

Responsive Web Design and Bootstrap

the beginning of a new era in the Web

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SD & Gaming CoE
iTi

The background features a large, dark blue trapezoidal shape on the left side, which tapers towards the right. To the right of this shape is a white area. At the bottom, there is a horizontal orange bar that also tapers towards the right. The overall design is minimalist and geometric.

Day 1

Responsive Web Design

Responsive Web Design is an art,
its core concept is making web application
content works across any device

Responsive Web Design is where website created
redesign itself according to device size change.

Responsive Web Design

- Responsive Web Design was first introduced by Ethan Marcotte in 2009

<https://ethanmarcotte.com/>

- An approach to web design that provides an optimal viewing experience across a wide range of devices.

<https://responsivewebdesign.com/about/>

Think responsively.. Think Mobile First

Responsive Web Design

There are many sites for testing responsive designs

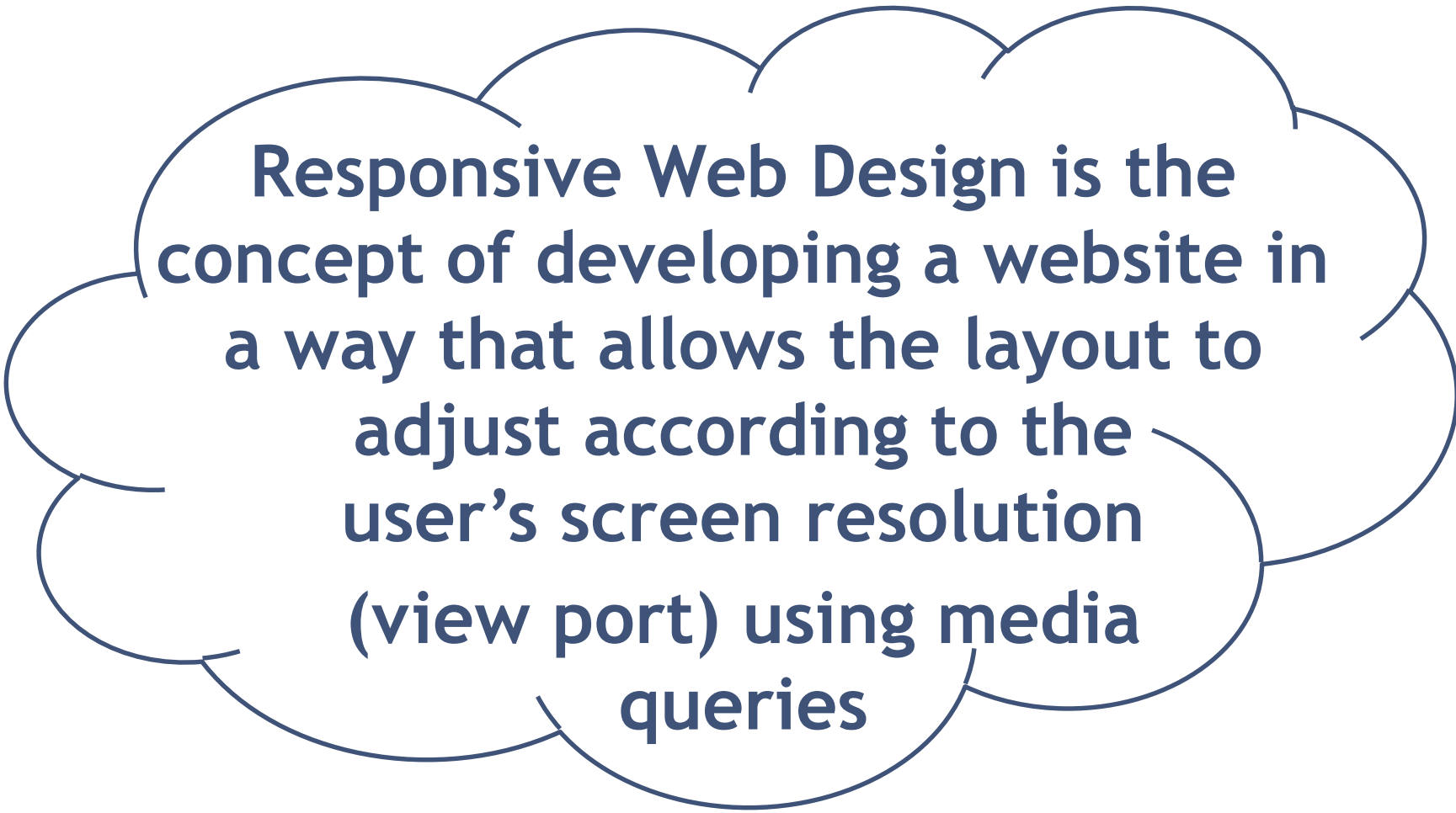

<http://mattkersley.com/responsive/>
www.responsinator.com

Inspiring responsive sites


<https://www.thinkwithgoogle.com/>
<http://alistapart.com/>
<http://gizmodo.com/>



Designing a different interface for every device is impossible.



