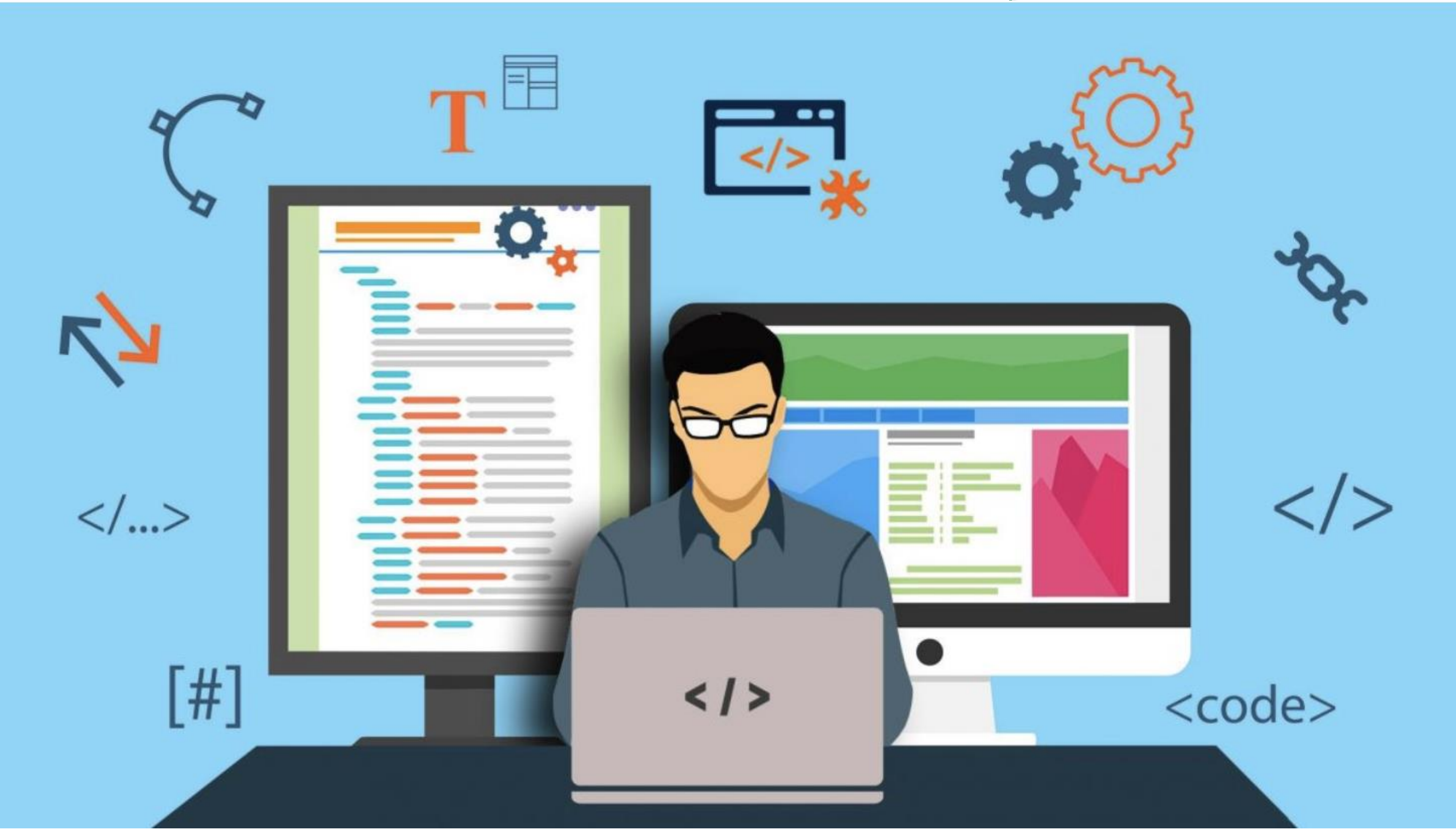
Cascading Style Sheets IV
Flexbox & Grid Layout



Flexbox Layout

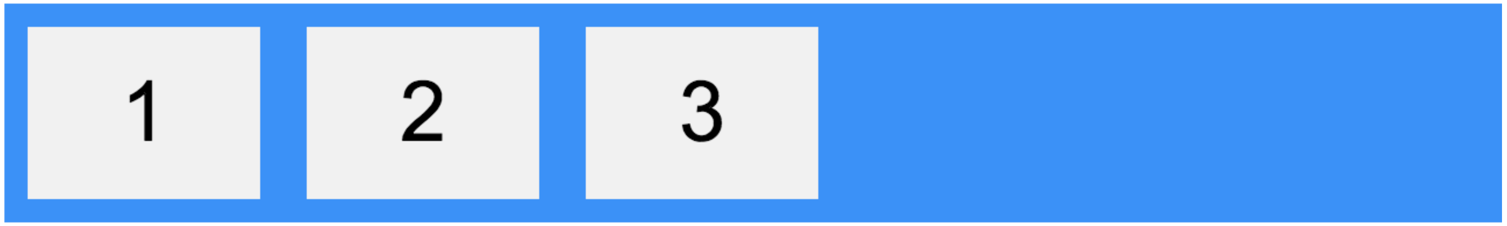
Flexbox Layout Module

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

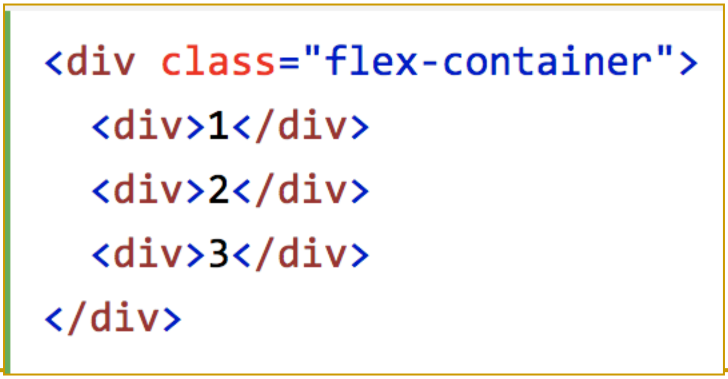
https://www.w3schools.com/css/css3_flexbox.asp

1. Design a Flex Container

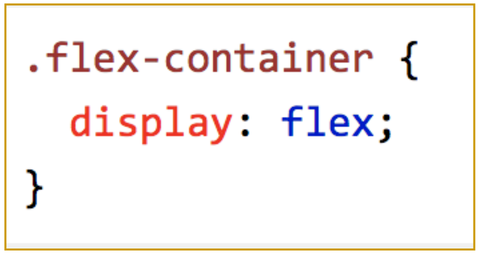
- The Flexible Box Layout Module, makes it easier to design flexible responsive layout structure without using float or positioning.



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



```html
<div class="flex-container">
  <div>1</div>
  <div>2</div>
  <div>3</div>
</div>
```



