



COMSATS University Islamabad (CUI), Lahore Campus
Department of Electrical & Computer Engineering

CSC336 – Web Technologies

Lab Manual v 1.0.1

Lab Resource Person

Muhammad Babar Ali

Theory Resource Person

Muhammad Babar Ali

FALL 2024

Name:

Registration No:

Program:

Batch:

Semester:

Laboratory 04a

To reproduce a web page using modern layout approaches in CSS

CSS LAYOUTS USING FLEXBOXES AND GRIDS

1 Objective

The purpose of the lab is to introduce students to modern layout approaches adopted recently by Cascading Style Sheets (CSS). More precisely, student will learn two CSS modules: [CSS Flexbox Layout](#) and [CSS Grid Layout](#). The students will also learn basic properties in each layout approach to make a responsive web page.

2 Introduction to CSS Flexbox Layout

The Flexbox Layout (Flexible Box) module provides efficient way to lay out, align and distribute space among items (Flex items) in a container (Flex container), even when their size is unknown and/or dynamic (where the term “flex” comes from). The following diagram depicts the flex container (also called flex wrapper), which has two axes: Main axis and Cross axis.

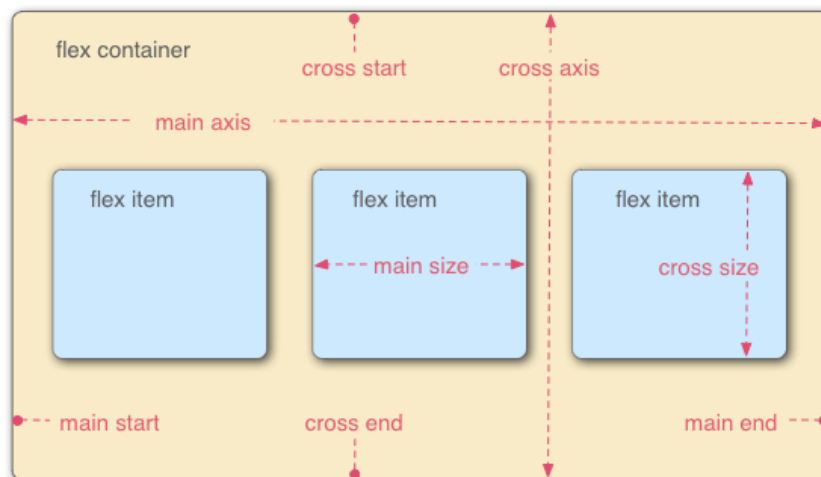


Figure 2.1: The flex model ([mdm](#))

2.1 Flex container properties

- ✓ **Flex Direction:** A property called [flex-direction](#) which gives the direction of main axis. By default, this is set to row.
- ✓ **Flex Wrapping:** A property called [flex-wrap](#) which allow the items to wrap if some of them have fixed widths or cannot shrink so that they can fit in flex container.

2.2 Flex item properties

- ✓ **Flex Growing:** A property called [flex-grow](#) which assigns the exact share of an item from the free space relative to other flex items. By default, its value is set to 0 on each flex item hence flex items cannot avail the leftover space (A.K.A. positive free space), if any, in the flex container. A non-zero value will become grow factor.
- ✓ **Flex Shrinking:** A property called [flex-shrink](#) which assigns the exact share of an item from the negative free space relative to other flex items. By default, its value is set to 1 on each flex item hence flex items avail the possibility to leave space (A.K.A. negative free space) if they have not yet reduced their width to min-content width in the flex container. A non-zero value will become shrink factor.
- ✓ **Flex Base Dimension:** A property called [flex-basis](#) which assigns the exact minimum dimension across main axis for the flex item. By default, its value is set to auto on each flex item hence flex item's size depends on other properties such as flex-grow, flex-shrink, width or height. If it is set to 0, the item will have min-content size along main axis while flex-grow and flex-shrink are set to their default values, 0 and 1 respectively.

3 Lab Activity

3.1 Task 1

Develop a web page with CSS flexbox layout whose various responses are shown in Figures 3.1, 3.2 and 3.3.