Responsive Web Design is the concept of developing a website in a way that allows the layout to adjust according to the user's screen resolution (view port) using media queries



Viewport

- Viewport is defined area to display website independent on device screen
- Identify and control viewport and its initial scale factor to override useragent

- Syntax

<https://developer.mozilla.org/en-US/docs/Web/CSS/@viewport>

1. Using meta tag

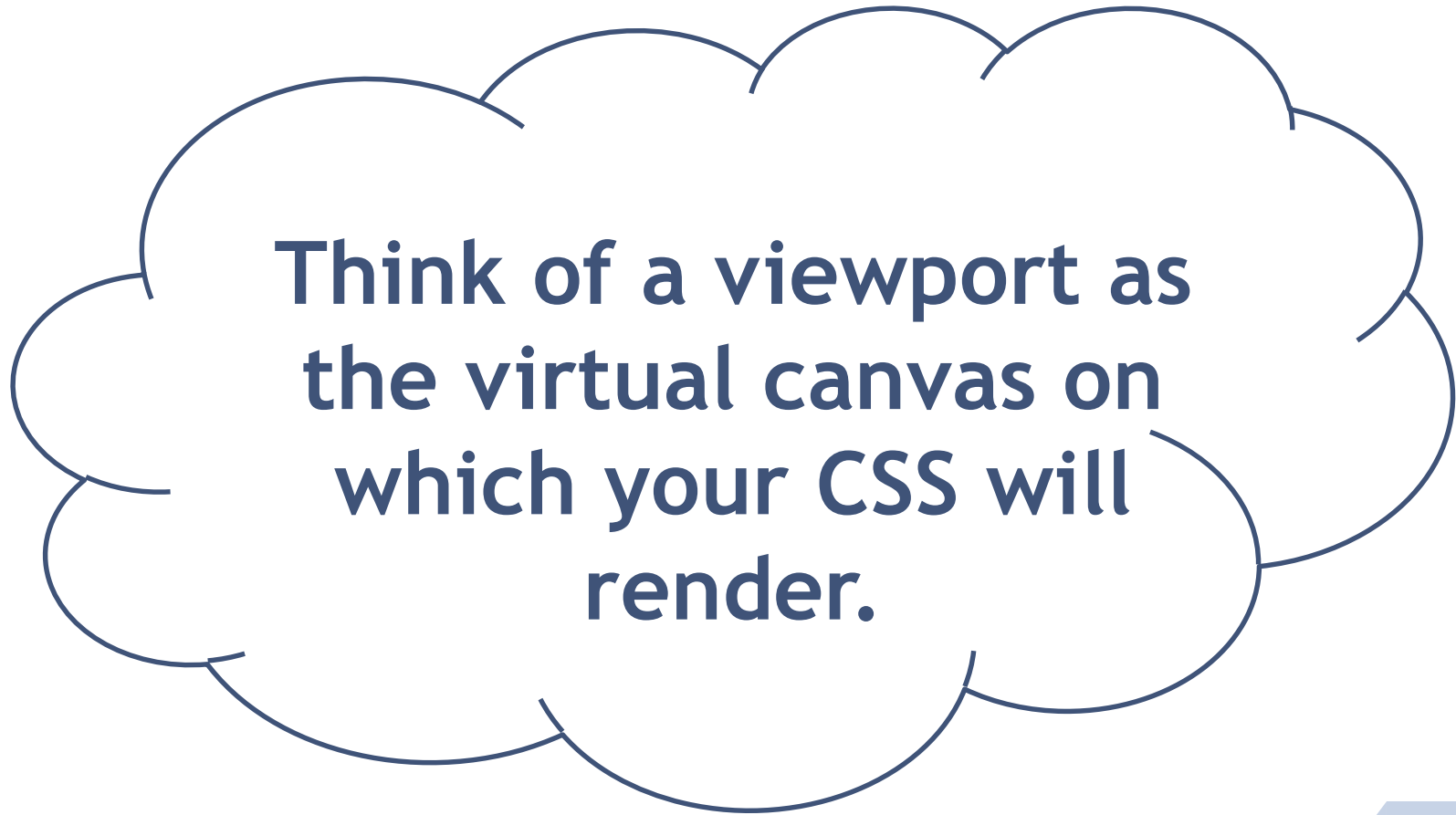

`<meta name="viewport" content="" />`

2. **@viewport** CSS syntax


still experimental technology

recommended to be prior to any media query style

- Its recommended to use **<meta>** since it is supported by all browsers while @viewport needs vendor prefix