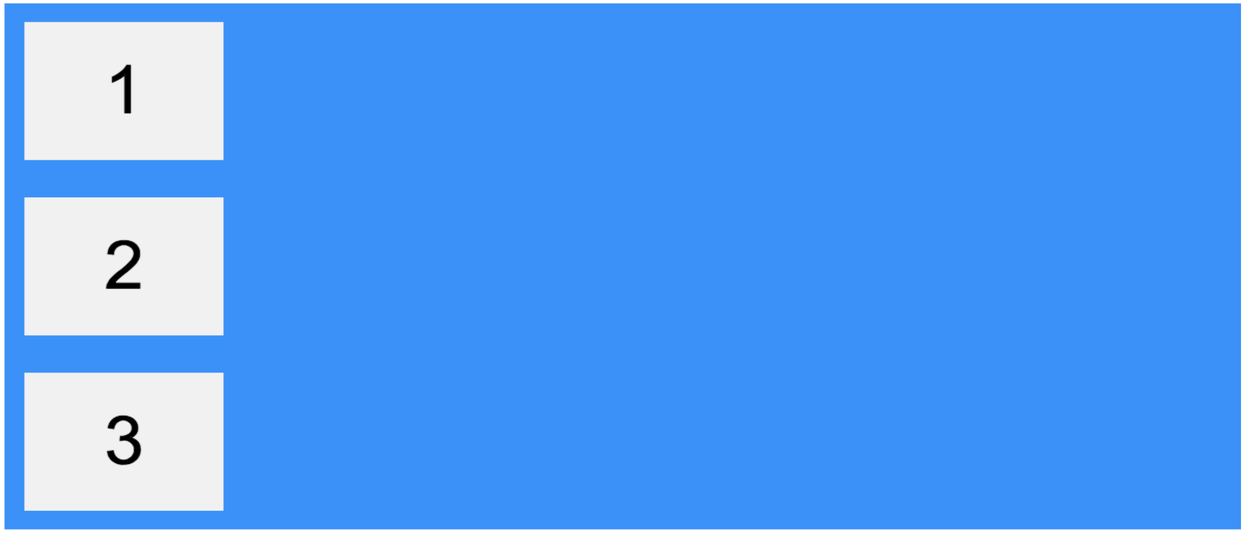
```css
.flex-container {
  display: flex;
}
```

2. Add Properties

- The flex container properties are:
  - flex-direction
  - flex-wrap
  - flex-flow
  - justify-content
  - align-items
  - align-content

2. Add Properties

- flex-direction

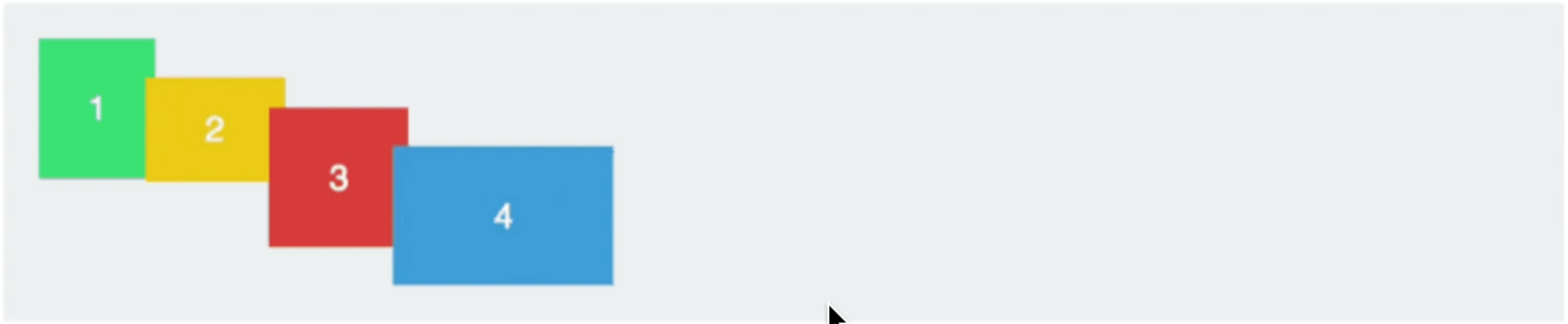


```
.flex-container {
  display: flex;
  flex-direction: column;
}
```

2. Add Properties

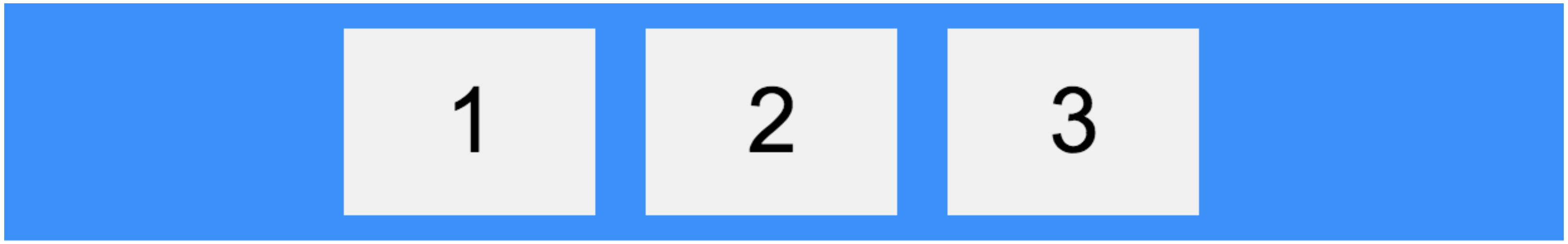
- flex-direction

flex-direction: column;



2. Add Properties

- justify-content

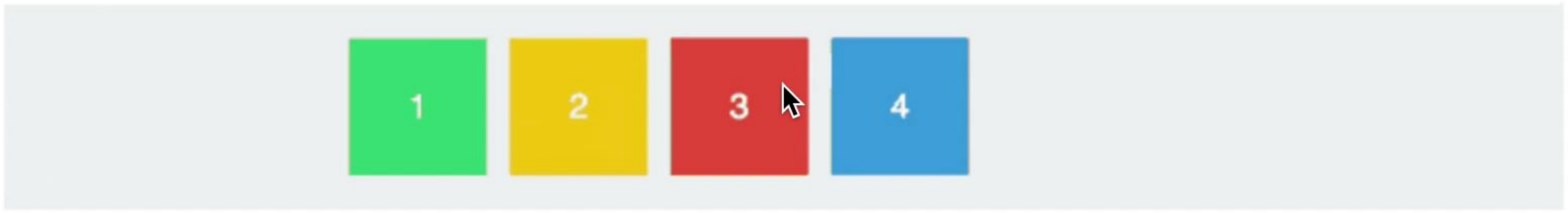


```
.flex-container {
  display: flex;
  justify-content: center;
}
```