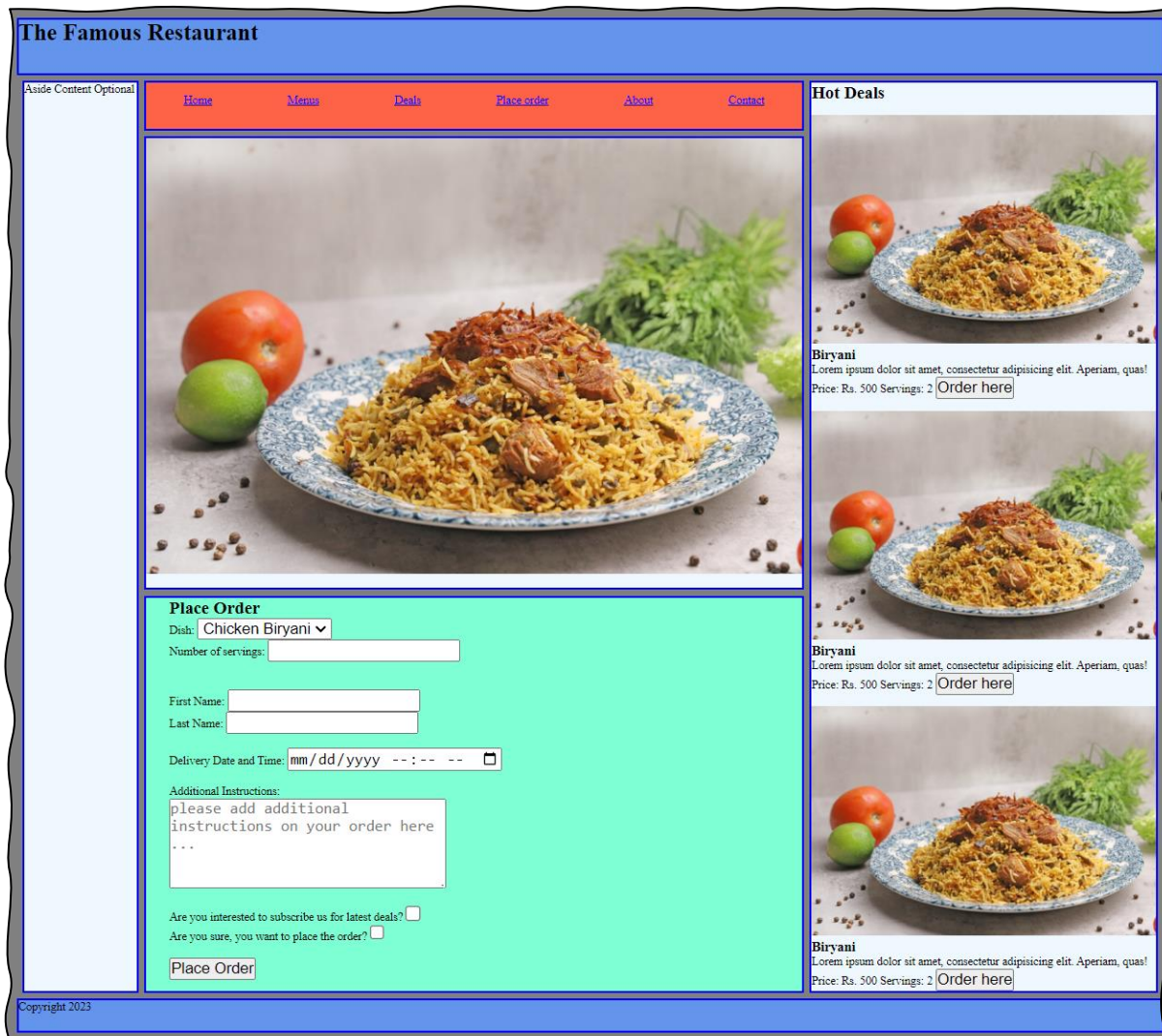


Figure 3.1: Large viewport (1000 pixels or greater view)