**Think of a viewport as
the virtual canvas on
which your CSS will
render.**



Viewport

- A viewport is under your control.
 - ▷ It lets you set pixel values in “CSS pixels” regardless of the device pixels.
- At 100% zoom,
device pixels = CSS pixels
- As users zoom,
 - ▷ the zooming effect is created by expanding CSS pixels as much as is needed.
 - ▷ less CSS pixels fit in the viewport
 - ▷ the layout does not reflow

Viewport properties

- **width** = device-width
 - ▷ Tells the browser to set the viewport to exact size as the available screen px
- height = device-height (if needed)
- initial-scale=1 → zoom:1
 - ▷ Control the zoom content of the page
 - ▷ independent on viewport width
 - ▷ Its = 1 when **width** = device-width
- minimum-scale=1 → min-zoom:1
- maximum-scale=2 → max-zoom:2
- user-scalable=no → user-zoom : fixed

Note:

A zoom factor of **1.0** or **100%** corresponds to **no** zooming
Larger values zoom in.
Smaller values zoom out

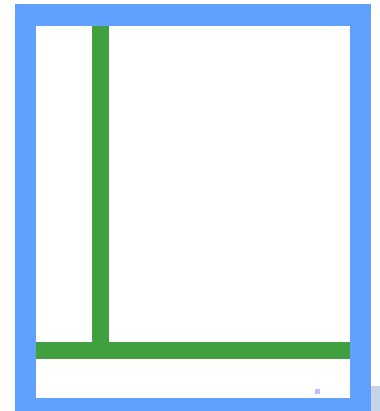
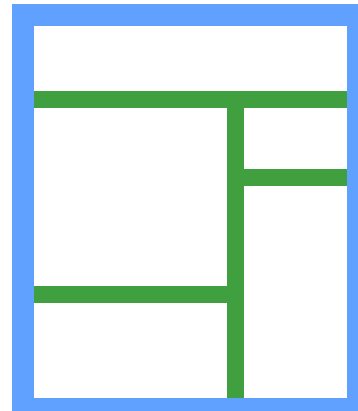
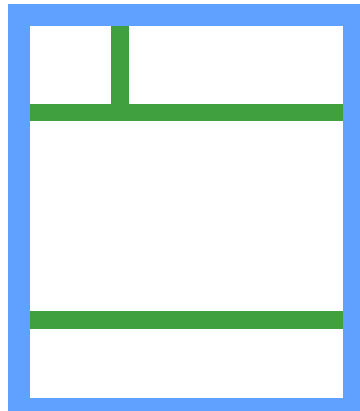
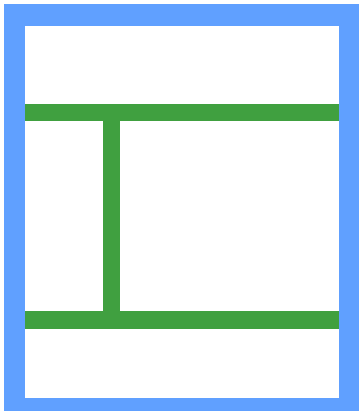
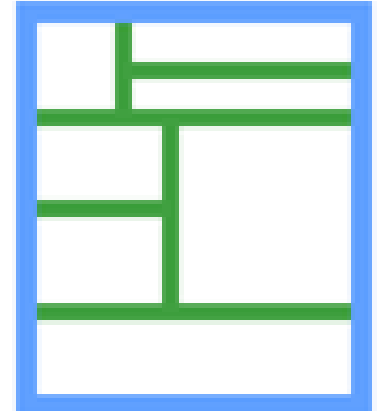
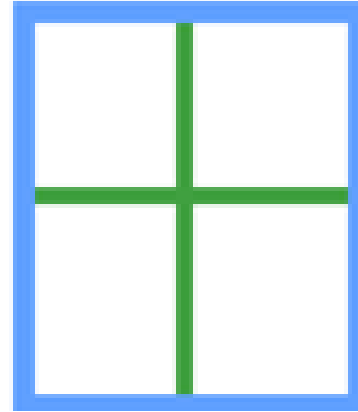
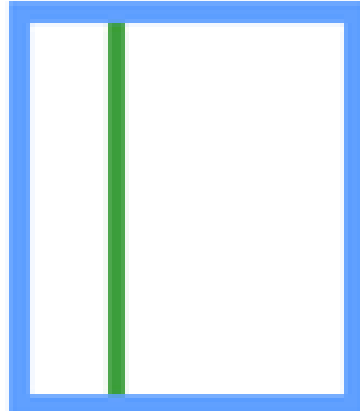
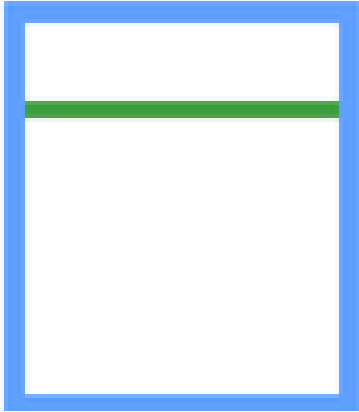
Note:

