vw, vh

✨ 13. CSS Transitions & Animations

- **Transition**

css
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```css
button {
  transition: background 0.3s ease;
}
```

- **Keyframe Animation**

css
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```css
@keyframes slideIn {
  0% { transform: translateX(-100%); }
  100% { transform: translateX(0); }
}

div {
  animation: slideIn 0.5s ease;
}
```

🧪 14. CSS Variables

css
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```css
:root {
  --main-color: #ff6600;
}

h1 {
  color: var(--main-color);
}
```

⚒️ 15. Advanced Topics

- **Custom Fonts (Google Fonts)**

- **Z-index layering**

- **Filter effects (blur, grayscale)**

- **Transform: scale, rotate, translate**

- **Object-fit for images**

- **Dark mode with media query: prefers-color-scheme**

📄 16. Useful Pseudo-classes

- `:hover`, `:focus`, `:active`

- `:not()`, `:nth-child()`, `:last-child`, `:checked`, `:disabled`