Front End Technologies
CSS - Day 5

Agenda

- **CSS Selectors Continued**
- **Combinator**

A CSS selector can contain more than one simple selector. Between the simple selectors, we can include a **combinator**.

There are four different **combinators** in CSS:

- descendant selector (space)
- child selector (>)
- adjacent sibling selector (+)
- general sibling selector (~)

Advanced Selectors:

- **Child Selectors:** The child selectors is again categorized into two types:
  - **DESCENDANT:**
  - **DIRECT CHILD**

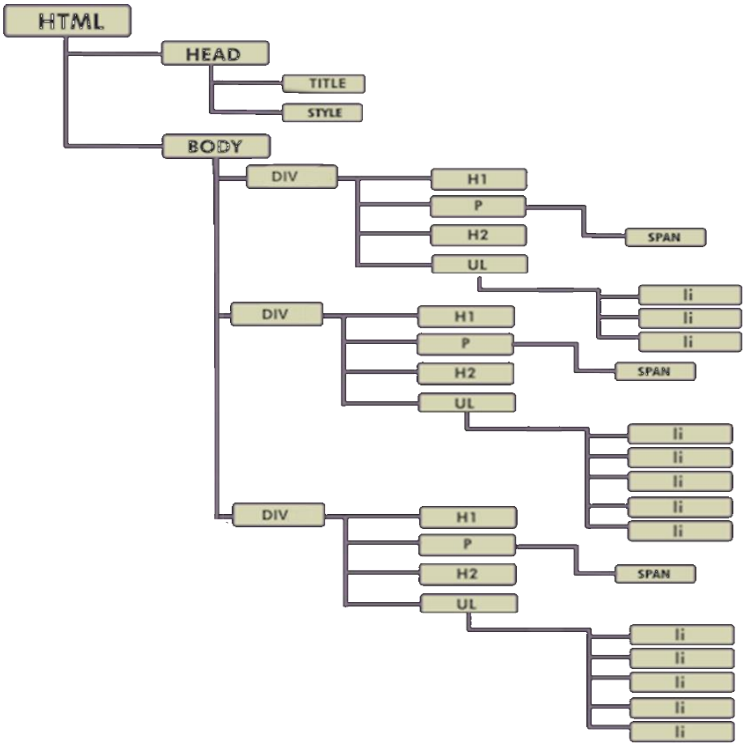
DESCENDANT SELECTOR: Any element which falls inside another HTML tag it is referred as its descendant. The combinator we

use in a descendant selector is a whitespace character. Let’s now understand descendant selector with the example.