Zooming attributes should be avoided as it negatively impact accessibility

Terminologies

- **Responsive design** is where website isn't fixed with single size, It responds to users' device automatically
- **Adaptive design** is where created website redesign itself as per the device size
- **Negative space** is empty space between elements to it more readable & standout
 - ▷ padding or margins are great strategy to create it

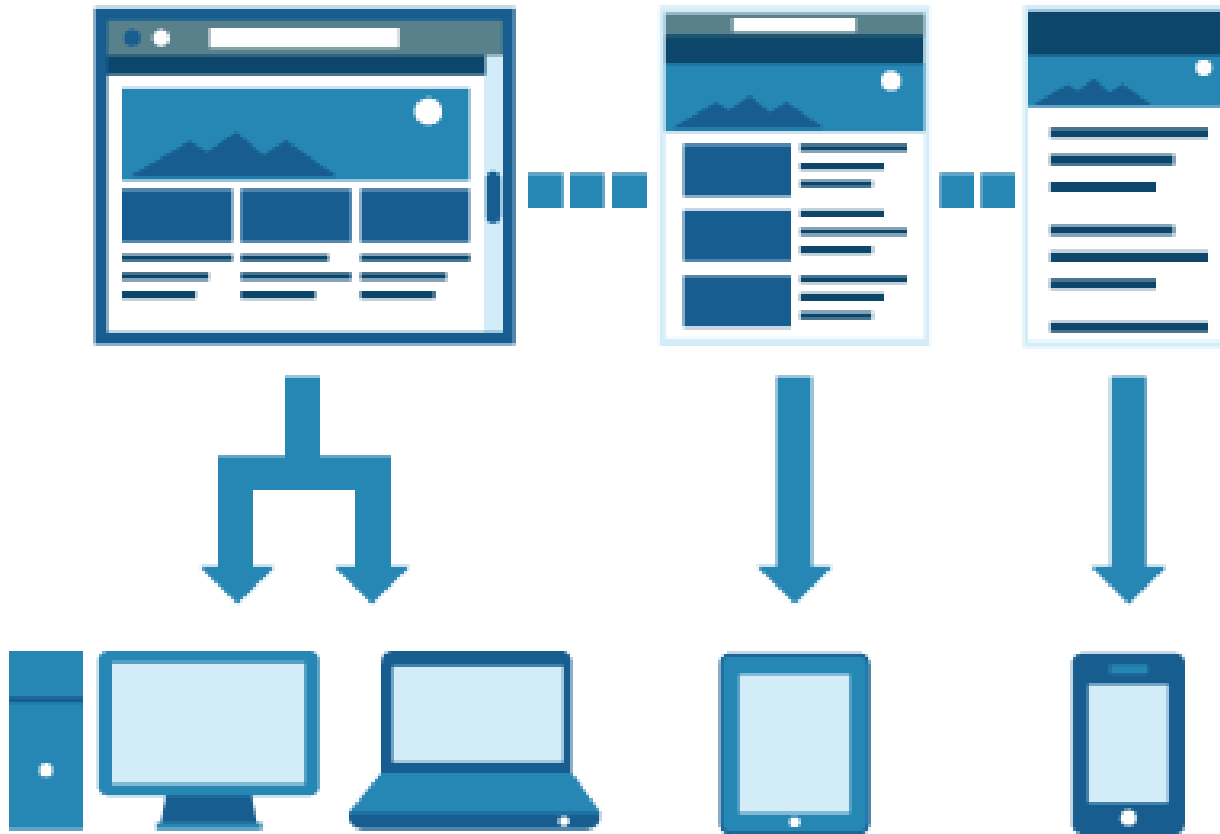
Different Web layout



Responsive WebSite



Adaptive WebSite



Responsive web design Fundamentals

- Grid-based layout
 - Flexible layout
- Media Queries
 - Adapt content to different screen size
- Flexible resizable Images & Media
 - Responding to screen size change

