

Experiment No. 03

Title: Create flexible content layout using CSS3.

Aim: To design a website pages of selected topic using flexible content layout of CSS3.

Resources needed: need to fill by students

Theory:

CSS Flexbox Layout

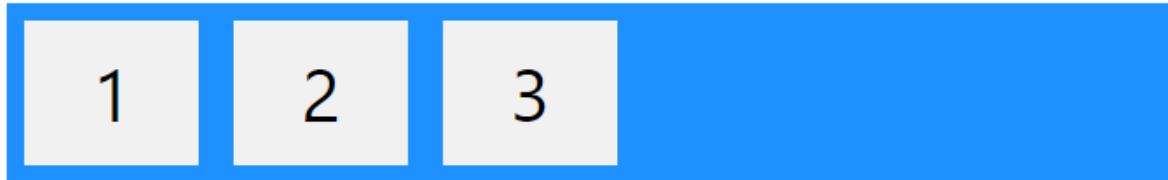
The Flexible Box Layout Module makes it easier to design flexible responsive layout structure without using float or positioning.

The flexbox properties are supported in all modern browsers.

29.0	11.0	22.0	10	48

Flexbox Elements

To start using the Flexbox model, you need to first define a flex container.



The element above represents a flex container (the blue area) with three flex items.

Example

```
<!DOCTYPE html>
<html>
<head>
<style>
.flex-container {
  display: flex;
  background-color: DodgerBlue;
}

.flex-container > div {
  background-color: #f1f1f1;
  margin: 10px;
  padding: 20px;
  font-size: 30px;
}
```

```
}
```

```
</style>
```

```
</head>
```

```
<body>
```

```
<div class="flex-container">
```

```
 <div>1</div>
```

```
 <div>2</div>
```

```
 <div>3</div>
```

```
</div>
```

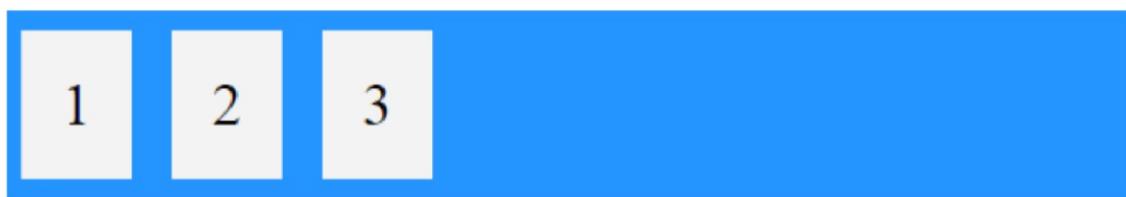
A Flexible Layout must have a parent element with the `display` property set to `flex`.

Direct child elements(s) of the flexible container automatically becomes flexible items.

```
</body>
```

```
</html>
```

Output



A Flexible Layout must have a parent element with the `display` property set to `flex`.

Direct child elements(s) of the flexible container automatically becomes flexible items.

The CSS Flexbox Container Properties

The following table lists all the CSS Flexbox Container properties:

Property	Description
<u>align-content</u>	Modifies the behavior of the flex-wrap property. It is similar to align-items, but instead of aligning flex items, it aligns flex lines
<u>align-items</u>	Vertically aligns the flex items when the items do not use all available space on the cross-axis
<u>display</u>	Specifies the type of box used for an HTML element
<u>flex-direction</u>	Specifies the direction of the flexible items inside a flex container
<u>flex-flow</u>	A shorthand property for flex-direction and flex-wrap
<u>flex-wrap</u>	Specifies whether the flex items should wrap or not, if there is not enough room for them on one flex line
<u>justify-content</u>	Horizontally aligns the flex items when the items do not use all available space on the main-axis

The CSS Flexbox Items Properties

The following table lists all the CSS Flexbox Items properties:

Property	Description
<u>align-self</u>	Specifies the alignment for a flex item (overrides the flex container's align-items property)
<u>flex</u>	A shorthand property for the flex-grow, flex-shrink, and the flex-basis properties
<u>flex-basis</u>	Specifies the initial length of a flex item
<u>flex-grow</u>	Specifies how much a flex item will grow relative to the rest of the flex items inside the same container
<u>flex-shrink</u>	Specifies how much a flex item will shrink relative to the rest of the flex items inside the same container
<u>order</u>	Specifies the order of the flex items inside the same container

Responsive Flexbox

Laptop and Desktops:

1	2	3
---	---	---

Mobile phones and Tablets:

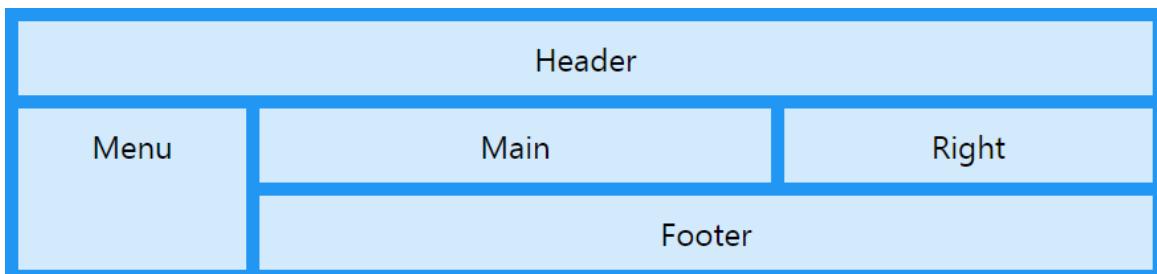
1
2
3

For example, if you want to create a two-column layout for most screen sizes, and a one-column layout for small screen sizes (such as phones and tablets), you can change the flex-direction from row to column at a specific breakpoint (800px in the example below).

```
.flex-container {
  display: flex;
  flex-direction: row;
}

/* Responsive layout - makes a one column layout instead of a two-column layout */
@media (max-width: 800px) {
  .flex-container {
    flex-direction: column;
  }
}
```

CSS Grid Layout Module



The CSS Grid Layout Module offers a grid-based layout system, with rows and columns, making it easier to design web pages without having to use floats and positioning.

All CSS Grid Properties

Property	Description
<code>column-gap</code>	Specifies the gap between the columns
<code>gap</code>	A shorthand property for the <code>row-gap</code> and the <code>column-gap</code> properties
<code>grid</code>	A shorthand property for the <code>grid-template-rows</code> , <code>grid-template-columns</code> , <code>grid-template-areas</code> , <code>grid-auto-rows</code> , <code>grid-auto-columns</code> , and the <code>grid-auto-flow</code> properties
<code>grid-area</code>	Either specifies a name for the grid item, or this property is a shorthand property for the <code>grid-row-start</code> , <code>grid-column-start</code> , <code>grid-row-end</code> , and <code>grid-column-end</code> properties
<code>grid-auto-columns</code>	Specifies a default column size
<code>grid-auto-flow</code>	Specifies how auto-placed items are inserted in the grid
<code>grid-auto-rows</code>	Specifies a default row size
<code>grid-column</code>	A shorthand property for the <code>grid-column-start</code> and the <code>grid-column-end</code> properties

<u>grid-column-gap</u>	Specifies the size of the gap between columns
<u>grid-column-start</u>	Specifies where to start the grid item
<u>grid-gap</u>	A shorthand property for the <i>grid-row-gap</i> and <i>grid-column-gap</i> properties
<u>grid-row</u>	A shorthand property for the <i>grid-row-start</i> and the <i>grid-row-end</i> properties
<u>grid-row-end</u>	Specifies where to end the grid item
<u>grid-row-gap</u>	Specifies the size of the gap between rows
<u>grid-row-start</u>	Specifies where to start the grid item
<u>grid-template</u>	A shorthand property for the <i>grid-template-rows</i> , <i>grid-template-columns</i> and <i>grid-areas</i> properties
<u>grid-template-areas</u>	Specifies how to display columns and rows, using named grid items
<u>grid-template-columns</u>	Specifies the size of the columns, and how many columns in a grid layout
<u>grid-template-rows</u>	Specifies the size of the rows in a grid layout
<u>row-gap</u>	Specifies the gap between the grid rows

Grid Container

To make an HTML element behave as a grid container, you have to set the display property to grid or inline-grid.

Grid containers consist of grid items, placed inside columns and rows.

A grid container contains grid items.

By default, a container has one grid item for each column, in each row, but you can style the grid items so that they will span multiple columns and/or rows.

Activity:

Design a website pages using css (flexbox layout, flexbox container and item properties, responsive flexbox ,CSS Grid ,Grid Container ,A grid container contains grid items.)