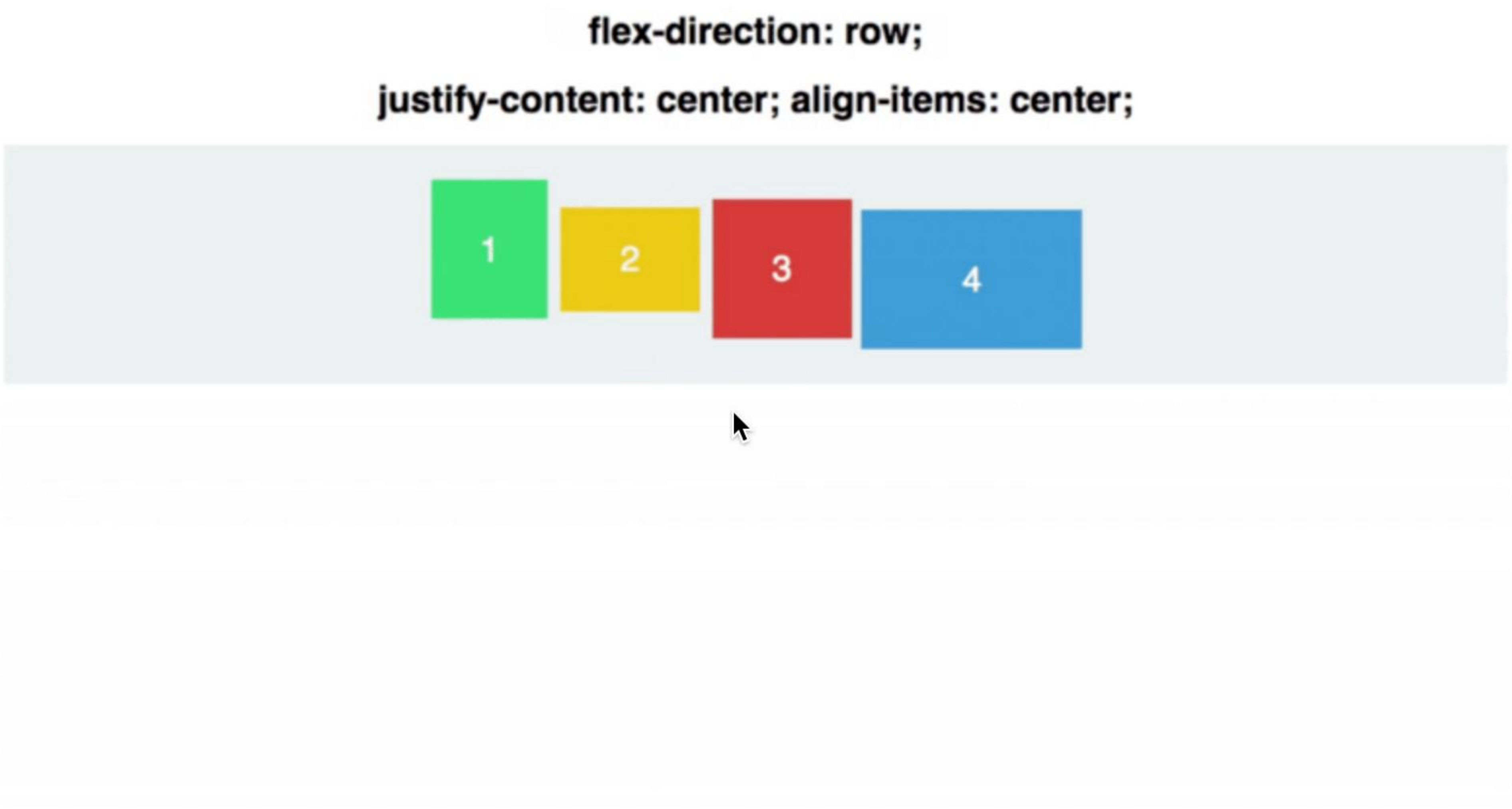
2. Add Properties

- justify-content

justify-content: flex-end;



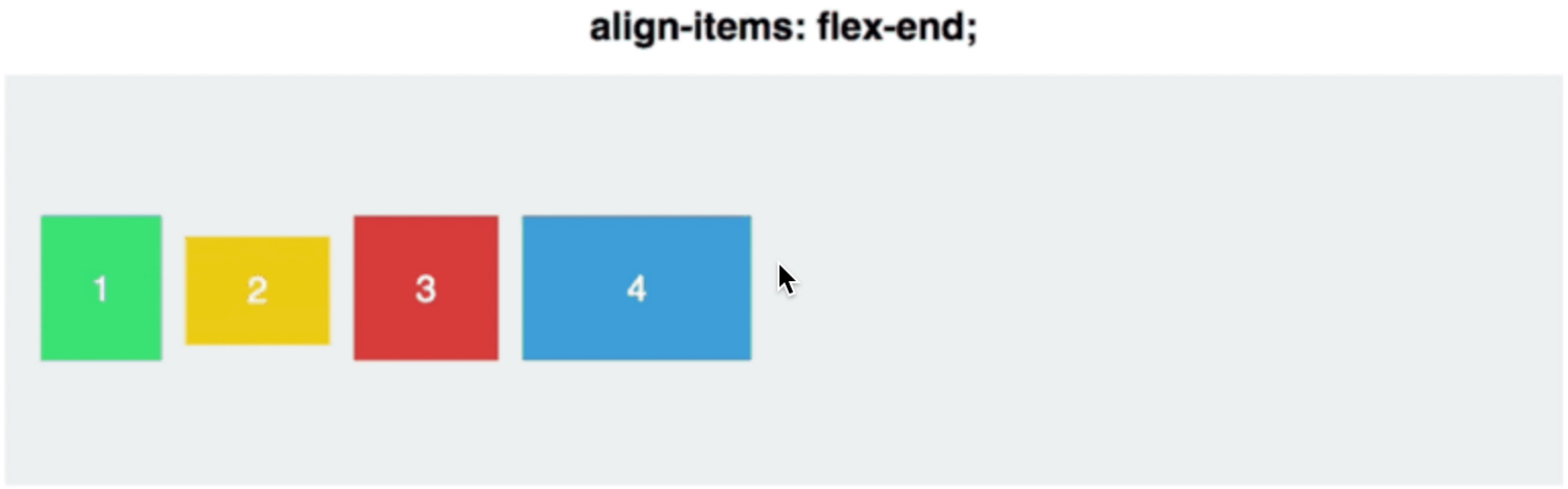
2. Add Properties


flex-direction: row;

justify-content: center; align-items: center;

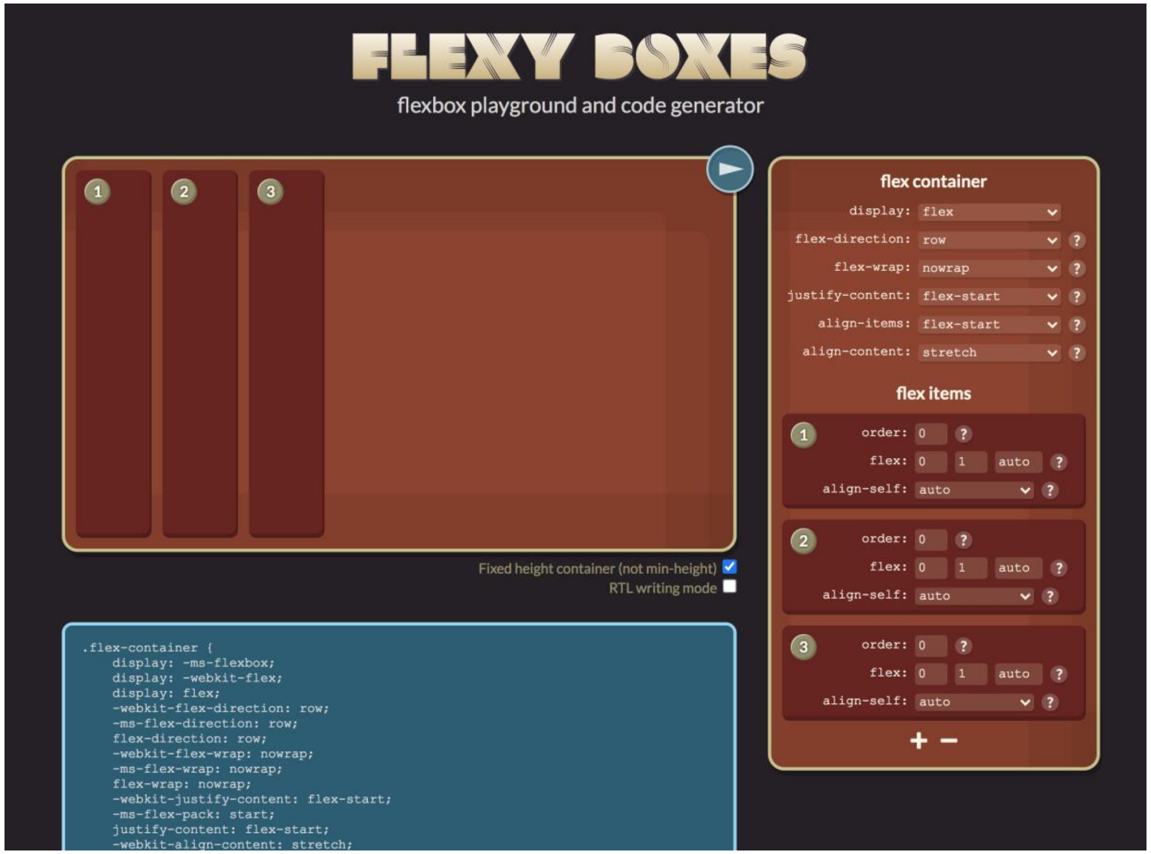
2. Add Properties

- align-items



Flexbox

- Play with this tool to understand more about how flexbox works



flex container

display: flex
flex-direction: row
flex-wrap: nowrap
justify-content: flex-start
align-items: flex-start
align-content: stretch

