7. CSS Grid and Media Queries

Table of Content

CSS Grid

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.

An HTML element becomes a grid container when its `display` property is set to `grid`

▼ **Grid Container**

These are the grid container properties:

- **gap**

  the gap is a shorthand property for row-gap and column-gap

- **grid-template-columns**

  The grid-template-columns property defines the number of columns in your grid layout, and it can define the width of each column.

  The value is a space-separated list, where each value defines the width of the respective column.

```
.grid-container {
  display: grid;
  grid-template-columns: 80px 200px auto 40px;
  grid-template-columns: auto auto auto auto;
}
```

- **grid-template-rows**

  The grid-template-rows property defines the height of each row.

```
.grid-container {
  display: grid;
  grid-template-rows: 80px 200px;
}
```

- **justify-content**

  The justify-content property is used to align the whole grid inside the container. It can have the following values:

  - space-evenly
  - space-between
  - space-around
  - center
  - start
  - end

- **align-content**

  The align-content property is used to vertically align the whole grid inside the container. It can have the following values:

  - space-evenly
  - space-between
  - space-around
  - center
  - start
  - end

- **align-items**

  To align the items inside the grid.

- **grid-template-areas**

  Named grid items can be referred to by the grid-template-areas property of the grid container. The grid-area property can also be used to assign names to grid

items.

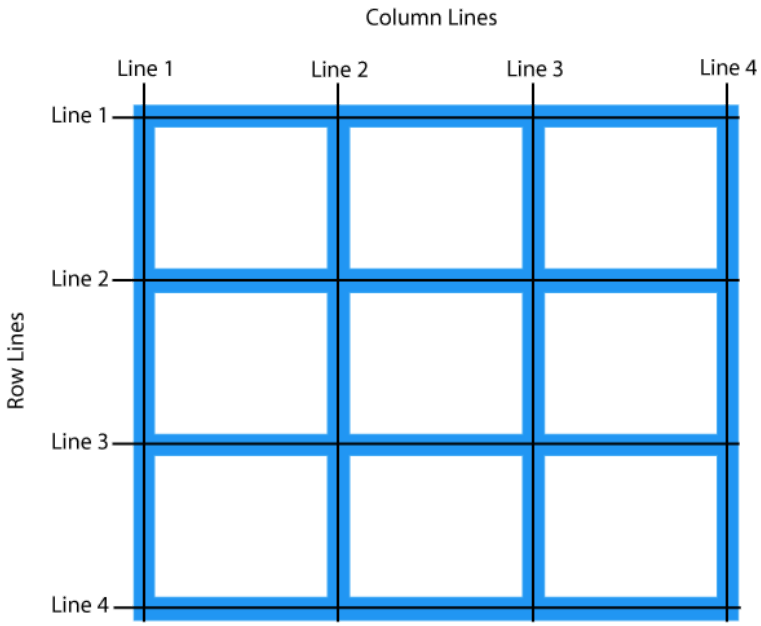
```
.grid-container {
  grid-template-areas:
    'header header header header header header'
    'menu main main main right right'
    'menu footer footer footer footer footer';
}

.item1 { grid-area: header; }
.item2 { grid-area: menu; }
.item3 { grid-area: main; }
.item4 { grid-area: right; }
.item5 { grid-area: footer; }
```

▼ Grid Item

These are the grid item's properties:

- **grid-column**

  The grid-column property defines on which column(s) to place an item. You define where the item will start, and where the item will end. The `grid-column` property is a shorthand property for the `grid-column-start` and the `grid-column-end` properties.




```
.item1 {
  grid-column: 1 / 5;
}
```

```
.item1 {
  grid-column: 1 / span 3;
}
```