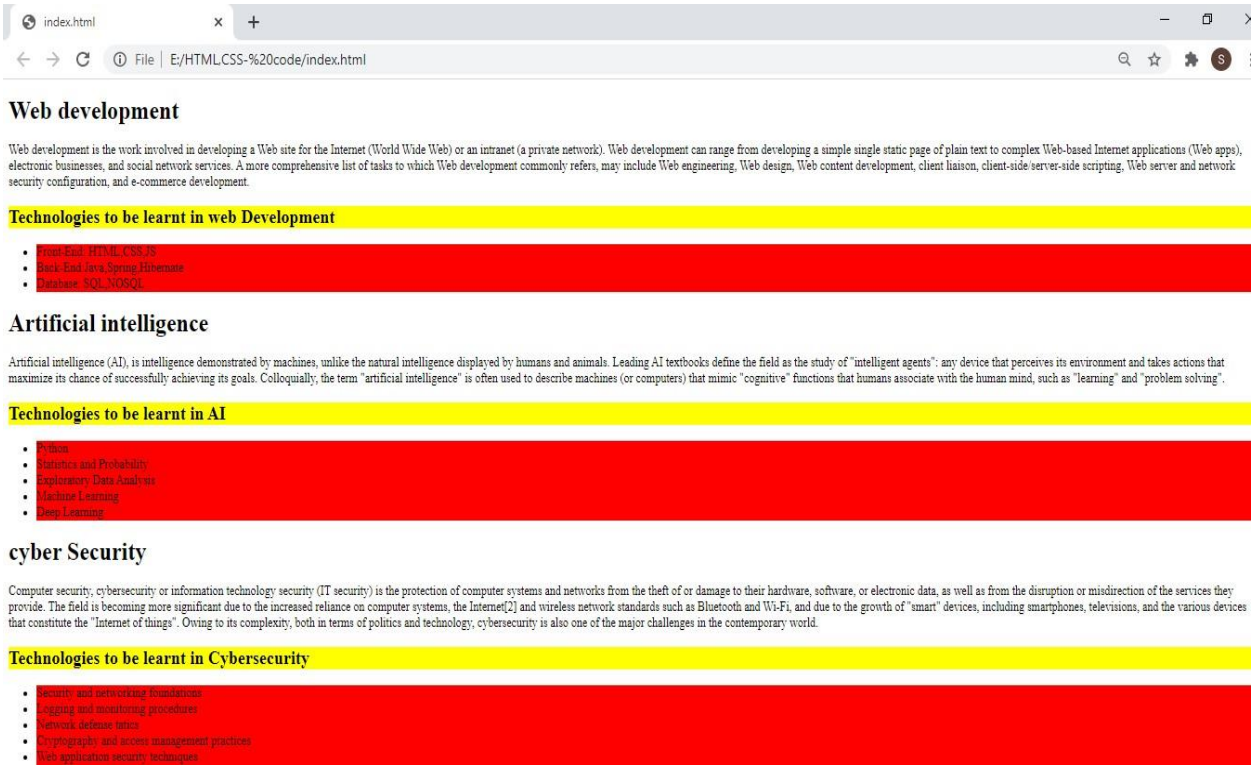
index.html

```
<!DOCTYPE html>
<html>
<head>
    <title></title>
    <style type="text/css">
        div h2{
            background-color: yellow;
        }
        div li{
            background-color: red;
        }
    </style>
</head>
<body>
   <div >
        <h1 >Web development</h1>
        <p> <span >Web development is the work involved in developing a Web site for the Internet (World Wide Web) or an intranet (a
        private network).</span> Web development can range from developing a simple single static page of plain text to complex Web-based
        Internet applications (Web apps), electronic businesses, and social network services. A more comprehensive list of tasks to which
        Web development commonly refers, may include Web engineering, Web design, Web content development, client liaison, client-side/
        server-side scripting, Web server and network security configuration, and e-commerce development.</p>
        <h2>Technologies to be learnt in web Development</h2>
        <ul>
            <li>Front-End: HTML,CSS,JS</li>
            <li>Back-End:Java,Spring,Hibernate</li>
            <li>Database: SQL,NOSQL</li>
        </ul>
   </div>
    <div >
        <h1 >Artificial intelligence</h1>
        <p ><span >Artificial intelligence (AI), is intelligence demonstrated by machines, unlike the natural intelligence displayed by
        humans and animals. </span> Leading AI textbooks define the field as the study of "intelligent agents": any device that perceives
        its environment and takes actions that maximize its chance of successfully achieving its goals. Colloquially, the term "artificial
        intelligence" is often used to describe machines (or computers) that mimic "cognitive" functions that humans associate with the
        human mind, such as "learning" and "problem solving".</p>
        <h2>Technologies to be learnt in AI</h2>
        <ul>
            <li>Python</li>
            <li>Statistics and Probability</li>
            <li>Exploratory Data Analysis</li>
            <li>Machine Learning</li>
            <li>Deep Learning</li>
        </ul>
    </div>
    <div >
        <h1>cyber Security</h1>
        <p><span >Computer security, cybersecurity or information technology security (IT security) is the protection of computer systems
        and networks from the theft of or damage to their hardware, software, or electronic data, as well as from the disruption or
        misdirection of the services they provide.</span> The field is becoming more significant due to the increased reliance on computer
        systems, the Internet[2] and wireless network standards such as Bluetooth and Wi-Fi, and due to the growth of "smart" devices,
        including smartphones, televisions, and the various devices that constitute the "Internet of things". Owing to its complexity, both
        in terms of politics and technology, cybersecurity is also one of the major challenges in the contemporary world.</p>
        <h2>Technologies to be learnt in Cybersecurity</h2>
        <ul>
            <li>Security and networking foundations</li>
            <li>Logging and monitoring procedures</li>
            <li>Network defense tatics</li>
            <li>Cryptography and access management practices</li>
            <li>Web application security techniques</li>
        </ul>
    </div>
</body>
</html>
```

Tree representation:



Output:



In the above example the elements present inside the tag are descendent. If you can notice we have styled <li> and <h1> tag using descendant selector. This descendant selector will match all li and h1 elements in the example, because each of those elements has a div element as its ancestor.

The first simple selector within this selector represents the **ancestor element**—a structurally superior element, such as a parent element, or the parent of a parent element, and so on. The second simple selector represents the descendant element we're tryingto match. The combinator we use in a descendant selector is a whitespace character.