flex items

1 order: 0
flex: 0 1 auto
align-self: auto

2 order: 0
flex: 0 1 auto
align-self: auto

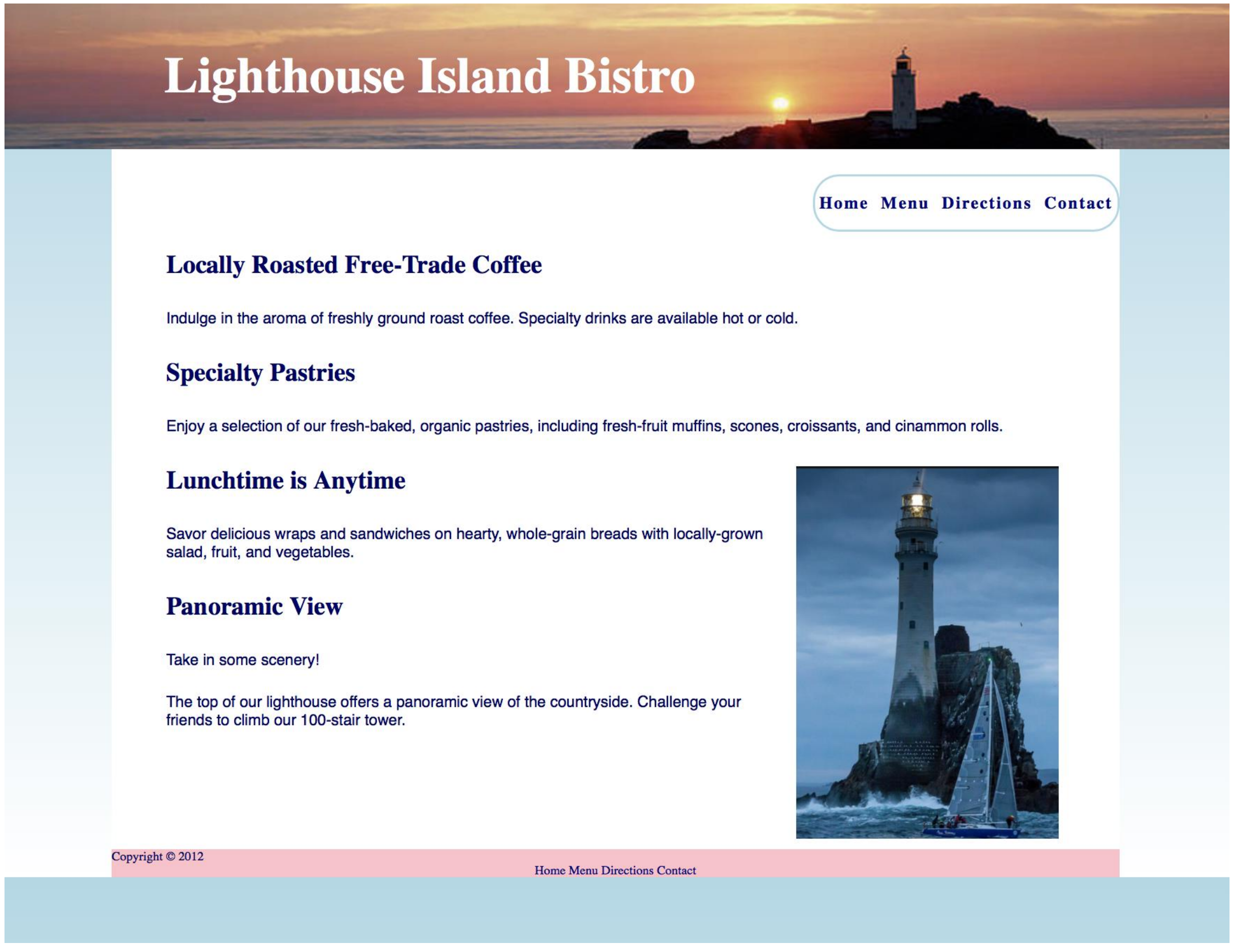
3 order: 0
flex: 0 1 auto
align-self: auto

Fixed height container (not min-height) ☑
RTL writing mode ☐

```
.flex-container {
    display: -ms-flexbox;
    display: -webkit-flex;
    display: flex;
    -webkit-flex-direction: row;
    -ms-flex-direction: row;
    flex-direction: row;
    -webkit-flex-wrap: nowrap;
    -ms-flex-wrap: nowrap;
    flex-wrap: nowrap;
    -webkit-justify-content: flex-start;
    -ms-flex-pack: start;
    justify-content: flex-start;
    -webkit-align-content: stretch;
```

https://the-echoplex.net/flexyboxes/
https://loading.io/flexbox/ *(another tool!)*

Let's apply Flexbox to the Bistro website



Lighthouse Island Bistro

Locally Roasted Free-Trade Coffee

Indulge in the aroma of freshly ground roast coffee. Specialty drinks are available hot or cold.

Specialty Pastries

Enjoy a selection of our fresh-baked, organic pastries, including fresh-fruit muffins, scones, croissants, and cinammon rolls.

Lunchtime is Anytime

Savor delicious wraps and sandwiches on hearty, whole-grain breads with locally-grown salad, fruit, and vegetables.

Panoramic View

Take in some scenery!

The top of our lighthouse offers a panoramic view of the countryside. Challenge your friends to climb our 100-stair tower.

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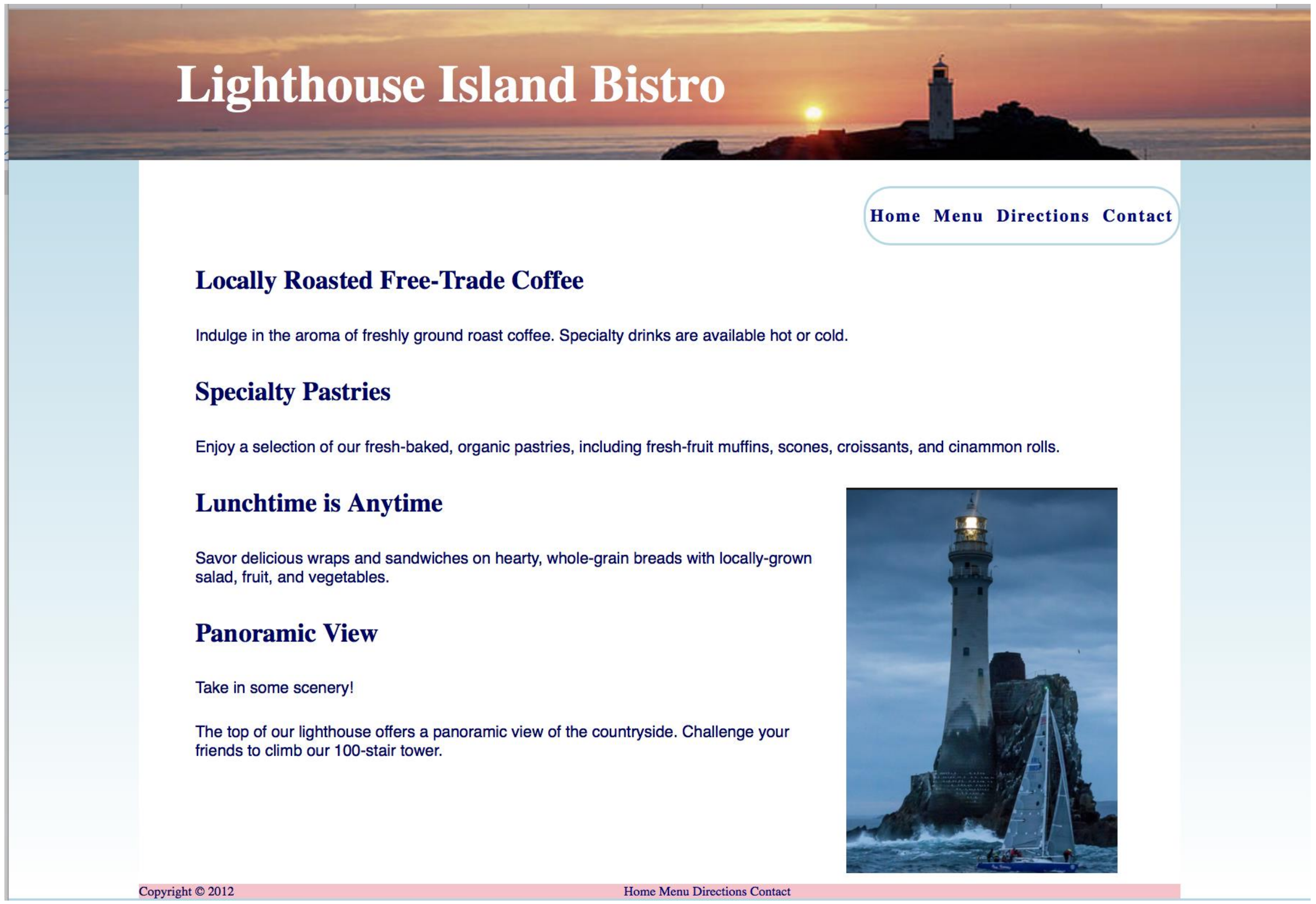
Home Menu Directions Contact

The footer is aligned badly. How can flexbox help me here?