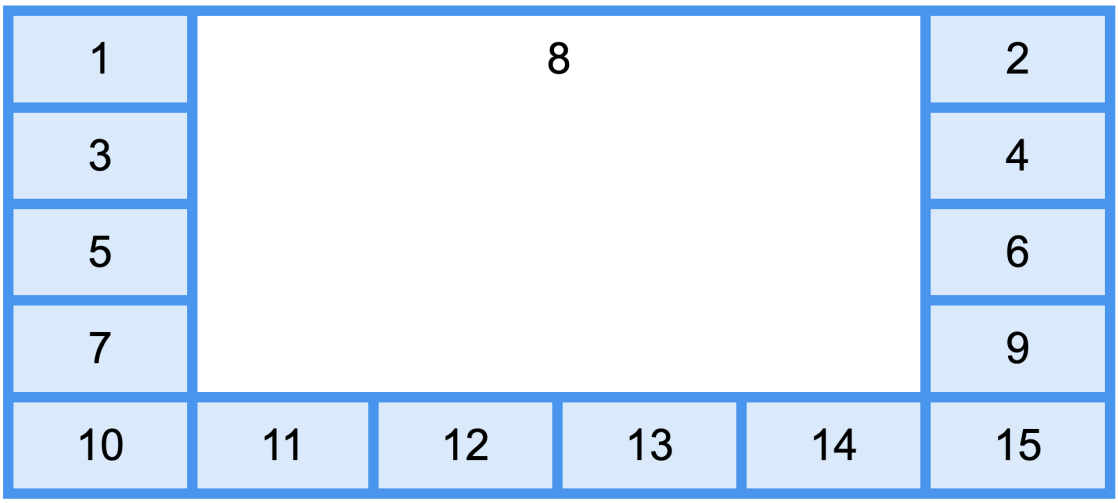
- **grid-row**

  The `grid-row` property defines on which row to place an item. You define where the item will start, and where the item will end.

  The grid-row property is a shorthand property for the grid-row-start and the grid-row-end properties.

- **grid-area**

  The grid-area property can be used as a shorthand property for the grid-row-start, grid-column-start, grid-row-end, and grid-column-end properties.




```
.item8 {
  grid-area: 1 / 2 / 5 / 6;
  grid-area: 2 / 1 / span 2 / span 3;
}
```

- **justify-self**

  Aligns a grid item inside a cell along the inline (row) axis

  - start
  - end
  - center
  - strech

- **align-self**

  Aligns a grid item inside a cell along the block (column) axis (as opposed to justify-self which aligns along the inline (row) axis). This value applies to the content inside a single grid item.

  - start
  - end
  - center
  - strech

Media Queries

Media queries are used to develop responsive web designs (RWDs). It uses the `@media` rule to include a block of CSS properties only if a certain condition is true.

```
@media only screen and (max-width: 600px) {
  body {
    background-color: lightblue;
  }
}
```