DIRECT CHILD: In the above example, **<h1>** is **directly** present inside the tag so, <h1> is direct child. is not the direct child, if you observe it is not present directly inside the tag so it is descendent. **Direct child is a Descendent but Descendent is not a Direct child.** Now let's see with the example, how to apply styling to direct child using child combinator.

index.html

```html
<!DOCTYPE html>
<html>
<head>
    <title></title>
    <style type="text/css">
        div h2{
            background-color: yellow;
        }
        div li{
            background-color: red;
        }
        div > h1{
            background-color: grey;
        }
    </style>
</head>
<body>
   <div >
        <h1 >Web development</h1>
        <p> <span >Web development is the work involved in developing a Web site for the Internet (World Wide Web) or an intranet ( a private network).</span> Web development can range from developing a simple single static page of plain text to complex Web-based Internet applications (Web apps), electronic businesses, and social network services. A more comprehensive list of tasks to which Web development commonly refers, may include Web engineering, Web design, Web content development, client liaison, client-side/server-side scripting, Web server and network security configuration, and e-commerce development.</p>
        <h2>Technologies to be learnt in web Development</h2>
        <ul>
            <li>Front-End: HTML,CSS,JS</li>
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            <li>Database: SQL,NOSQL</li>
        </ul>
    </div>
   <div >
      <h1 >Artificial intelligence</h1>
      <p ><span >Artificial intelligence (AI), is intelligence demonstrated by machines, unlike the natural intelligence displayed by humans and animals. </span> Leading AI textbooks define the field as the study of "intelligent agents": any device that perceives its environment and takes actions that maximize its chance of successfully achieving its goals. Colloquially, the term "artificial intelligence" is often used to describe machines (or computers) that mimic "cognitive" functions that humans associate with the human mind, such as "learning" and "problem solving".</p>
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          <li>Python</li>
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          <li>Machine Learning</li>
          <li>Deep Learning</li>
      </ul>
   </div>
   <div >
      <h1>cyber Security</h1>
      <p><span >Computer security, cybersecurity or information technology security (IT security) is the protection of computer systems and networks from the theft of or damage to their hardware, software, or electronic data, as well as from the disruption or misdirection of the services they provide.</span> The field is becoming more significant due to the increased reliance on computer systems, the Internet[2] and wireless network standards such as Bluetooth and Wi-Fi, and due to the growth of "smart" devices, including smartphones, televisions, and the various devices that constitute the "Internet of things". Owing to its complexity, both in terms of politics and technology, cybersecurity is also one of the major challenges in the contemporary world.</p>
      <h2>Technologies to be learnt in Cybersecurity</h2>
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          <li>Network defense tatics</li>
          <li>Cryptography and access management practices</li>
          <li>Web application security techniques</li>
      </ul>
   </div>
</body>
</html>
```
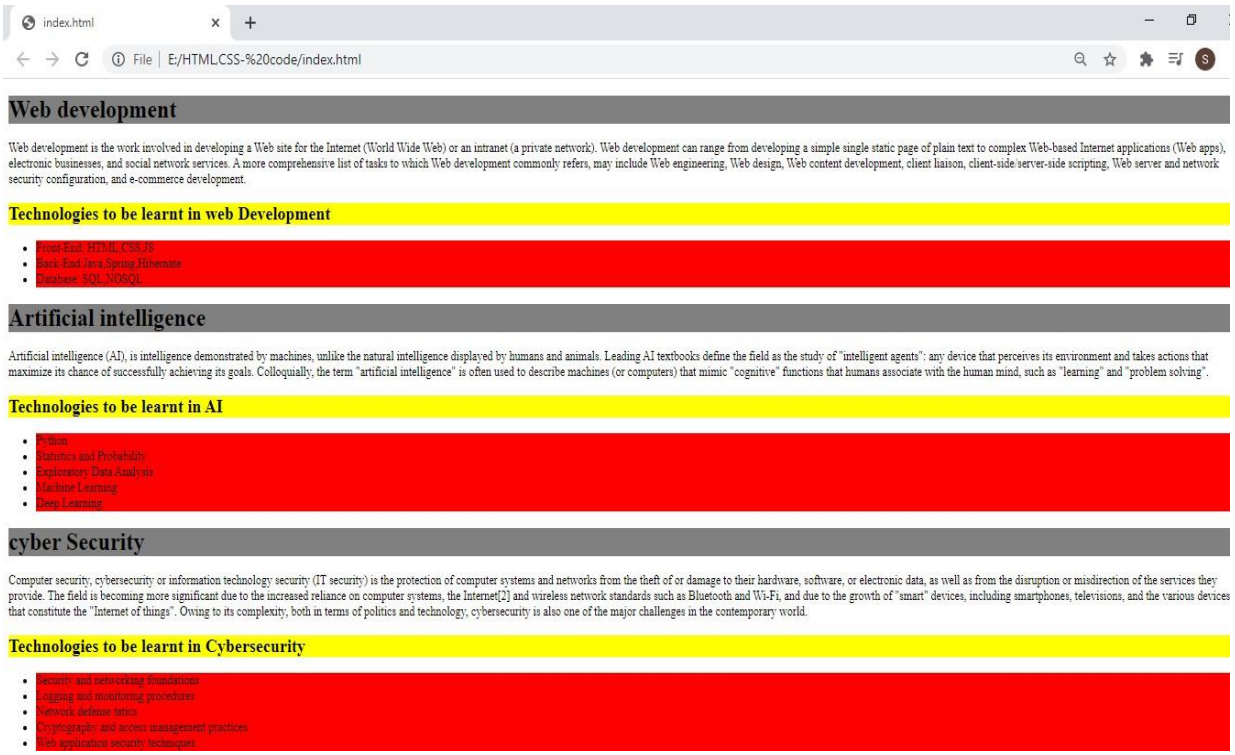