Results: Program uploaded on LMS/MS Team /Google Classroom Assignment created along with output screenshot in write-up)

Website Pages Designed using Flexbox: Homepage and Gallery

Code:

Homepage:

```
<!DOCTYPE html>
<html>
<head>
<meta name="viewport" content="width=device-width, initial-scale=1.0">
```

```

<title>Cafe Paradise</title>
<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.0-beta2/dist/css/bootstrap.min.css"
rel="stylesheet" integrity="sha384-BmbxuPwQa2lc/FVzBcNJ7UAyJxM6wuqIj61tLrc4wSX0szH/Ev+nYRRuWlolflfl"
crossorigin="anonymous">
<link rel="stylesheet" href="styles.css">
<style>
li a:hover {
background-color: lightgrey;
}
.row {
display: flex;
flex-wrap: wrap;
}

/* Create two unequal columns that sits next to each other */
/* Sidebar/left column */
.side {
flex: 30%;
background-color: #f1f1f1;
padding: 20px;
}

/* Main column */
.main {
flex: 70%;
background-color: white;
padding: 20px;
}
@media screen and (max-width: 700px) {
.row {
flex-direction: column;
}
}

</style>
</head>
<body>
<div style="background: url(https://static.dezeen.com/uploads/2019/07/lucky-cat-
```

restaurant-interiors-london-afrodit-krassa_dezeen_2364_col_13-852x568.jpg); background-size: cover; background-position: center; height: 93vh;">

```

<nav class="navbar navbar-expand-lg navbar-light bg-light">
  
    <button class="navbar-toggler" type="button" data-toggle="collapse" data-target="#navbarSupportedContent" aria-controls="navbarSupportedContent" aria-expanded="false" aria-label="Toggle navigation">
      <span class="navbar-toggler-icon"></span>
    </button>

    <div class="collapse navbar-collapse" id="navbarSupportedContent">
      <ul class="navbar-nav mr-auto mt-2 mt-lg-0">
        <li class="nav-item">
          <a class="nav-link" href="Restaurant_html.html">Home</a>
        </li>
        <li class="nav-item">
          <a class="nav-link" href="Gallery.html">Gallery</a>
        </li>
        <li class="nav-item">
          <a class="nav-link" href="Reserve.html">Reserve</a>
        </li>
        <li class="nav-item">
          <a class="nav-link" href="Order_Online.html">Order Online</a>
        </li>
        <li class="nav-item">
          <a class="nav-link" href="#">Location</a>
        </li>
        <li class="nav-item">
          <a class="nav-link" href="#about">Login</a>
        </li>
        <li class="nav-item">
          <a class="nav-link" href="Signup.html">Sign Up</a>
        </li>
      </ul>
    </div>
  
```

</nav>

```

<center>
    <h1 style="position:relative; top: 200px; color: white;">Cafe Paradise</h1>
    <h3 style="position:relative; top: 200px; color: white;">Kitchen & Bar</h3>
    <hr style="position:relative; top: 200px;" width="400px">
    <h5 style="position:relative; top: 200px; color: antiquewhite;">Nothing Brings
People together like good food!</h5>
</center>
</div>

```



```

<div class="row">
    <div class="side">
        <h2 align="center">Awards and Recognition</h2>
        <br>
        <OL>
            <LI>Best Regional Debutant Restaurant of the Year -2020</LI>
            <LI>Best National/Regional Indian Cuisine Restaurant Chain / Standalone of the Year-
2020</LI>
            <LI>Best Debutant Restaurant in Mumbai region- Year 2020</LI>
        </OL>
        <h2 align="center">*****</h2>
        <br>

        <h2 align="center">Customer Reviews</h2>
        <div style="text-align:center">
            <audio src="restreview.mp3" controls="controls">
                </audio>
            </div>
    </div>
    <div class="main">
        <div style="text-align:center">

```

```
<h2 align="center">Restaurant Video</h2>
```

```
<video src="Restaurant Promo Video _ Canon 200D _ Dir. Akram Rashid.mp4"
width="500" height="400" controls="controls">

</video>
</div>
</div>
<br>
<footer class="bg-light text-center text-lg-start">
  <!-- Copyright -->
  <div class="text-center p-3" style="background-color: rgba(0, 0, 0, 0.2);">
    © 2021 Cafe Paradise
  </div>
</footer>

</body>
</html>
```

Gallery:

```
<!DOCTYPE html>
<html>
<head>
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.0-beta2/dist/css/bootstrap.min.css"
rel="stylesheet" integrity="sha384-
BmbxuPwQa2lc/FVzBcNJ7UAyJxM6wuqIj61tLrc4wSX0szH/Ev+nYRRuWlolflfI"
crossorigin="anonymous">
<link rel="stylesheet" href="/styles.css">

<title>Our Gallery</title>
<style>
li a:hover {
  background-color: lightgrey;
}

.grid-container {
```

```

max-width: 1200px;
margin: auto;
display: grid;
grid-gap: 50px;
}

.card {
padding: 1rem;
height: 4rem;
}
@media (min-width: 600px) {
.grid-container { grid-template-columns: repeat(2, 1fr); }
}

@media (min-width: 900px) {
.grid-container { grid-template-columns: repeat(3, 1fr); }
}

</style>
</head>
<body bgcolor="black" text="white">
<nav class="navbar navbar-expand-lg navbar-light bg-light">