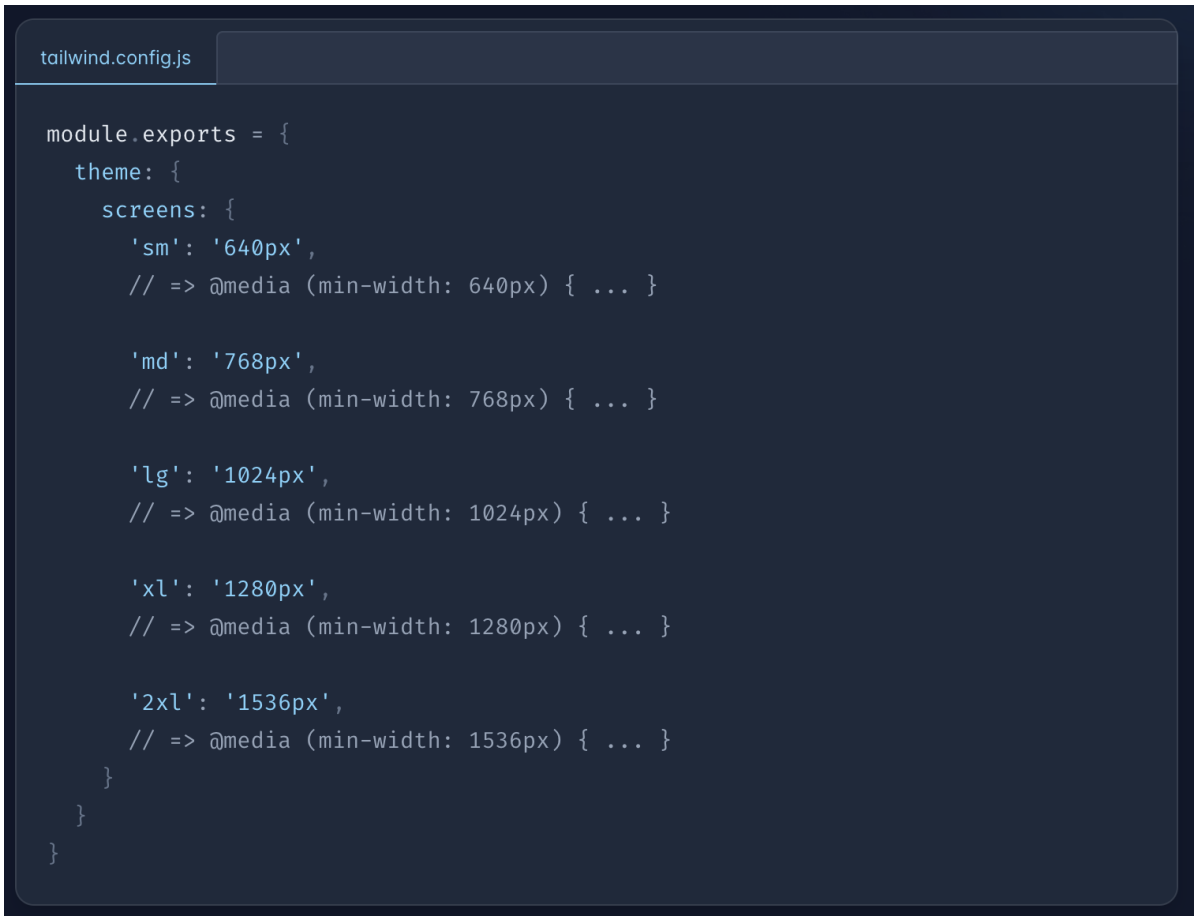
▼ Types of Breakpoints

1. **Device Width Breakpoint**

```
/* Extra small devices (phones, 600px and down) */
@media screen and (max-width: 600px) {...}

/* Small devices (portrait tablets and large phones, 600px and up) */
@media screen and (min-width: 600px) {...}

/* Medium devices (landscape tablets, 768px and up) */
@media screen and (min-width: 768px) {...}

/* Large devices (laptops/desktops, 992px and up) */
@media screen and (min-width: 992px) {...}

/* Extra large devices (large laptops and desktops, 1200px and up) */
@media screen and (min-width: 1200px) {...}
```

> Read min-width as “start from” and max-width as “upto”

Breakpoint defaults in Tailwind:



2. **Orientation: Portrait / Landscape**

   Media queries can also be used to change layout of a page depending on the orientation of the browser.

   You can have a set of CSS properties that will only apply when the browser window is wider than its height, a so called "Landscape" orientation:

```
@media screen and (orientation: landscape) {
  body {
    background-color: lightblue;
  }
}
```

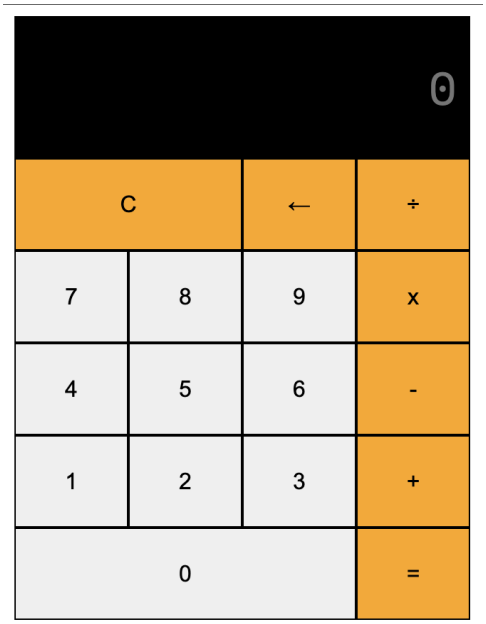
Further Readings:

https://developer.mozilla.org/en-US/docs/Web/CSS/CSS_Grid_Layout/Basic_Concepts_of_Grid_Layout

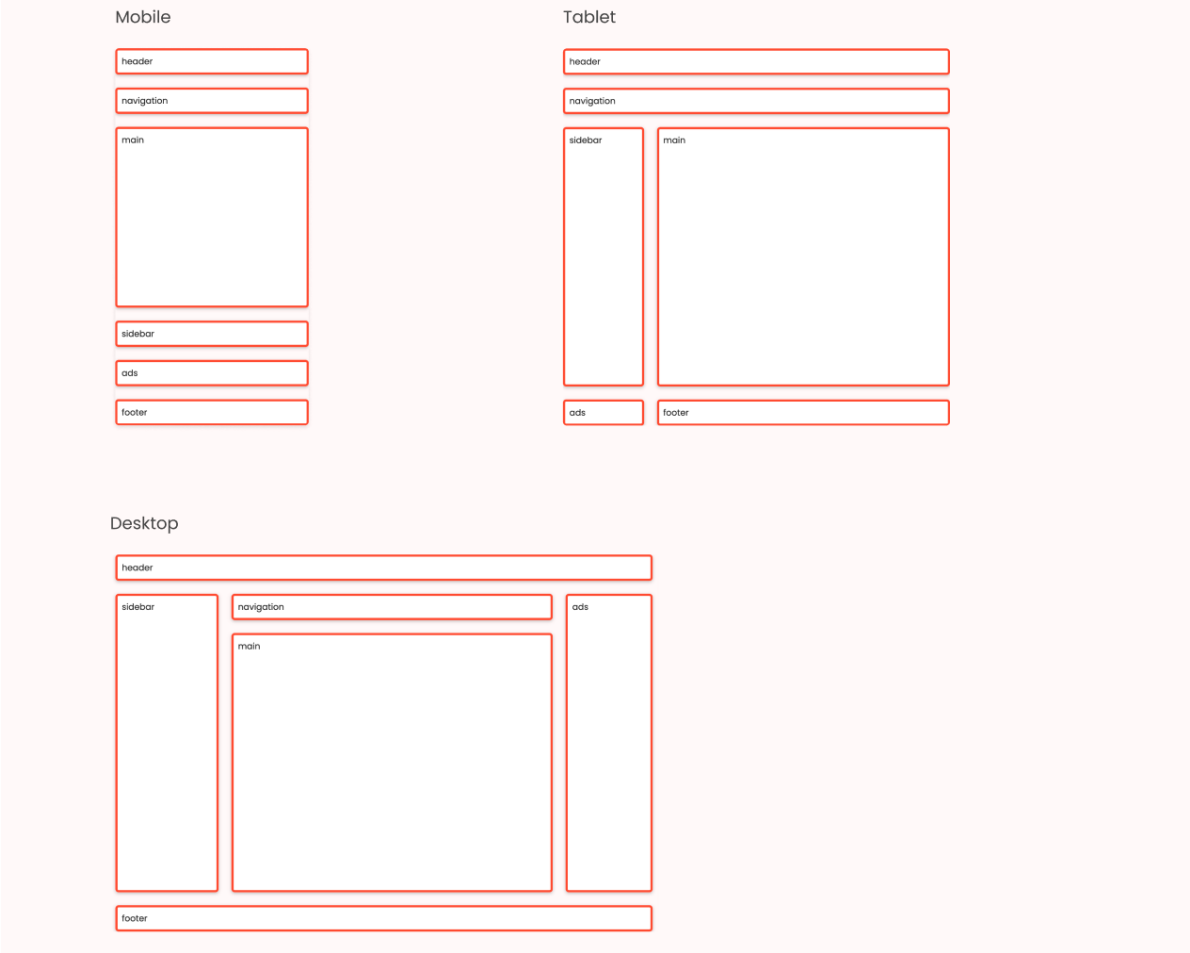
https://developer.mozilla.org/en-US/docs/Web/CSS/Media_Queries/Using_media_queries