Output:



In the above example, <h1> is direct child of tag. The **child combinator** (>) is placed between two CSS selectors. It matches only those elements matched by the second selector that are the direct children of elements matched by the first.

Example: Style the background color of body as grey.

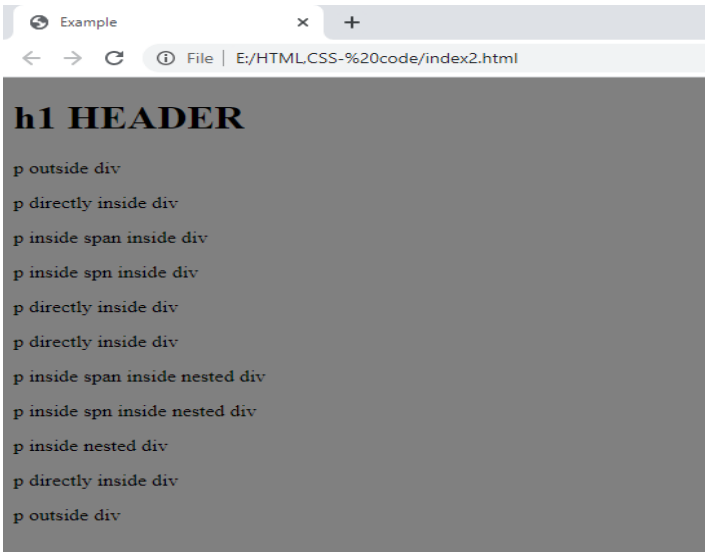
index.html

```
<!DOCTYPE HTML>
<!DOCTYPE html>
<html>
<head>
    <title>Example</title>
    <link rel="stylesheet" type="text/css" href="index.css">
</head>
<body>
    <h1>h1 HEADER</h1>
    <p id="firstp">p outside div</p>
    <div>
        <p>p directly inside div</p>
        <span><p>p inside span inside div</p></span>
        <span><p>p inside spn inside div</p></span>
        <p>p directly inside div</p>
        <div class="nesteddiv">
            <p>p directly inside div</p>
            <span><p>p inside span inside nested div</p></span>
            <span><p>p inside spn inside nested div</p></span>
            <p>p inside nested div</p>
        </div>
        <p>p directly inside div</p>
    </div>
     <p>p outside div</p>
</body>
</html>
```

index.css

```
body{
   background-color: grey;

 }
```

Output:



To style the background color of body as grey we have to make use of element selector **body.**

Example: Style the background color of h1 header as yellow and color as red.

