

# Day 10 of training

## Advanced Layout with Flexbox (Part 1)

### 1. Introduction to Flexbox: One-Dimensional Layout

- Today introduced **Flexbox**, a revolutionary layout module in CSS that makes it incredibly easy to design flexible and responsive layouts. Flexbox is designed for **one-dimensional layouts**, meaning it arranges items either in a row or in a column. It provides powerful capabilities for distributing space among items and aligning them within a container.
- The core concept is the **Flex Container** and **Flex Items**. A parent element becomes a Flex Container when `display: flex;` is applied to it. Its direct children then become Flex Items.

### 2. Understanding Flexbox Axes

- Flexbox operates along two axes:
  - **Main Axis:** This is the primary axis along which flex items are laid out.
  - **Cross Axis:** This is the axis perpendicular to the main axis.
- **flex-direction Property:** This property on the Flex Container defines the direction of the main axis, and thus how flex items are placed within the container.
  - **row (Default):** The main axis runs horizontally from left to right.
  - **row-reverse:** The main axis runs horizontally from right to left.
  - **column:** The main axis runs vertically from top to bottom.
  - **column-reverse:** The main axis runs vertically from bottom to top.

### 3. Aligning Items on the Main Axis with justify-content

- The `justify-content` property is applied to the **Flex Container** and controls the alignment of flex items along the **main axis**. This is where Flexbox shines in distributing space.
- Common values include:
  - **flex-start (Default for row):** Items are packed towards the start of the main axis.
  - **flex-end:** Items are packed towards the end of the main axis.

- **center:** Items are centered along the main axis.
- **space-between:** Items are evenly distributed in the line; the first item is at the start, the last item is at the end.
- **space-around:** Items are evenly distributed with equal space around them (space at ends is half of space between items).
- **space-evenly:** Items are distributed so that the space between any two items, and the space to the edges, is equal.

#### 4. Aligning Items on the Cross Axis with align-items

- The align-items property is also applied to the **Flex Container** and controls the alignment of flex items along the **cross axis**.
- Common values include:
  - **flex-start:** Items are aligned to the start of the cross axis.
  - **flex-end:** Items are aligned to the end of the cross axis.
  - **center:** Items are centered on the cross axis.
  - **stretch (Default):** Items stretch to fill the container along the cross axis.