Assignments:

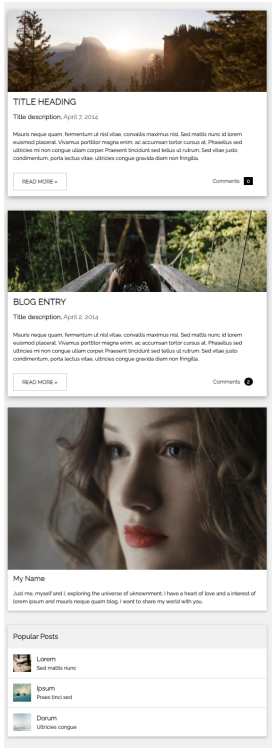
1. Build a Calculator layout like this:



2. Build a responsive layout using Grid:



3. Build a responsive blog post website like this one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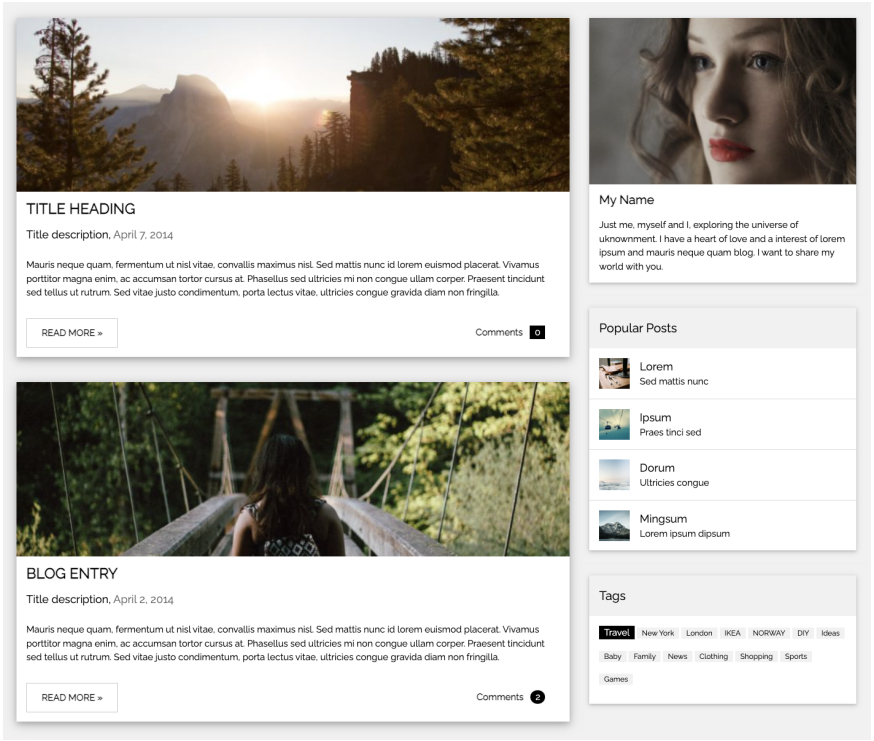
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