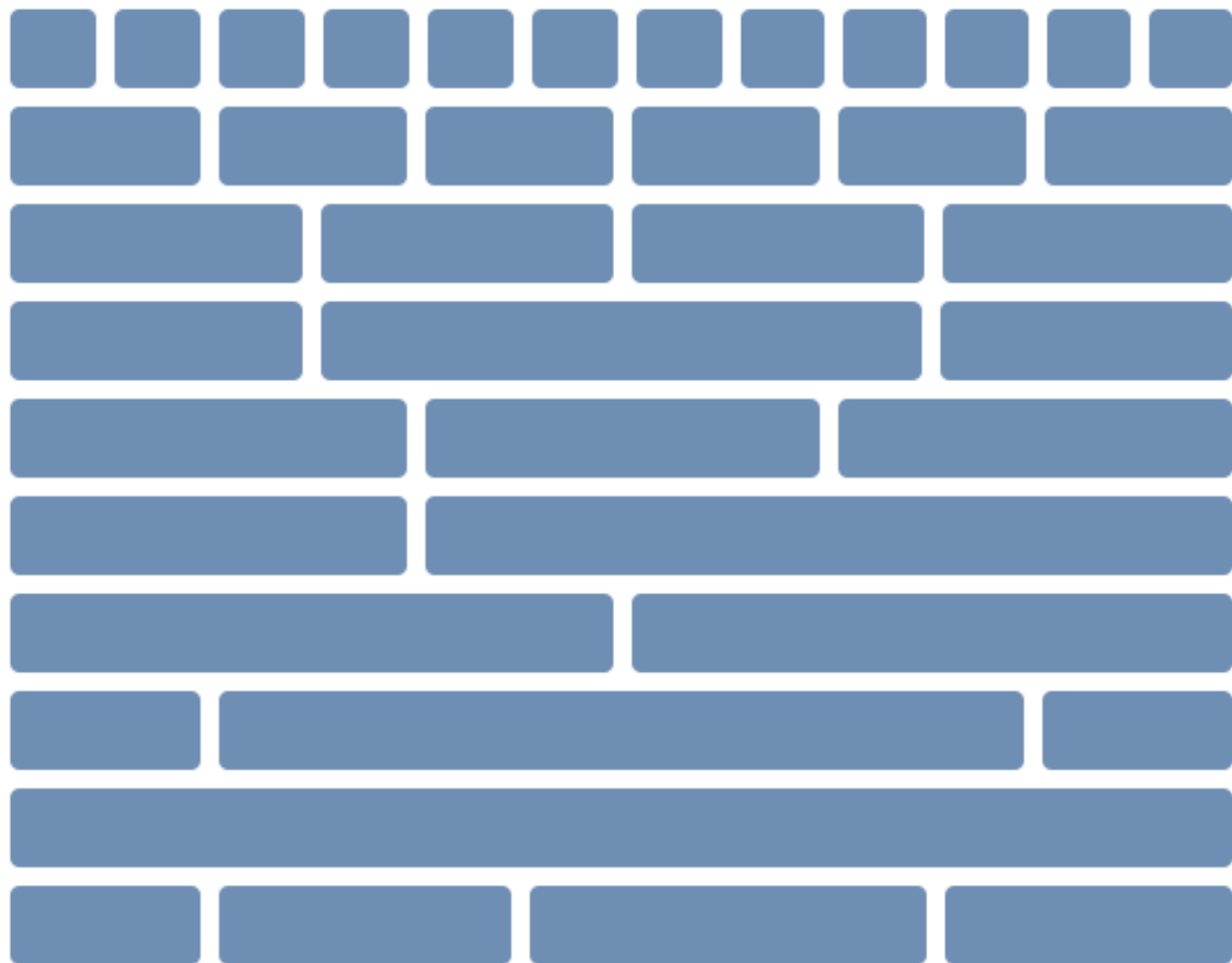
Grid-based layout

12 cols is a
guideline for
developing
responsive css
framework

1col→8.33%

2col→16.66%

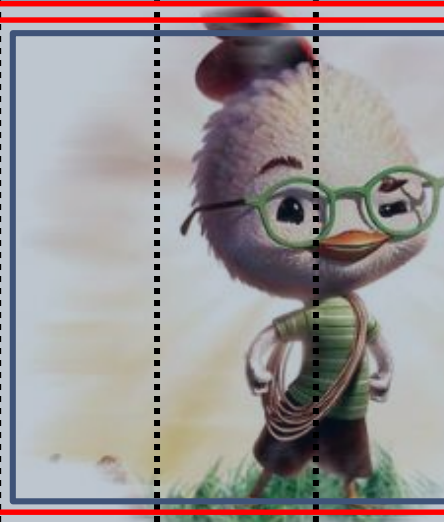
12col→100%



Bootstrap Framework

Another header

long parao
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This is a simple Demo

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Its a New Day!