```

```

<li class="nav-item">
    <a class="nav-link" href="Reserve.html">Reserve</a>
</li>
<li class="nav-item">
    <a class="nav-link" href="Order_Online.html">Order Online</a>
</li>
<li class="nav-item">
    <a class="nav-link" href="#">Location</a>
</li>
<li class="nav-item">
    <a class="nav-link" href="#about">Login</a>
</li>
<li class="nav-item">
    <a class="nav-link" href="Signup.html">Sign Up</a>
</li>

</ul>

</div>
</nav>
<div>
<h1 style="margin-top: 50px; text-align: center;">Gallery</h1>
<br>
<div class="grid-container" style="text-align: center;">
    <div>
        
    </div>
    <div>
        
    </div>
    <div>
        
    </div>
    <div>
        
    </div>

```

```

</div>
<div>

</div>
<div>

</div>
</div>
</div>
<br>
</body>
</html>

```

Styles(CSS):

```

/* For mobile phones: */
[class*="col-"] {
    width: 100%;
}

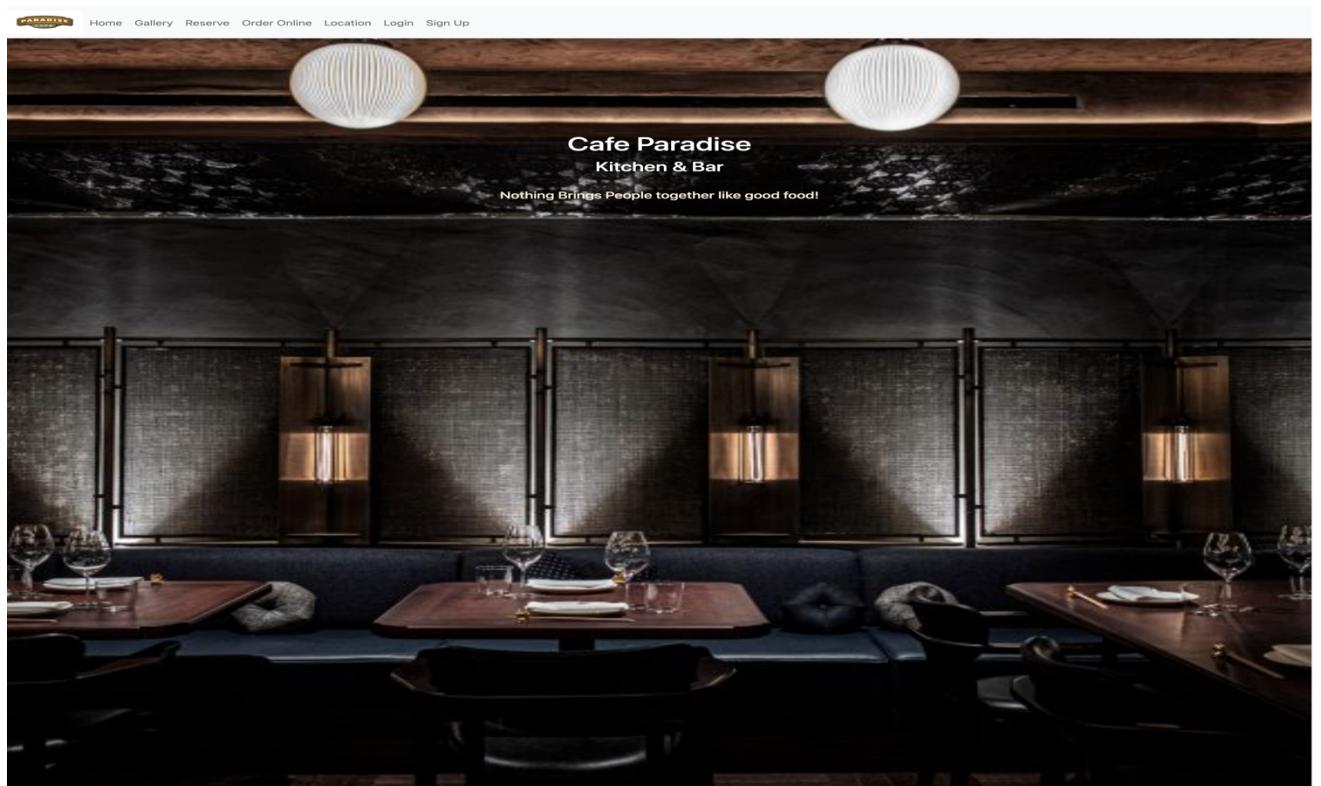
@media only screen and (min-width: 600px) {
    /* For tablets: */
    .col-s-1 {width: 8.33%;}
    .col-s-2 {width: 16.66%;}
    .col-s-3 {width: 25%;}
    .col-s-4 {width: 33.33%;}
    .col-s-5 {width: 41.66%;}
    .col-s-6 {width: 50%;}
    .col-s-7 {width: 58.33%;}
    .col-s-8 {width: 66.66%;}
    .col-s-9 {width: 75%;}
    .col-s-10 {width: 83.33%;}
    .col-s-11 {width: 91.66%;}
    .col-s-12 {width: 100%;}
}

@media only screen and (min-width: 768px) {
    /* For desktop: */
    .col-1 {width: 8.33%;}
}