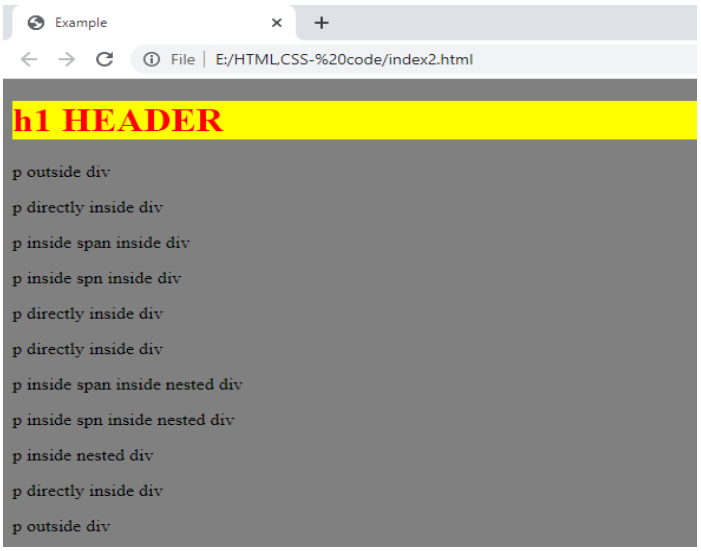
index.html

```
<!DOCTYPE HTML>
<!DOCTYPE html>
<html>
<head>
    <title>Example</title>
    <link rel="stylesheet" type="text/css" href="index.css">
</head>
<body>
    <h1>h1 HEADER</h1>
    <p id="firstp">p outside div</p>
    <div>
        <p>p directly inside div</p>
        <span><p>p inside span inside div</p></span>
        <span><p>p inside spn inside div</p></span>
        <p>p directly inside div</p>
        <div class="nesteddiv">
            <p>p directly inside div</p>
            <span><p>p inside span inside nested div</p></span>
            <span><p>p inside spn inside nested div</p></span>
            <p>p inside nested div</p>
        </div>
        <p>p directly inside div</p>
    </div>
     <p>p outside div</p>
</body>
</html>
```

index.css

```
body{
    background-color: grey;

 }
 h1{
    background-color: yellow;
    color: red;
 }
```

Output:



To style the h1 tag in this example you have to make use of element selector.

Example: Style the background color of all the p's outside div as powderblue and color as black.

index.html

```
<!DOCTYPE HTML>
<!DOCTYPE html>
<html>
<head>
    <title>Example</title>
    <link rel="stylesheet" type="text/css" href="index.css">
</head>
<body>
    <h1>h1 HEADER</h1>
    <p id="firstp">p outside div</p>
    <div>
        <p>p directly inside div</p>
        <span><p>p inside span inside div</p></span>
        <span><p>p inside spn inside div</p></span>
        <p>p directly inside div</p>
        <div class="nesteddiv">
            <p>p directly inside div</p>
            <span><p>p inside span inside nested div</p></span>
            <span><p>p inside spn inside nested div</p></span>
            <p>p inside nested div</p>
        </div>
        <p>p directly inside div</p>
    </div>
     <p>p outside div</p>
</body>
</html>
```

index.css

```
body{
   background-color: grey;

 }
 h1{
   background-color: yellow;
   color: red;
 }
 body > p{
   background-color: powderblue;
   color: black;
 }
```

Output:

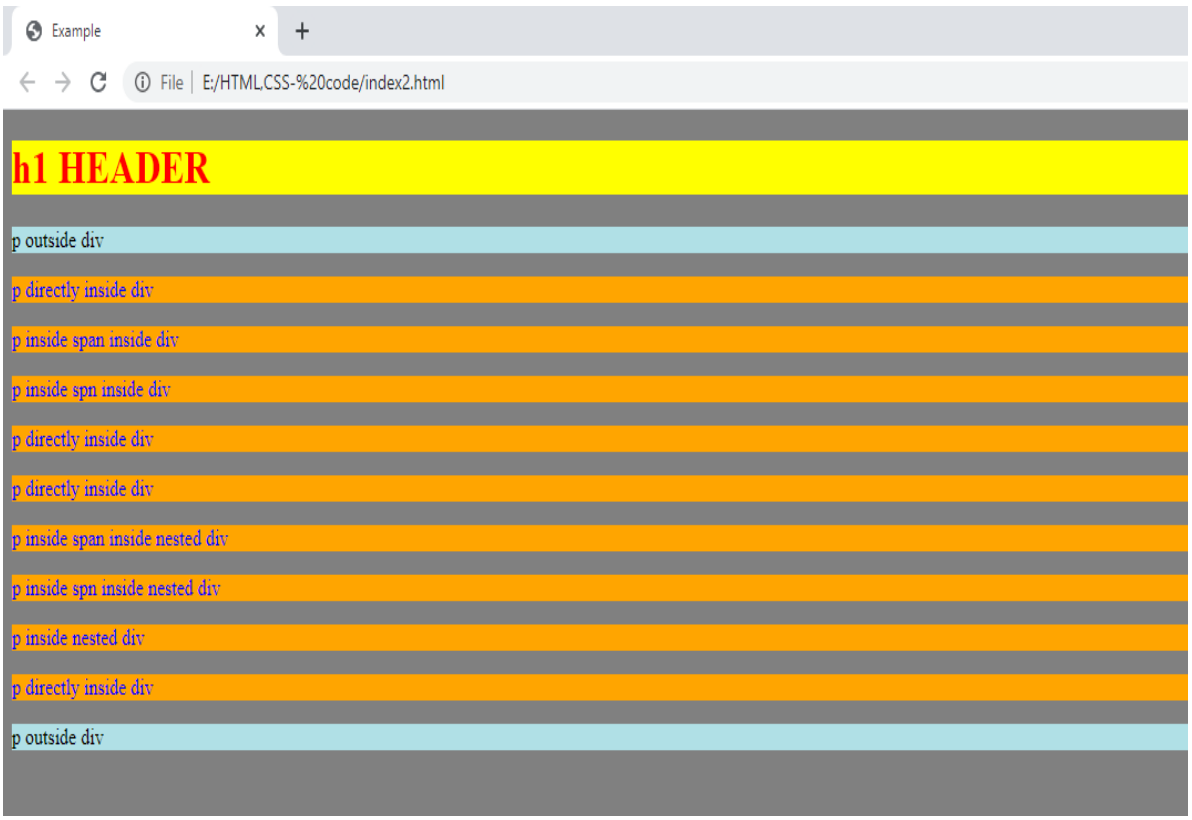
Here we want to style p tag inside body tag, if you observe the above example there is a direct child relationship between body and p tag. Thus p tag is styled using **direct child** selector.