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Blog design recommendation

1	2	3	4	5	6	7	8	9	10	11	12

Responsive Images

- Images should change size, based on screen resolution
- Image consume bytes
- To improve performance
 - ▷ Keep image as small as possible
 - ▷ Compressed as high as possible

Media Queries

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

- Media queries allow us to apply different sets of styles that respond to changes based on factors like screen size, orientation, resolution..
- Based on current width, a stylesheet is applied

<https://developer.mozilla.org/en-US/docs/Web/CSS/@media#media-query-list>

- Syntax

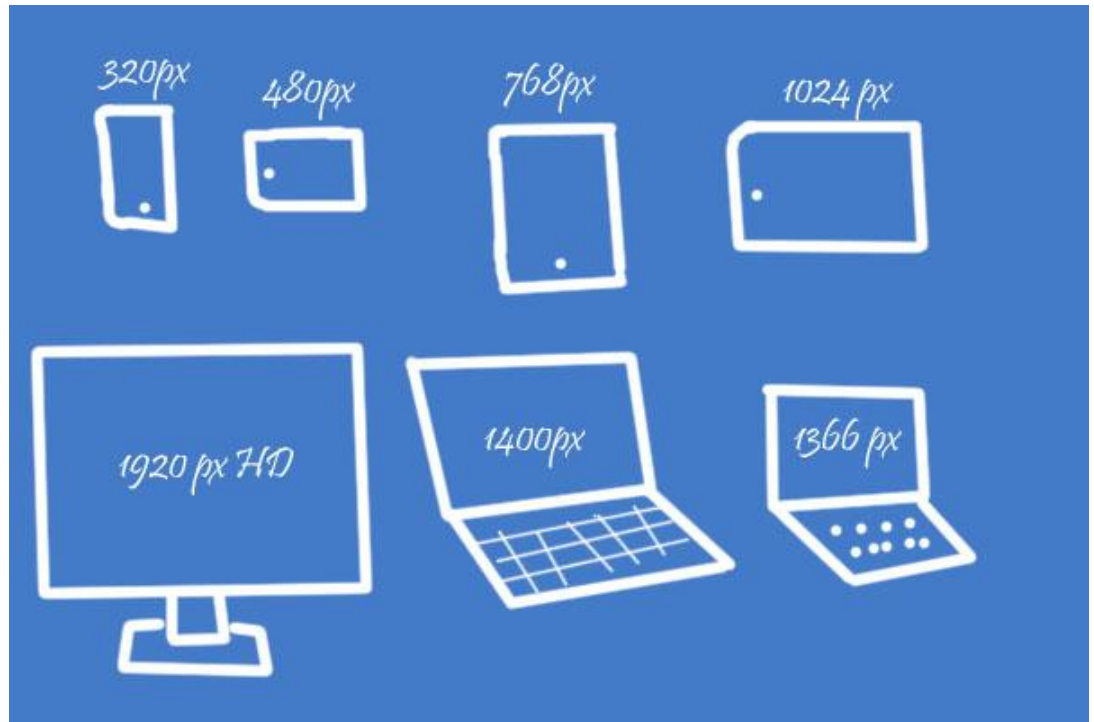
`<link rel="" media="screen and (exp)" href=".css" />`

`@media [not|only] screen [and] (exp) { }`

<https://chrome.google.com/webstore/detail/viewport-dimensions/kchdfagljlmhgapoonapmfngpadcjkhk?hl=en-US>

Media features

- width*
- height*
- device-width
- device-height
- orientation
- ...




* → min or max

Breakpoints

- Breakpoint is the moment when layout changes from layout to another
- Breakpoints are created with media query
- Usually triggered by viewport width
- Define breakpoint for layout and ensure that there is no overlap between them

Device	Width	Breakpoint expression
Smartphones	< 480px	(max-width:480px)
Portrait Tables	481px to 768px	(min-width:481px) and (max-width:768px)
Landscape Tablets desktop	768px to 940px	(min-width:769px) and (max-width:940px)
Default	940px and up	(min-width:941px)
Large Screens	1210px and up	(min-width:480px)



“We shouldn’t choose breakpoints at all..
Instead we should find them using our content
as a guide”

Anonymous

Its an art not a science



CSS Units

■ Units never heard about before

- ▷ vh → Viewport Height
- ▷ vw → Viewport width
- ▷ vmin → Viewport min
- ▷ vmax → Viewport max

1vh = 1% height

Reminder

<http://bradfrost.github.io/this-is-responsive/resources.html>

■ To create responsive layout

- ▷ Look at the design and consider the structure
- ▷ Combine breakpoints with fluid grid
- ▷ Use % or em units
- ▷ Once layout is done, start dealing with visual stuff
- ▷ Create a container and use flexbox, order, box-sizing and float properties when needed.