```

```
.col-2 {width: 16.66%;}
.col-3 {width: 25%;}
.col-4 {width: 33.33%;}
.col-5 {width: 41.66%;}
.col-6 {width: 50%;}
.col-7 {width: 58.33%;}
.col-8 {width: 66.66%;}
.col-9 {width: 75%;}
.col-10 {width: 83.33%;}
.col-11 {width: 91.66%;}
.col-12 {width: 100%;}

}
```

Output:**Laptop/Pc:****Flex-Container Flexbox and Item Properties on Homepage:**


The screenshot shows the homepage of Cafe Paradise. At the top, there is a navigation bar with links: Home, Gallery, Reserve, Order Online, Location, Login, and Sign Up. Below the navigation bar is a large banner image of a restaurant interior with dark wood paneling and pendant lights. The restaurant's name, "Cafe Paradise Kitchen & Bar", is displayed in the center of the banner, along with the tagline "Nothing Brings People together like good food!". Below the banner, there are two sections: "Awards and Recognition" on the left and "Restaurant Video" on the right. The "Awards and Recognition" section lists three awards: "Best Regional Debutant Restaurant of the Year -2020", "Best National/Regional Indian Cuisine Restaurant Chain / Standalone of the Year-2020", and "Best Debutant Restaurant in Mumbai region- Year 2020". The "Customer Reviews" section includes a video player with a play button, a progress bar showing 0.00 / 2:46, and a rating of five stars (*****).

Awards and Recognition

1. Best Regional Debutant Restaurant of the Year -2020
2. Best National/Regional Indian Cuisine Restaurant Chain / Standalone of the Year-2020
3. Best Debutant Restaurant in Mumbai region- Year 2020

Customer Reviews

0.00 / 2:46

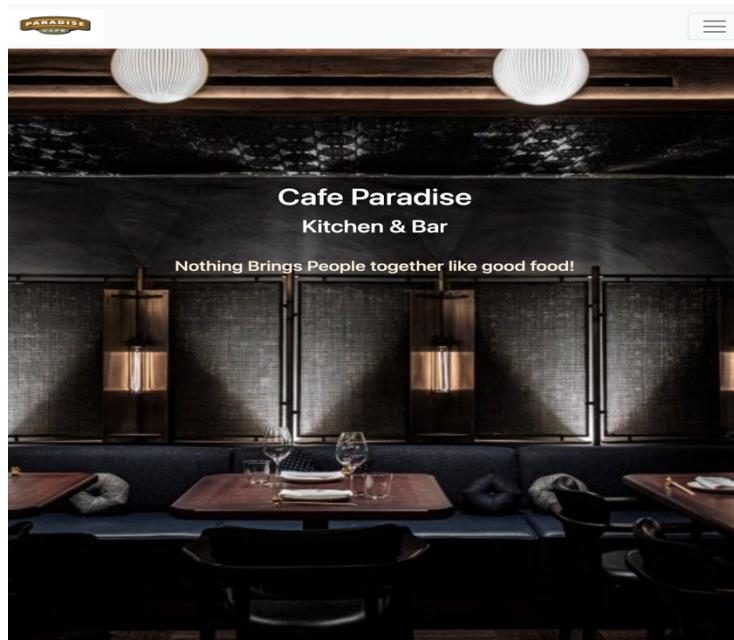
Restaurant Video

0.00 / 1:22

© 2021 Cafe Paradise

Mobile/Tablet:

(Changes in Navbar and Awards & Recognition, Customer Reviews and Restaurant Video Section)



Awards and Recognition

1. Best Regional Debutant Restaurant of the Year -2020
2. Best National/Regional Indian Cuisine Restaurant Chain / Standalone of the Year-2020
3. Best Debutant Restaurant in Mumbai region- Year 2020

Customer Reviews

▶ 0:00 / 2:48

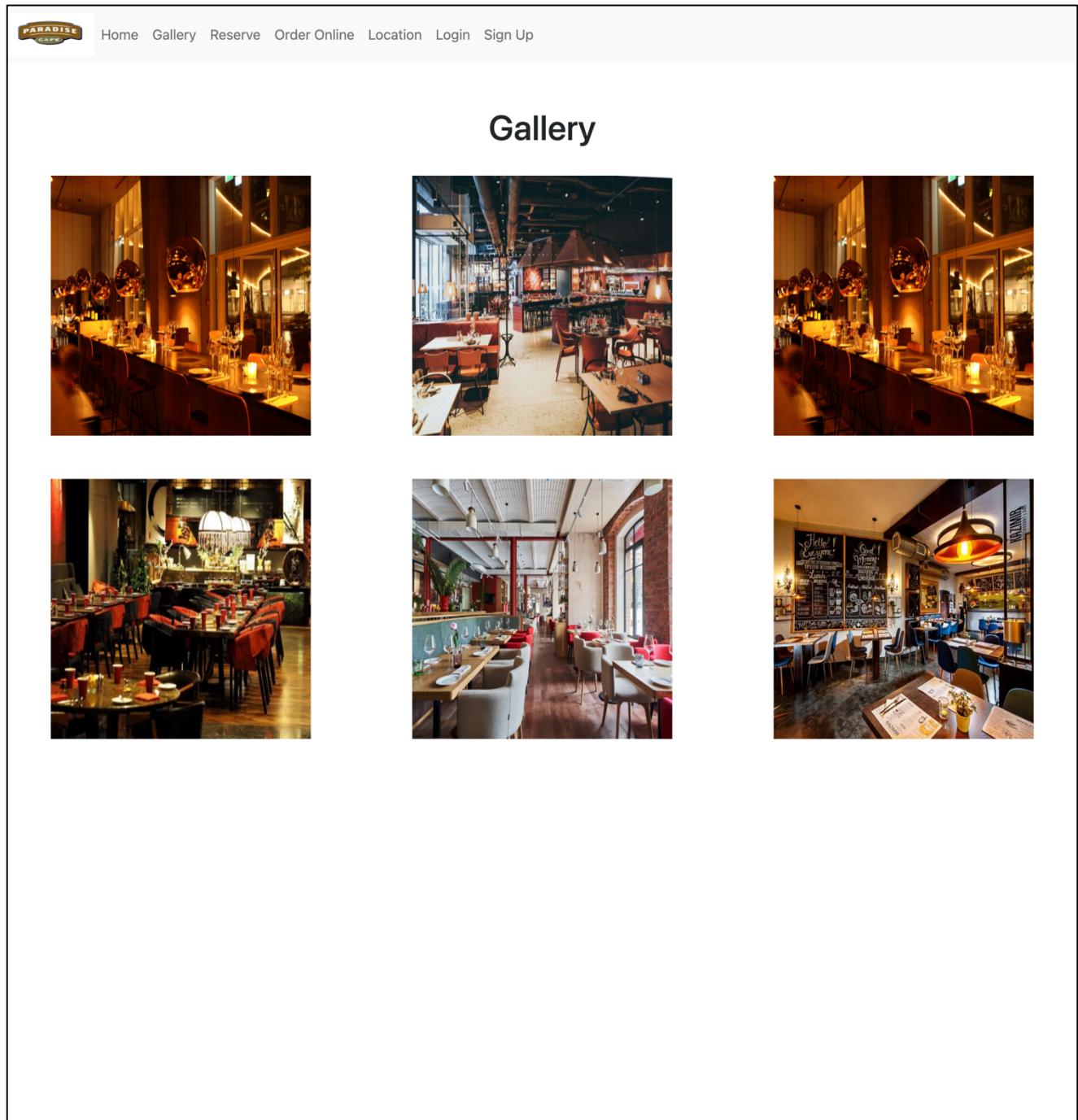
Restaurant Video

A video player showing a close-up of glowing red embers. The video controls at the bottom indicate it is 0:00 of a 1:22 minute clip.