Example: Style the background color of all the p's inside div as orange and color as blue. (refer index.html of above example)

index.css

```
body{
   background-color: grey;

 }
 h1{
   background-color: yellow;
   color: red;
 }
 body > p{
   background-color: powderblue;
   color: black;
 }
 div p{
   background-color: orange;
   color: blue;
 }
```

Output:



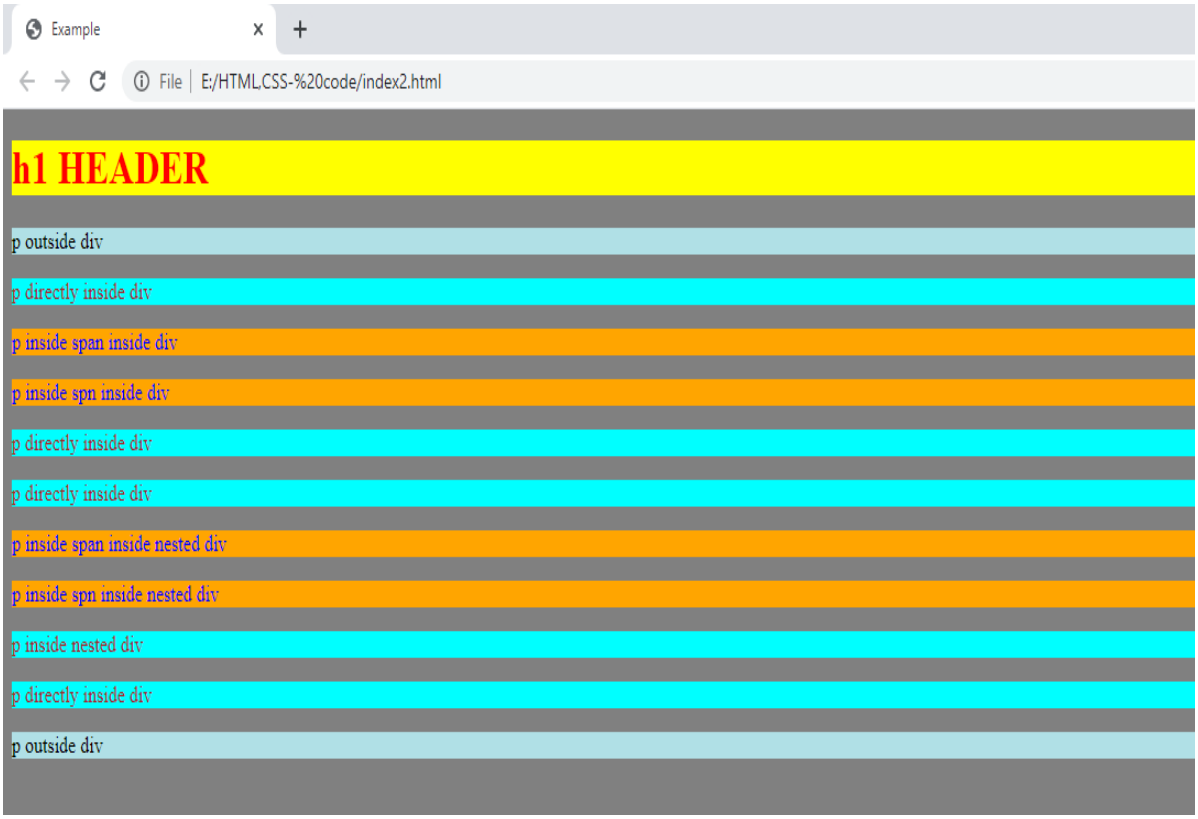
Here we have to style p's inside div tag, if we observe there is descendant relationship between div and p tag. Thus styling is done using **descendant selector.**