<http://flexbox.help/>

■ Each browser automatically chooses all kind of style like margins, padding, font... so any un-styled element will have browser's default style

■ Eric Mayer presented normalization; bootstrap automatically make it

Responsive Web Design Patterns

■ Most Common Responsive Web Design Patterns

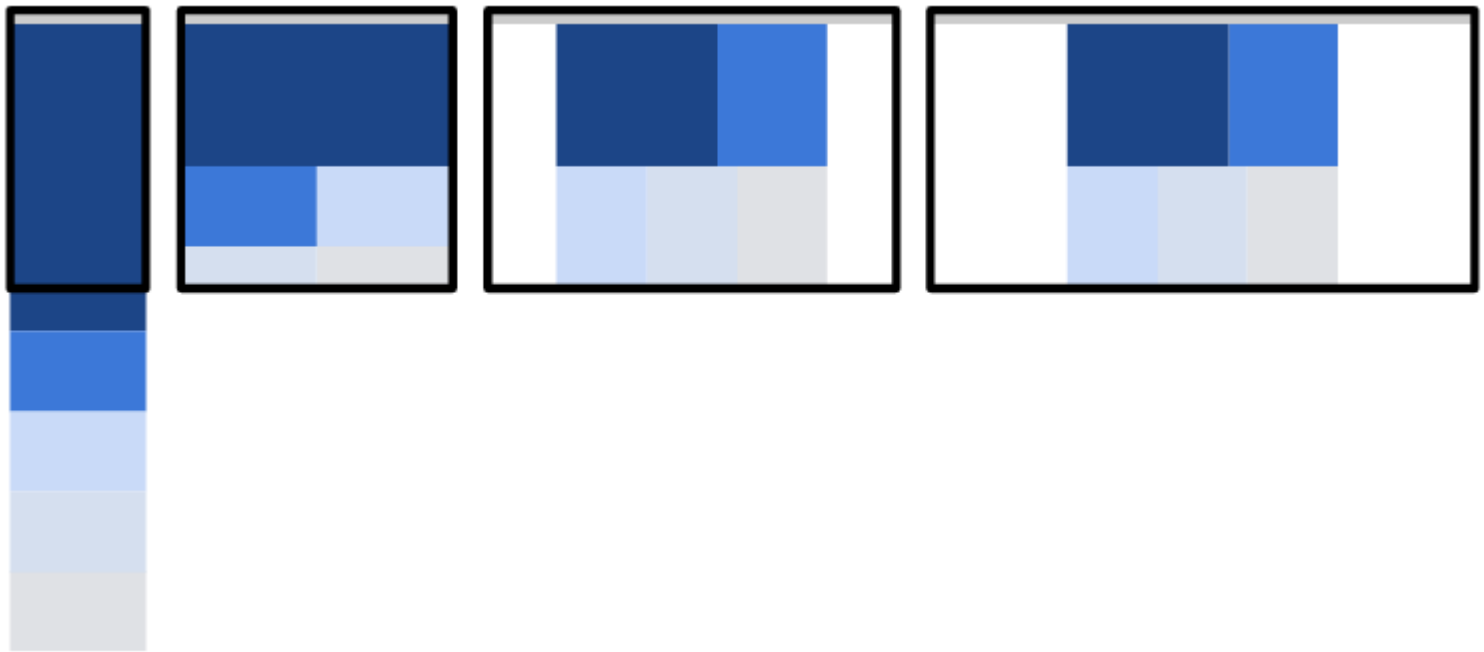
- ▷ Mostly fluid
- ▷ Column drop
- ▷ Layout shifter
- ▷ Off canvas
- ▷ ...