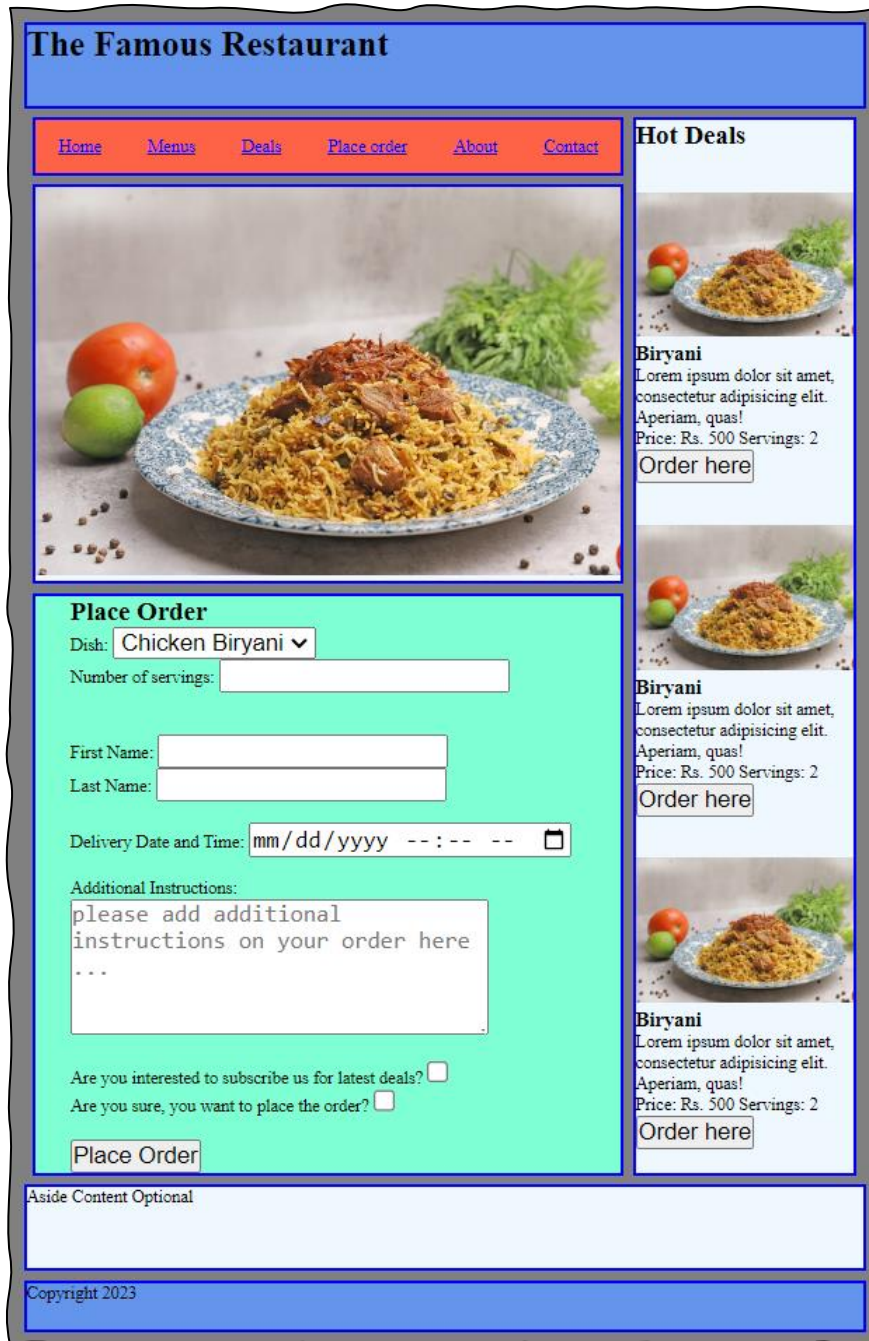


Figure 3.2: Medium viewport (Greater than or equal to 500 and less than 1000 pixels view)




Figure 3.3: Small viewports (less than 500 pixels view)

3.2 Task 2

Develop a web page with CSS grid layout whose various responses are shown in Figures 3.4, 3.5 and 3.6.

Your Shopping Cart

Select delivery options



change

OLED TV 195 cm (77 Inch) [Model Year 2022]

Condition:

UsedBrand-new

Unit Price: € 2000/-

Quantity: 3

Order Summary

Change delivery address

Items Cost: € 6000
Delivery Insurance: € 35
Delivery Charges: Free for members

Total Purchase: € 6035
VAT: € 1146 (included)

Confirm payment details

Enter bank details:

BIC (Swift-Code):

IBAN:

Account Holder's Name:

☒ Save my bank details for future purchases?