Let's apply Flexbox to the Bistro website

footer{
…
…
display: flex;
align-content: center;
}



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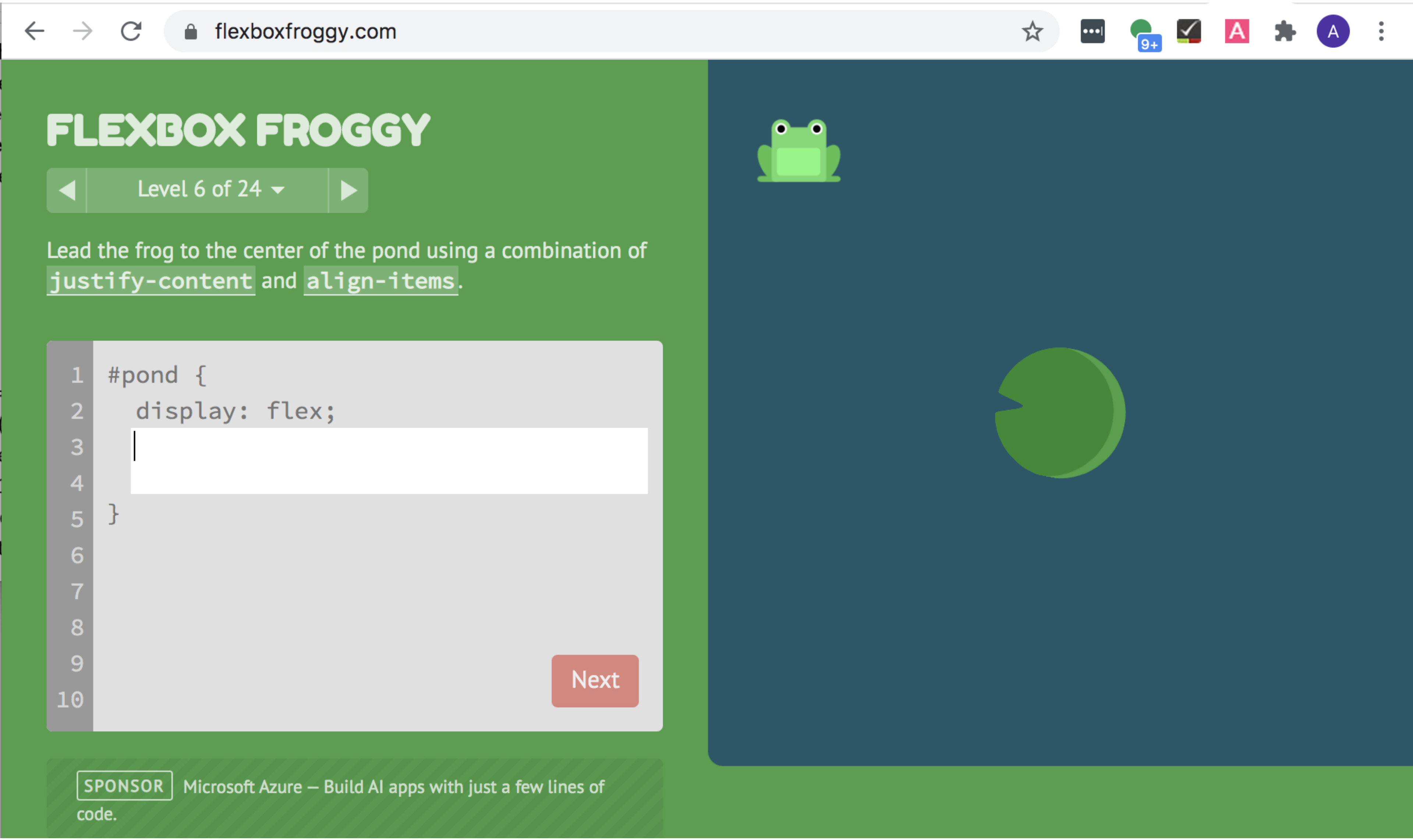
Flexbox Froggy

- A nice game to get more familiar with flexbox



flexboxfroggy.com

FLEXBOX FROGGY

Level 6 of 24

Lead the frog to the center of the pond using a combination of `justify-content` and `align-items`.

```
#pond {
  display: flex;


}
```

Next

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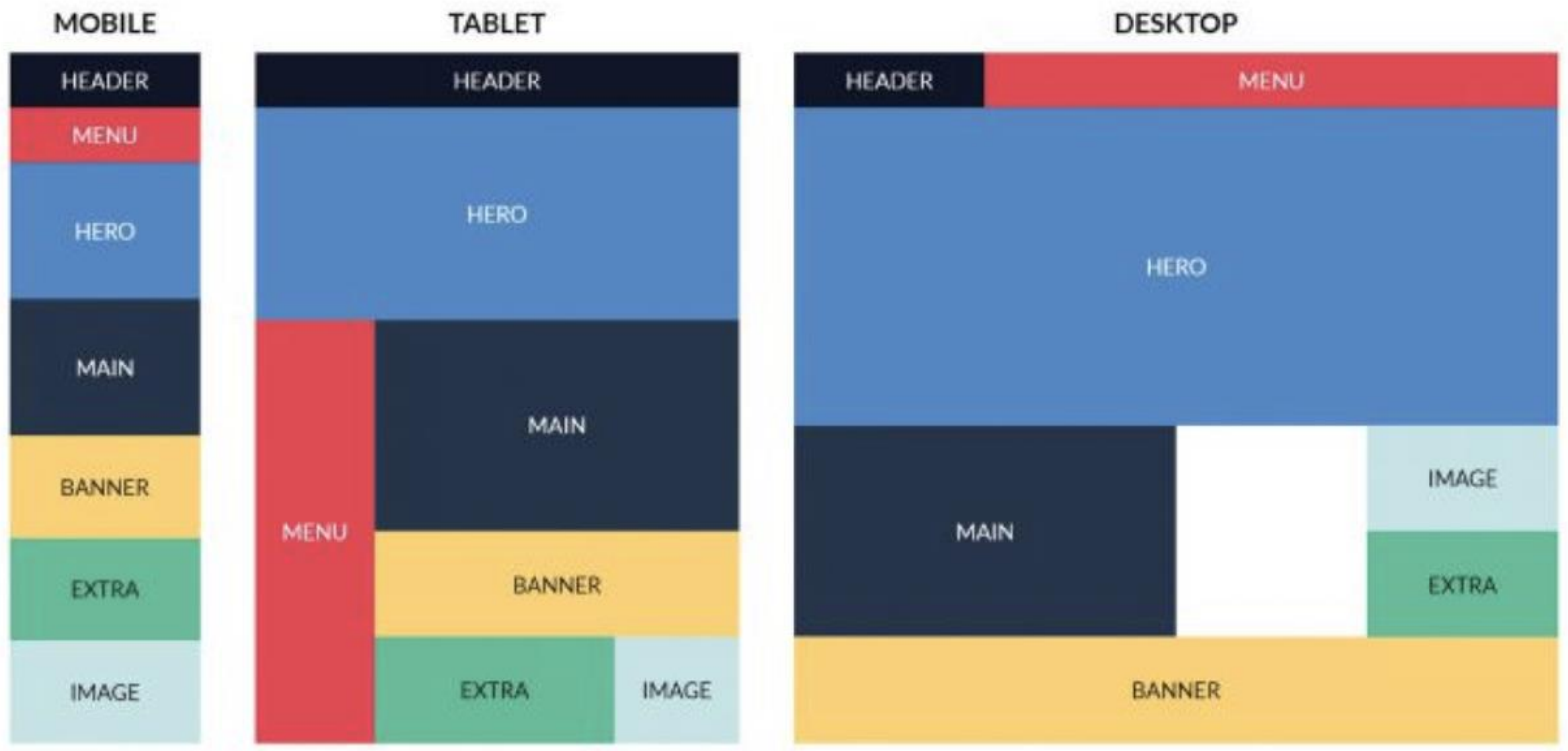
Grid Layout