Example: Style the background color of all p's directly inside div as cyan and color as brown. (refer index.html of above example)

index.html

```
body{
   background-color: grey;

 }
 h1{
   background-color: yellow;
   color: red;
 }
 body > p{
   background-color: powderblue;
   color: black;
 }
 div p{
   background-color: orange;
   color: blue;
 }
 div > p{
   background-color: cyan;
   color: brown;
 }
```

Output:



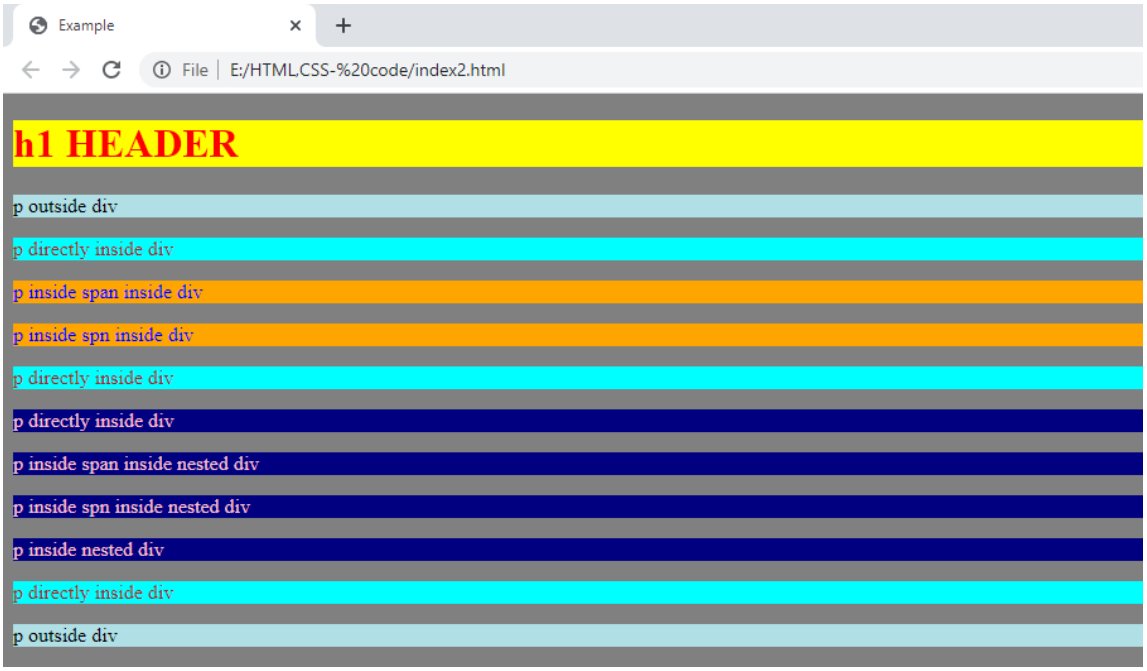
To style p tag which is directly inside div tag direct child selector is used.

Example: Style the background color of all p's inside nested div as navy and color as pink. (refer index.html of above example)

index.css

```css
body{
   background-color: grey;

 }
 h1{
   background-color: yellow;
   color: red;
 }
 body > p{
   background-color: powderblue;
   color: black;
 }
 div p{
   background-color: orange;
   color: blue;
 }
 div > p{
   background-color: cyan;
   color: brown;
 }
 .nesteddiv p{
   background-color: navy;
   color: pink;
 }
```

Output:



To style p's inside nested div select based on class name, because nested div as some more information about class.

Example: Select the background color of only the first p inside outer div as teal and color as marron.