Choose payment method

☐ Credit Card

☐ PayPal

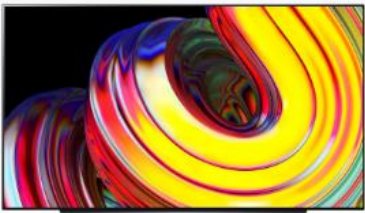
☒ Personal Bank Account

☐ Bank Financing

Figure 3.4: Medium or larger viewport (1321 pixels wide view)

Your Shopping Cart

Select delivery options



[change](#)

OLED TV 195 cm (77 Inch) [Model Year 2022]

Condition:

Unit Price: € 2000/-

Quantity:

Order Summary

Items Cost:
€ 6000

Delivery Insurance:
€ 35

Delivery Charges:
Free for members

Total Purchase:
€ 6035

VAT: € 1146
[\(included\)](#)

Confirm payment details

Enter bank details:


BIC (Swift-Code):


IBAN:


Account Holder's Name:

☒ Save my bank details for future purchases?

Choose payment method

☐  Credit Card

☐  PayPal

☒  **Personal Bank Account**



☐  Bank Financing

Figure 3.5: Small viewports (767px pixels wide view)

Your Shopping Cart

Select delivery options



[change](#)
OLED TV 195 cm (77 Inch) [Model Year 2022]
 Condition:

Used

Brand-new

 Unit Price: € 2000/-
 Quantity:

3

Order Summary

Change delivery address

Items Cost:
 € 6000
 Delivery Insurance:
 € 35
 Delivery Charges:
 Free for members

Total Purchase:
€ 6035
 VAT: € 1146 ([included](#))

Confirm payment details

Enter bank details:

BIC (Swift-Code):

 IBAN:

 Account Holder's Name:

☒ Save my bank details for future purchases?

Choose payment method

☐ Credit Card

☐ PayPal

☒ Personal Bank Account

☐ Bank Financing

Figure 3.6: Extra-small Viewports (575px pixels wide view)

4 Home Activity

4.1 Work 1

Convert your webpage developed in Lab Activity, Task 2, Laboratory 3 to modern layout using CSS Grid.

5 Rubric for Lab Assessment

The student performance for the assigned task during the lab session was:			
Excellent	The student completed assigned tasks without any help from the instructor and showed the results appropriately.	4	
Good	The student completed assigned tasks with minimal help from the instructor and showed the results appropriately.	3	
Average	The student could not complete all assigned tasks and showed partial results.	2	
Worst	The student did not complete assigned tasks.	1	

Instructor Signature: _____ Date: _____

6 Additional Resources

6.1 Initial markup file

The following markup file is for Lab Activity Task 1.

index-markup.html

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="UTF-8" />
    <meta name="viewport" content="width=device-width, initial-scale=1.0" />
    <title>CSS Grid Layout</title>
    <link rel="stylesheet" href="./05-style.css" />
  </head>
  <body class="container">
    <header><h1>The Famous Restaurant</h1></header>
    <nav>
      <ul>
        <li><a href="./index.html">Home</a></li>
        <li><a href="./menus.html">Menus </a></li>
        <li><a href="./deals.html">Deals </a></li>
        <li><a href="./placeOrder.html">Place order </a></li>
        <li><a href="./about.html">About </a></li>
        <li><a href="./contactus.html">Contact</a></li>
      </ul>
    </nav>
    <div class="featuredimage">
      <section class="imgSection">
        <!-- pexels-shameel-mukkath-14731625.jpg -->
        
      </section>
    </div>
    <main>
      <section class="orderSection">
        <h2>Place Order</h2>
        <form action="/submit">
          <label for="dish">Dish: </label>
          <select id="dish" name="dish">
            <option>Chicken Biryani</option>
            <option>Mutton Karahi</option>
            <option>Chicken Ginger</option>
          </select>
          <br />
          <label for="servings">Number of servings: </label>
```

```

    <input id="servings" name="servings" type="number" /> <br />
    <br />
    <label for="name1">First Name: </label>
    <input type="text" id="name1" name="firstname" /><br />
    <label for="name2">Last Name: </label>
    <input type="text" id="name2" name="lastname" /> <br />

