

## 3. Intro to UI Framework and Lib

### 3.1 Responsive Design

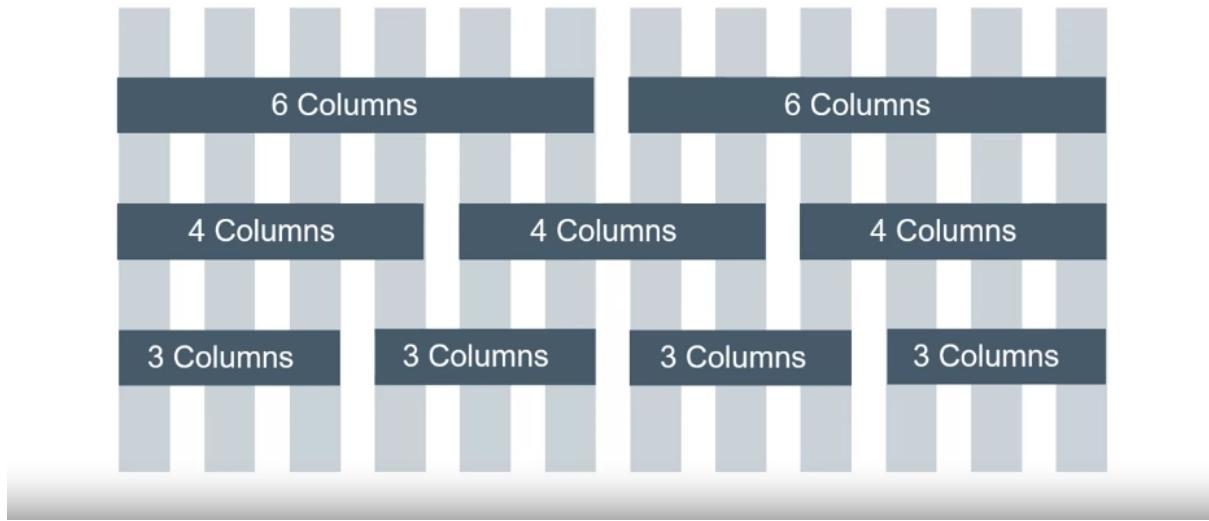
- The ability of the webpage to stretch and shrink according to the screen dimensions.
- Most Common - 1920 x 1080 pixels
- Three Major Components
  - Flexible Grids
    - Made up of Columns - Gutter - Margin
    - Space between columns - Gutter
    - Space between content and L/R Edges of Screen - Margin
    - These are not defined in pixels - but in percentages.
  - Fluid Images
    - Max-Width - 100%
    - This will allow the image to be scaled down - but never over pixelated
  - Media Queries
    - Allow querying - Display Size, Orientation, and Aspect Ratio
- Breakpoint

- A point where the website's layout will undergo change to provide the best possible layout
  - Fixed Grid
    - Fixed-Width Columns and Flexible Margin
  - Fluid Grid
    - Fluid-Width Columns and Fixed Gutters
    - Columns either grow or shrink
  - Hybrid Grid
    - Combination of Fixed and Fluid
- 

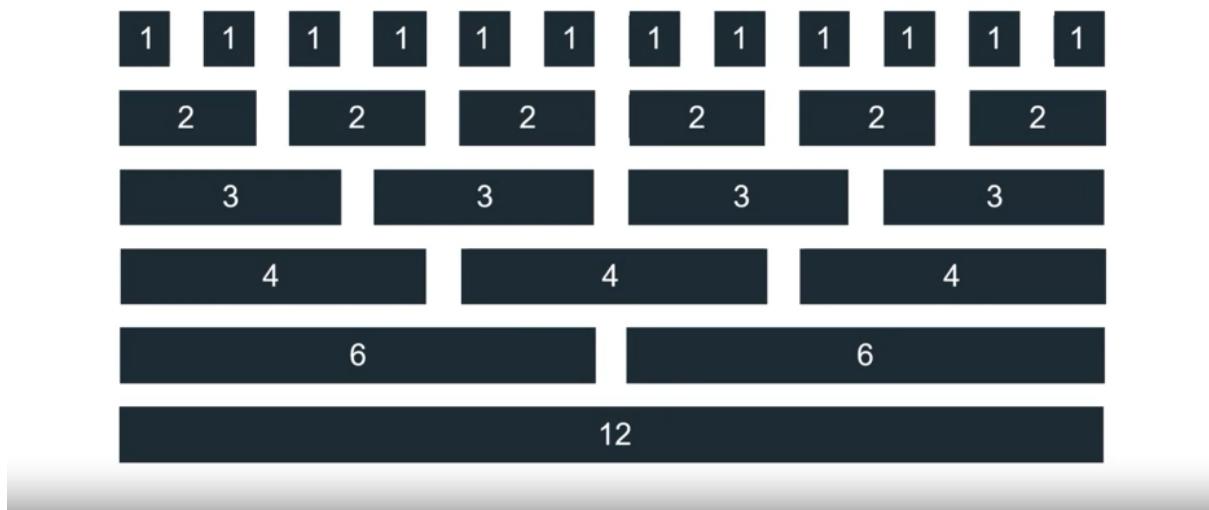
## 3.2 Bootstrap

- CSS Library and JavaScript Code
- Component-based Construction
- Inbuilt CSS Rules for Building Responsive Grids
- We can use row and col to define the content
  - Each row can house several col
  - Every row will stack on top of the other
- **Infix** - Used to define the breakpoint of screen

| Breakpoint  | Class Infix | Dimensions (pix) |
|-------------|-------------|------------------|
| Extra Small |             | < 576            |
| Small       | sm          | ≥ 576            |
| Medium      | md          | ≥ 768            |
| Large       | lg          | ≥ 992            |
| X-Large     | xl          | ≥ 1200           |
| XX-Large    | xxl         | ≥ 1400           |



Bootstrap Columns



Bootstrap Grids

- Bootstrap Grids → Always start with container → Rows and Columns.
- No abbreviation for Extra Small → This is the default breakpoint for Bootstrap
- **Modifiers**
  - Primary
  - Secondary
  - Success

- Info
  - Warning
  - Danger
  - Light
  - Dark
- 

### 3.3 Bootstrap Components

- card
  - card-img-top
  - card-body
    - card-title
    - card-text
- badge
- alert
- alert-info
- These are some of the components that can be used
  - However, there exist a wide array of components.
- Bootstrap Alternative Libraries
  - Foundation
  - Pure.css
  - Tailwind
  - UIKit
  - MVP