Grid Layout Module

- A new and versatile system for positioning elements within a website layout through the use of a highly customisable grid.
- It introduces unprecedented flexibility in layout, using just pure CSS and without absolutely positioning elements.
- CSS Grid enables us to achieve extremely diverse and device-specific layouts from the same exact HTML markup.

https://www.creativebloq.com/advice/a-comprehensive-guide-to-using-css-grid

Grid Layout Module



https://www.creativebloq.com/advice/a-comprehensive-guide-to-using-css-grid

1. Define the Grid

- **display: grid**. Columns and rows are determined by the number of space-separated sizes assigned to **grid-template-columns** and **grid-template-rows respectively**.

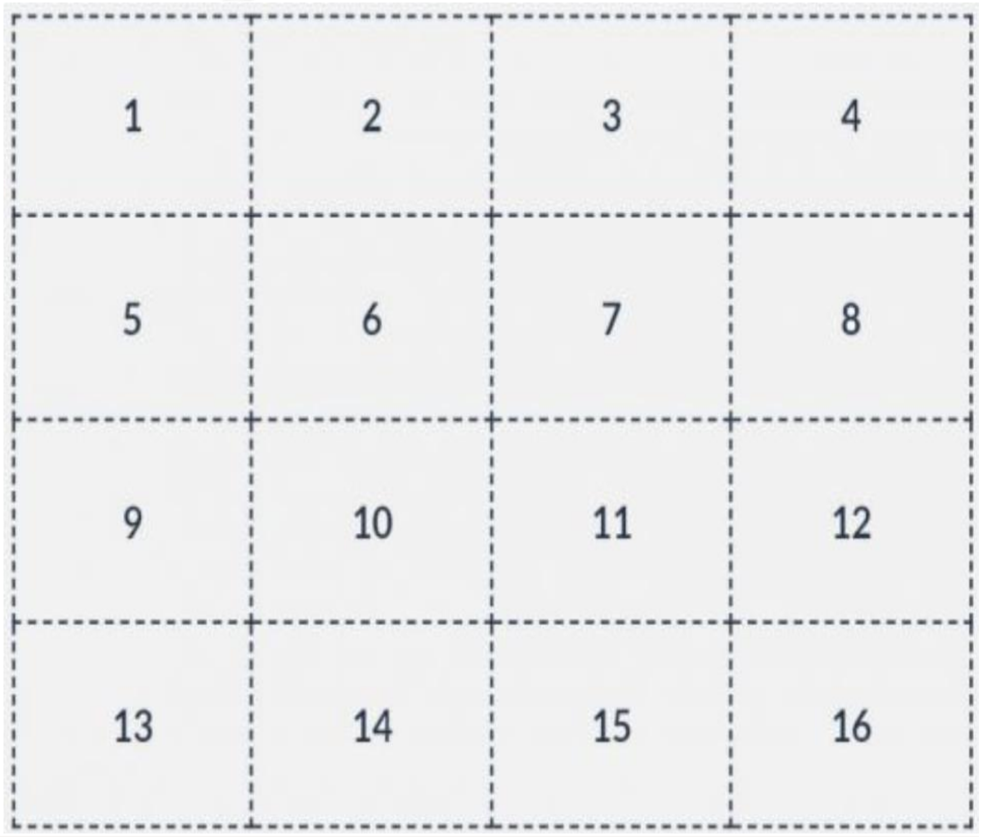
- Sizes can be any valid CSS unit such as **px** or **vw**, or the **auto** keyword that enables columns or rows to stretch across available space.

- For instance, **grid-template-columns: 10px auto** leads to a 10px column followed by a second column that fills all available space.

2. Using fr

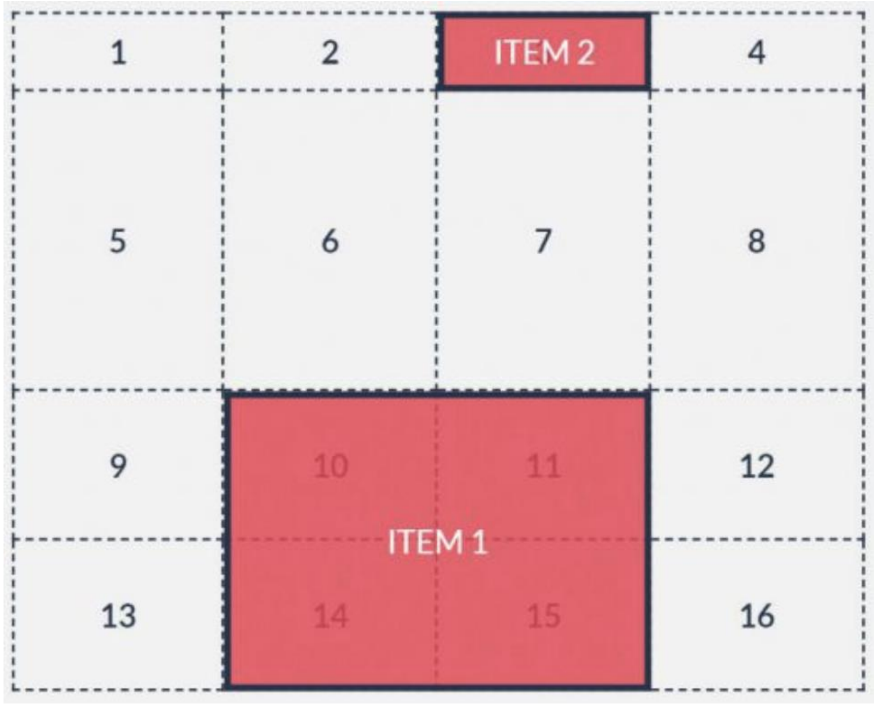
- Grid also uses a 'fractional' unit **fr** that causes any remaining space to be distributed to columns or rows based on the ratios of these units.
- **grid-template-rows: 1fr 2fr** creates two dynamic rows with the second twice the size of the first,
- **grid-template-columns: 1fr 1fr 1fr 1fr** defines four equal-sized columns.
- The latter can be simplified using the new **repeat()** function to **grid-template-columns: repeat(4, 1fr)**.