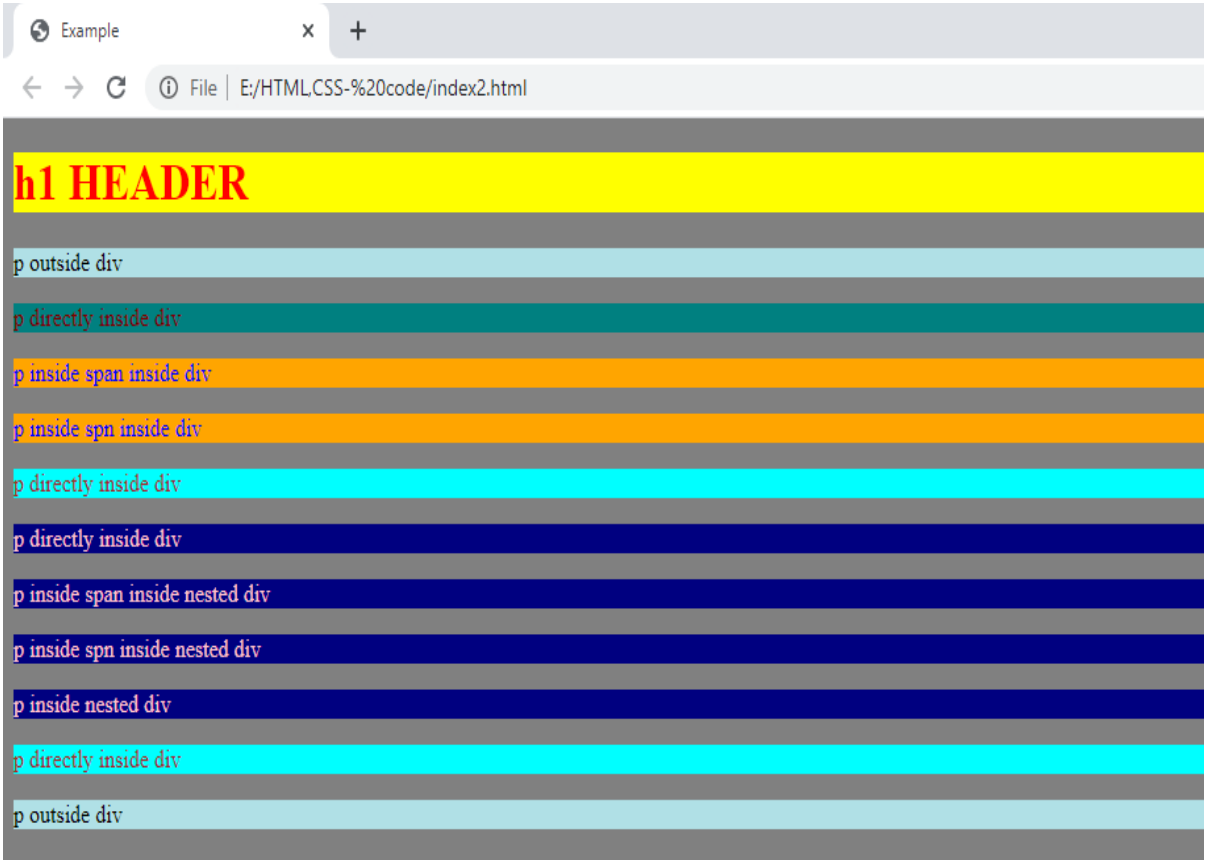
index.html

```
<!DOCTYPE HTML>
<!DOCTYPE html>
<html>
<head>
    <title>Example</title>
    <link rel="stylesheet" type="text/css" href="index.css">
</head>
<body>
    <h1>h1 HEADER</h1>
    <p id="firstp">p outside div</p>
    <div>
        <p id="fodp">p directly inside div</p>
        <span><p>p inside span inside div</p></span>
        <span><p>p inside spn inside div</p></span>
        <p>p directly inside div</p>
        <div class="nesteddiv">
            <p>p directly inside div</p>
            <span><p>p inside span inside nested div</p></span>
            <span><p>p inside spn inside nested div</p></span>
            <p>p inside nested div</p>
        </div>
        <p>p directly inside div</p>
    </div>
     <p>p outside div</p>
</body>
</html>
```

index.css

```
body{
   background-color: grey;

 }
 h1{
   background-color: yellow;
   color: red;
 }
 body > p{
   background-color: powderblue;
   color: black;
 }
 div p{
   background-color: orange;
   color: blue;
 }
 div > p{
   background-color: cyan;
   color: brown;
 }
 .nesteddiv p{
   background-color: navy;
   color: pink;
 }
 #fodp{
   background-color: teal;
   color: maroon;
 }
```

Output:



To select that specific p you can assign it with unique id using **id selector** then style that specific element.