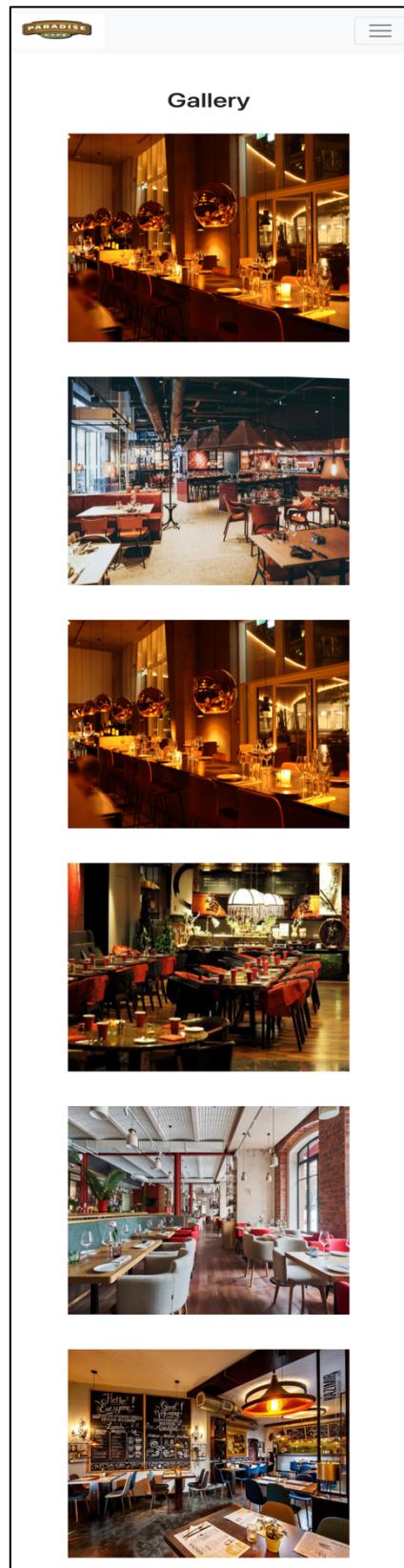
© 2021 Cafe Paradise

CSS Grid Grid-Container Properties on Gallery:

Laptop/Pc:



Mobile/Tablet:



Outcomes:

CO-2: Create Web pages using HTML 5 and CSS.

Questions:

1. How many axis does a flex-box layout contain?

Answer:

When working with flexbox you need to think in terms of two axes — the main axis and the cross axis. The main axis is defined by the flex-direction property, and the cross axis runs perpendicular to it. Everything we do with flexbox refers back to these axes, so it is worth understanding how they work from the outset.

The main-axis

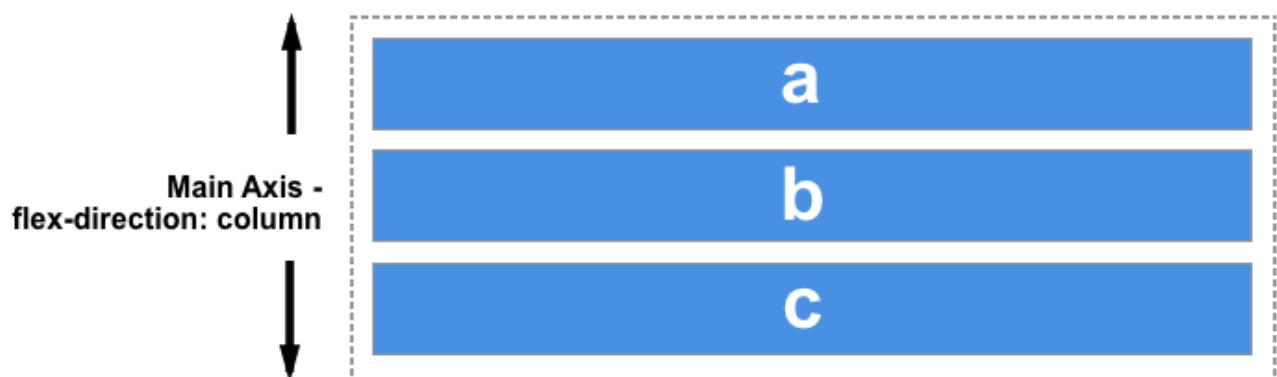
The main axis is defined by flex-direction, which has four possible values:

- row
- row-reverse
- column
- column-reverse

Should you choose row or row-reverse, your main axis will run along the row in the **inline direction**.



Choose column or column-reverse and your main axis will run from the top of the page to the bottom — in the **block direction**.