3. An example ..



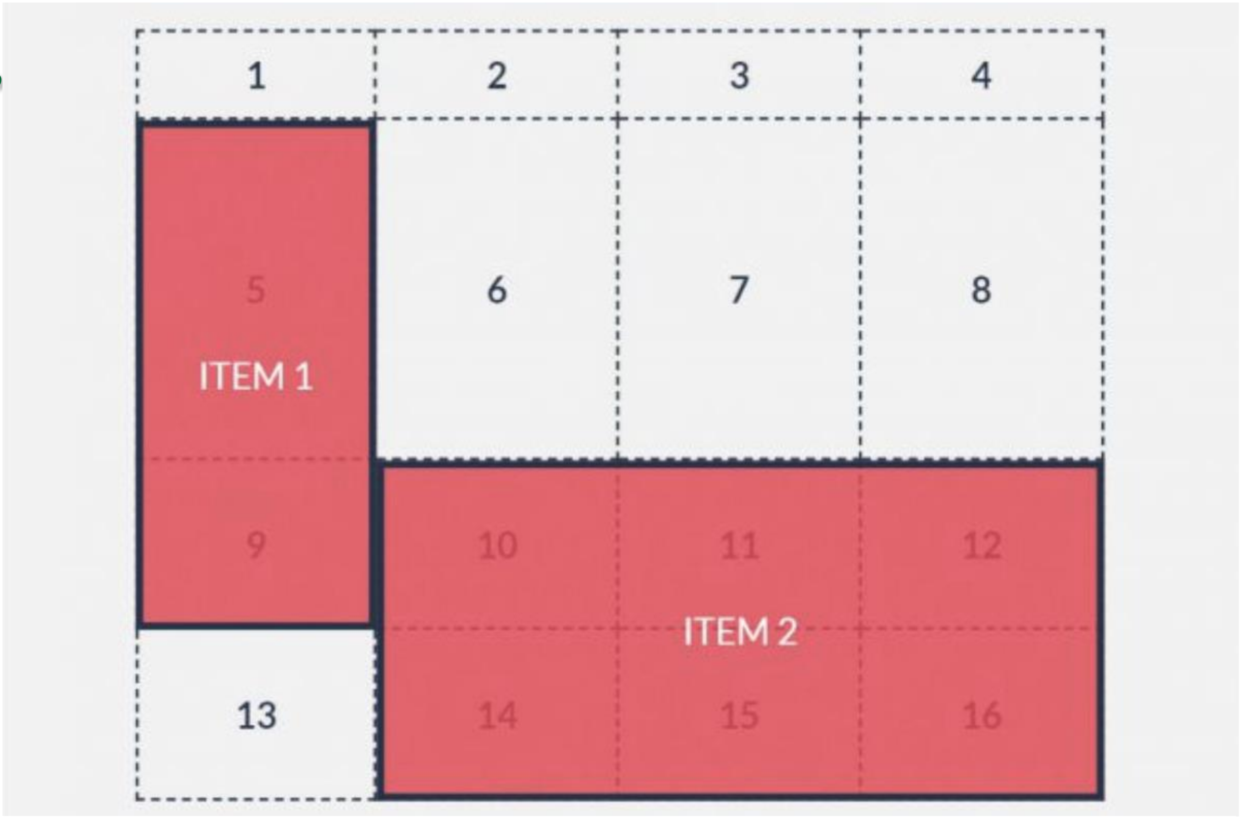
```
.grid {
 display: grid;
 grid-template-columns: repeat(4, 1fr);
 grid-template-rows: repeat(4, 75px);
}
```

4. Positioning items using line numbers..



```
#item1 {
 grid-column-start: 2;
 grid-column-end: 4;
 grid-row-start: 3;
 grid-row-end: -1;
}
#item2 {
 grid-column: 3;
 grid-row: 1;
}
```

4. Positioning items using line numbers..



```
#item1 {
 grid-column: 1;
 grid-row: 2 / 4;
}
#item2 {
 grid-column: 2 / span 3;
 grid-row: 3 / span 2;
}
```

grid-row-start *grid-column-start* *grid-row-end* *grid-column-end*

```
#item1 {
 grid-area: 2 / 1 / span 2 / span 3;
}
#item2 {
 grid-area: 4 / 4;
}
```

OR

5. Positioning items using area names..

```
#item1 {
 grid-area: item1;
}
#item2 {
 grid-area: item2;
}
.grid {
 grid-template-areas:
    ". . . ."
    ". . . item1"
    "item2 item2 item2 item1"
    "item2 item2 item2 .";
}
```

What would this grid look like?

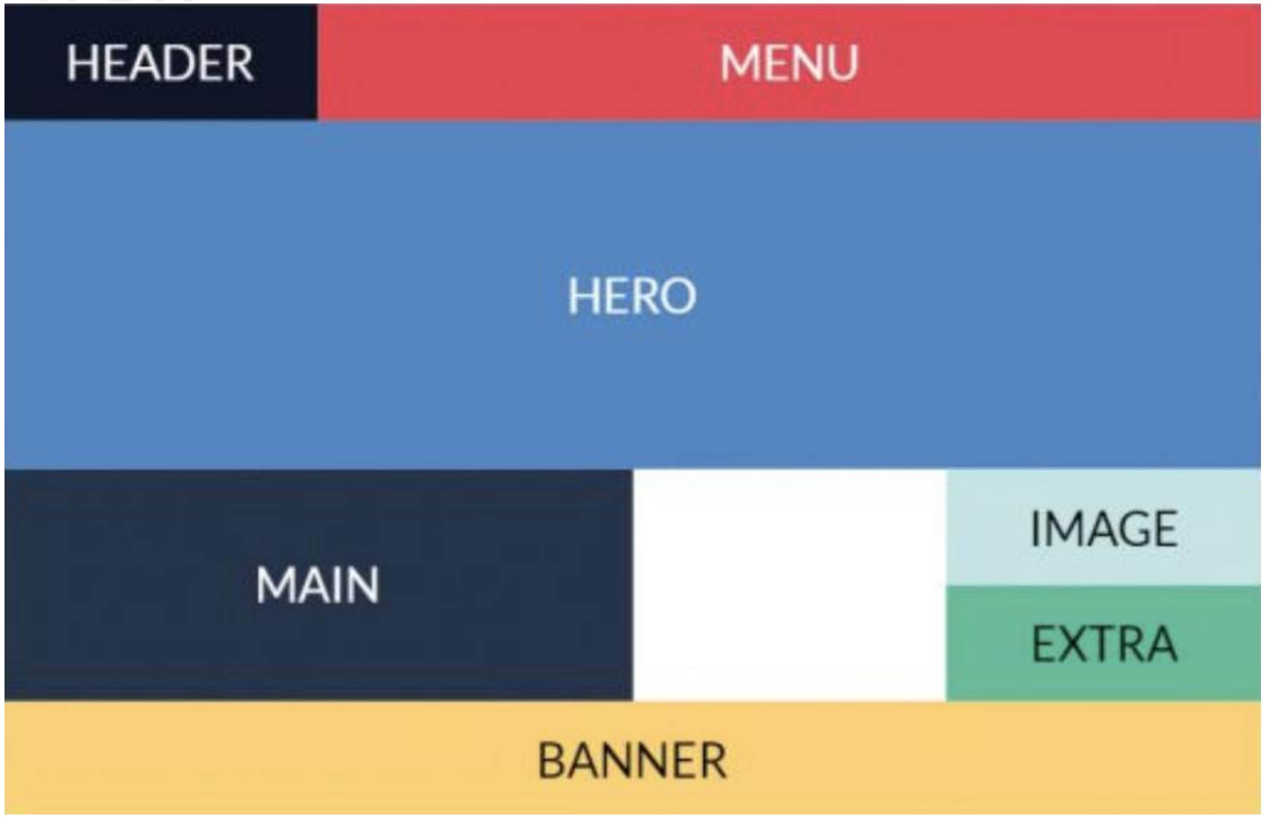
HTML

```
<div class="grid">
 <div class="header"></div>
 <div class="menu"></div>
 <div class="hero"></div>
 <div class="main"></div>
 <div class="banner"></div>
 <div class="extra"></div>
 <div class="image"></div>
</div>
```