    <br />
    <label for="date">Delivery Date and Time: </label>
    <input id="date" name="time" type="datetime-local" />

    <br /><br />
    <label for="instructions">Additional Instructions: </label><br />
    <textarea
      cols="30"
      rows="5"
      id="instructions"
      name="instructions"
      placeholder="please add additional instructions on your order here
...
    ></textarea>

    <br /><br />
    <label for="subscribe">
      >Are you interested to subscribe us for latest deals?
    </label>
    <input type="checkbox" id="subscribe" name="subscribe" />

    <br />
    <label for="orderplaced">
      >Are you sure, you want to place the order?
    </label>
    <input type="checkbox" id="orderplaced" name="orderplaced" />

    <br /><br />
    <input type="submit" value="Place Order" />
  </form>
</section>
</main>
<aside class="sideway">
  <h1>Hot Deals</h1>
  <div>
    
    <h3>Biryani</h3>

```

```

    <p>
      Lorem ipsum dolor sit amet, consectetur adipisicing elit. Aperiam,
      quas!
    </p>
    <div>
      <span>Price: Rs. 500</span>
      <span>Servings: 2</span>
      <button>Order here</button>
    </div>
  </div>
  <div>
    
    <h3>Biryani</h3>
    <p>
      Lorem ipsum dolor sit amet, consectetur adipisicing elit. Aperiam,
      quas!
    </p>
    <div>
      <span>Price: Rs. 500</span>
      <span>Servings: 2</span>
      <button>Order here</button>
    </div>
  </div>
  <div>
    
    <h3>Biryani</h3>
    <p>
      Lorem ipsum dolor sit amet, consectetur adipisicing elit. Aperiam,
      quas!
    </p>
    <div>
      <span>Price: Rs. 500</span>
      <span>Servings: 2</span>
      <button>Order here</button>
    </div>
  </div>
</aside>
<aside class="sidewayoptional">Aside Content Optional</aside>
<footer>Copyright 2023</footer>
</body>
</html>

```

6.2 Initial markup file

The following markup file is for Lab Activity Task 2.

index-markup.html

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <title>Payment</title>
  </head>
  <body>
    <header>
      <span>Your Shopping Cart</span>
    </header>
    <main>
      <section>
        <article>
          <div>
            <h2>Select delivery options</h2>
            <div>
              <div>
                <div>
                  
                <div>
                  <a href="#change">change</a>
                </div>
              </div>
            </div>
            <div>
              <h4>OLED TV 195 cm (77 Inch) [Model Year 2022]</h4>
              <span>Condition:</span>
              <div>
                <button>Used</button>
                <button>Brand-new</button>
              </div>

              <div>Unit Price: 2000/-</div>

              <label for="qty"
                >Quantity:
                <select name="quantity" id="qty">
                  <option value="1">1</option>
```



```

<div>
  <h4>You bank details:</h4>
  <form action="abc">
    <div>
      <label for="bic">BIC (Swift-Code):</label>
      <input type="text" id="bic" /> <label for="iban">IBAN:</label>
      <input type="text" id="iban" />
      <label for="accholder">Account Holder's Name:</label>
      <input type="text" id="accholder" />
    </div>
    <div>
      <input type="checkbox" id="savechk" />
      <label for="savechk">
        Save my bank details for future purchases?</label>
      </div>
    </form>
  </div>
</div>
<div>
  <h2>Choose payment method</h2>
  <div>
    <form action="xyz">
      <div>
        <label for="cc">
          <input name="paymentmethod" type="radio" id="cc" /> Credit
          Card</label>
        </div>
        <label for="pp">
          <input name="paymentmethod" type="radio" id="pp" />
          PayPal
        </label>
        <label for="ba">
          <input name="paymentmethod" type="radio" id="ba" checked />
          <span> Personal Bank Account</span>
        </label>
        <label for="bf">
          <input name="paymentmethod" type="radio" id="bf" />
          Bank Financing
        </label>
      </div>
    </form>
  </div>
</div>
</article>

```

```
<article></article>  
</section>  
</main>  
</body>  
</html>
```

6.3 Content image



TV_OLED.jpg