**The cross-axis**

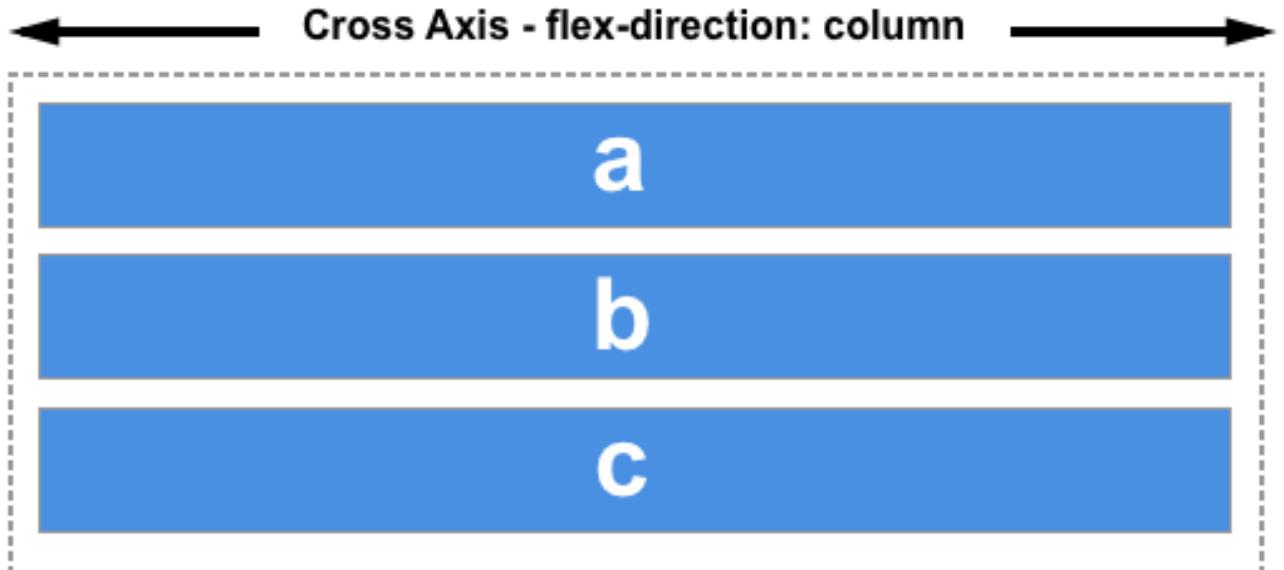
The cross axis runs perpendicular to the main axis, therefore if your flex-direction (main axis) is set

(Autonomous College Affiliated to University of Mumbai)

to row or row-reverse the cross axis runs down the columns.



If your main axis is column or column-reverse then the cross axis runs along the rows.



Understanding which axis is which is important when we start to look at aligning and justifying flex items; flexbox features properties that align and justify content along one axis or the other.

2. What is the difference between auto-fill and auto-fit properties when defining a grid-template.

Answer:

In CSS Grid when using repeat, instead of a set number of times, we can use auto-fit or auto-fill.

By using one of these properties we can create a responsive grid container without the need of extra media queries.

The difference between using auto-fit and auto-fill for sizing columns is only noticeable when the row is wide enough to fit columns in it.

If you're using auto-fit, the content will stretch to fill the entire row width whereas with auto-fill, the browser will allow empty columns to occupy space in the rows.

3. What is the meaning of the fr unit in the grid layout?

Answer:

With CSS Grid Layout, we get a new flexible unit: the Fr unit. Fr is a fractional unit and 1fr is for 1 part of the available space. The following are a few examples of the fr unit at work. The grid items in these examples are placed onto the grid with **grid areas**.

```
.container {
  display: grid;

  grid-template-columns: 1fr 1fr 1fr 1fr;
  grid-template-rows: 100px 200px 100px;

  grid-template-areas:
    "head head2 . side"
    "main main2 . side"
    "footer footer footer footer";
}
```

The 4 columns each take up the same amount of space.



Conclusion: (Conclusion to be based on the outcomes achieved)

Through this experiment we learnt how to design a website page of selected topic content layout of CSS using flexbox layout, flexbox container and item properties, responsive flexbox ,CSS Grid ,Grid Container. We implemented these features in our ‘Restaurant Management’ Website by designing the homepage and gallery pages using responsive CSS.

Grade: AA / AB / BB / BC / CC / CD /DD

Signature of faculty in-charge with date

References:

Books/ Journals/ Websites:

- "HTML5: Black Book", Dreamtech Publication.
- "Web Technologies: Black Book", Dreamtech Publication.
- <http://www.w3schools.com>