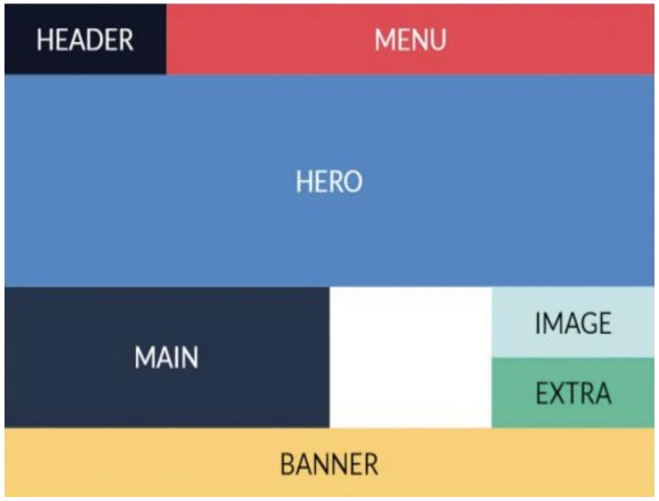
CSS

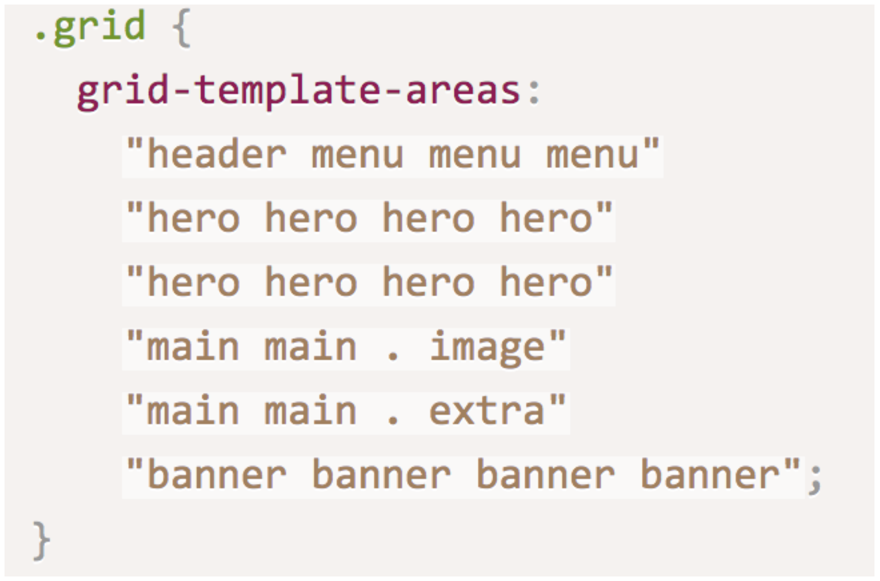
```
.header { grid-area: header; }
.menu { grid-area: menu; }
.hero { grid-area: hero; }
.main { grid-area: main; }
.banner { grid-area: banner; }
.extra { grid-area: extra; }
.image { grid-area: image; }
.grid {
  display: grid;
  grid-template-columns: repeat(4, 1fr);
  grid-template-rows: 40px 2fr repeat(4, 1fr);
  grid-template-areas:
    "header header header header"
    "hero hero hero hero"
    "menu main main main"
    "menu main main main"
    "menu banner banner banner"
    "menu extra image image";
```

Write the *grid-template-area* (CSS code) for the following 4cols x6rows..



Write the *grid-template-area* (CSS code) for the following ..





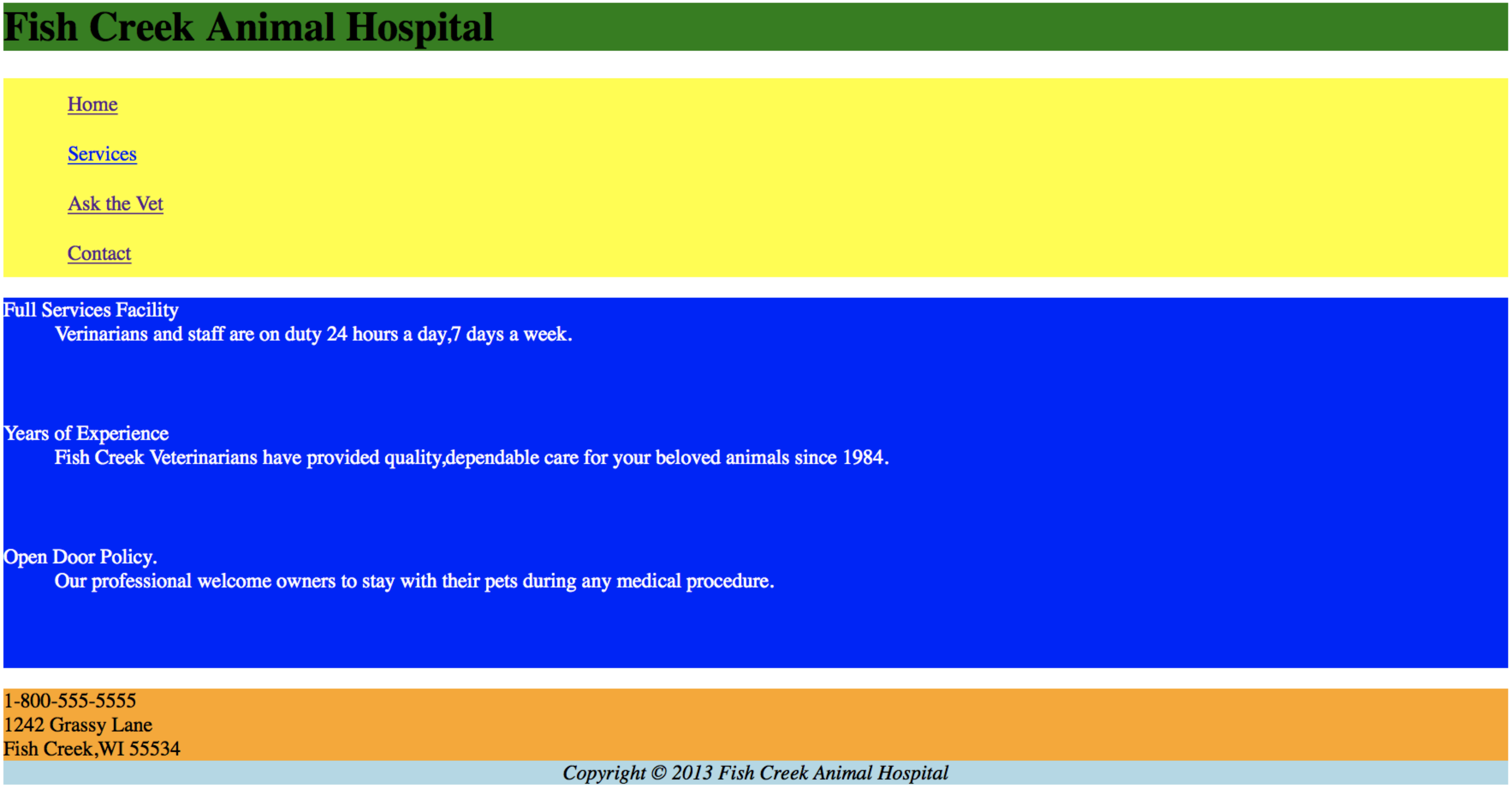
```css
.grid {
  grid-template-areas:
    "header menu menu menu"
    "hero hero hero hero"
    "hero hero hero hero"
    "main main . image"
    "main main . extra"
    "banner banner banner banner";
}
```

Differences between Flexbox & Grid

- **Flexbox** is made for one dimensional layouts and **Grid** is made for two dimensional layouts.
- **Flexbox** will give you more flexibility than **Grid**. It’ll also be easier to maintain and require less code.
- **Flexbox** is content-first, **Grid** is layout-first

https://hackernoon.com/the-ultimate-css-battle-grid-vs-flexbox-d40da0449faf

Applying Flexbox & Grid to Fish Creek



Fish Creek Animal Hospital

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Full Services Facility
Verinarians and staff are on duty 24 hours a day,7 days a week.

Years of Experience
Fish Creek Veterinarians have provided quality,dependable care for your beloved animals since 1984.

Open Door Policy.
Our professional welcome owners to stay with their pets during any medical procedure.

1-800-555-5555
1242 Grassy Lane
Fish Creek,WI 55534

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Some good resources..

- A Complete Guide to FlexBox - https://css-tricks.com/snippets/css/a-guide-to-flexbox/
- CSS Grid Layout - https://developer.mozilla.org/en-US/docs/Web/CSS/CSS_Grid_Layout