<https://developers.google.com/web/fundamentals/design-and-ui/responsive/patterns/?hl=en>

<https://bradfrost.github.io/this-is-responsive/patterns.html>

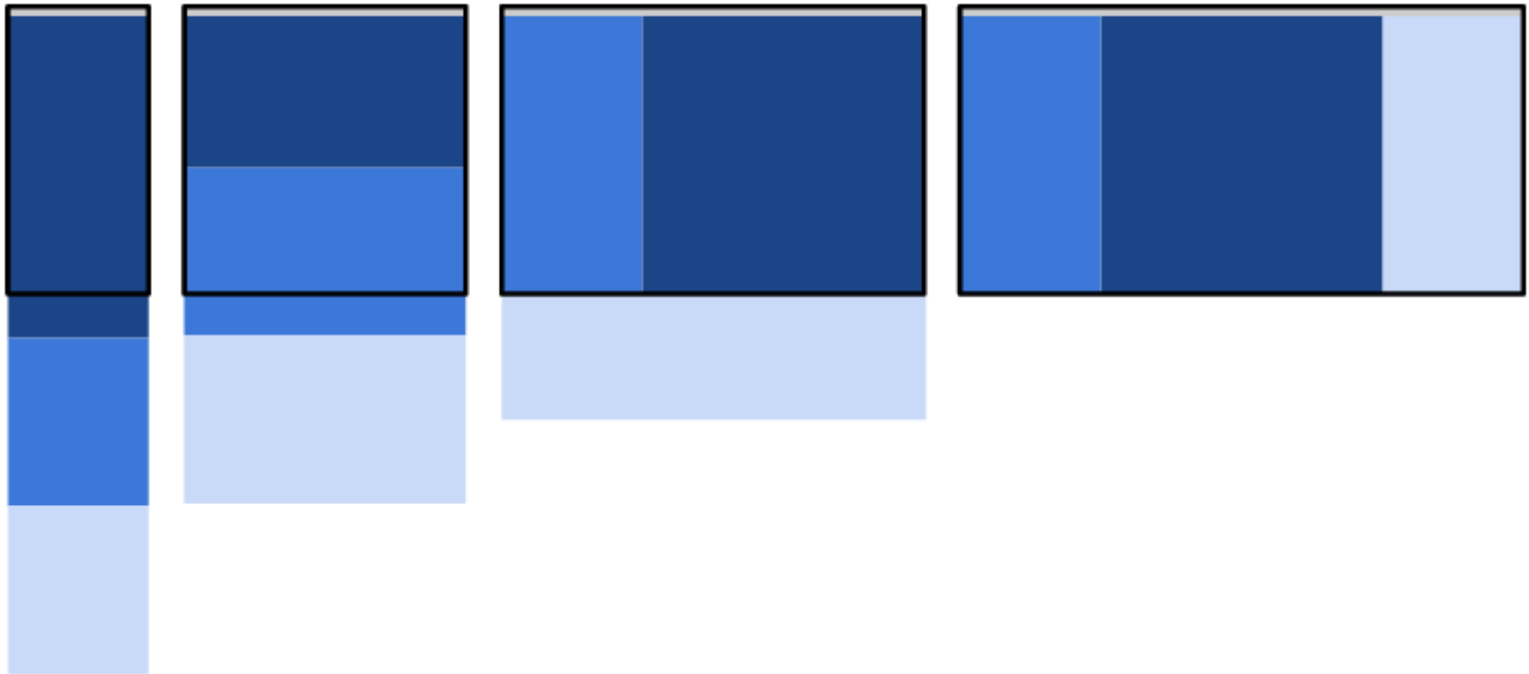
Most fluid

- adjusting the margins on wider screens
- smaller screens, the fluid grid causes the main content to reflow



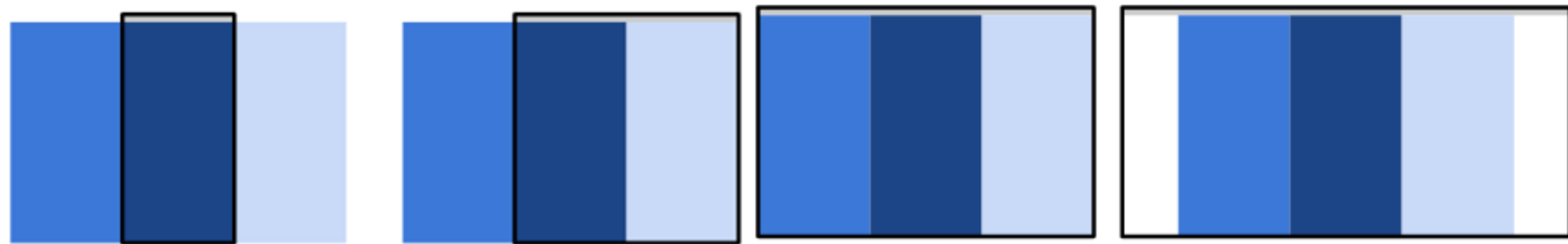
Column drop

- order of the elements is set using the order CSS property



Off Canvas

- The content is hidden off screen by using transform: `translate(-250px, 0)`.
- wider, the off-screen positioning is removed from the elements and they're shown within the visible viewport
- JavaScript is used to show the divs by adding an open class to the element to make visible.





Assignments