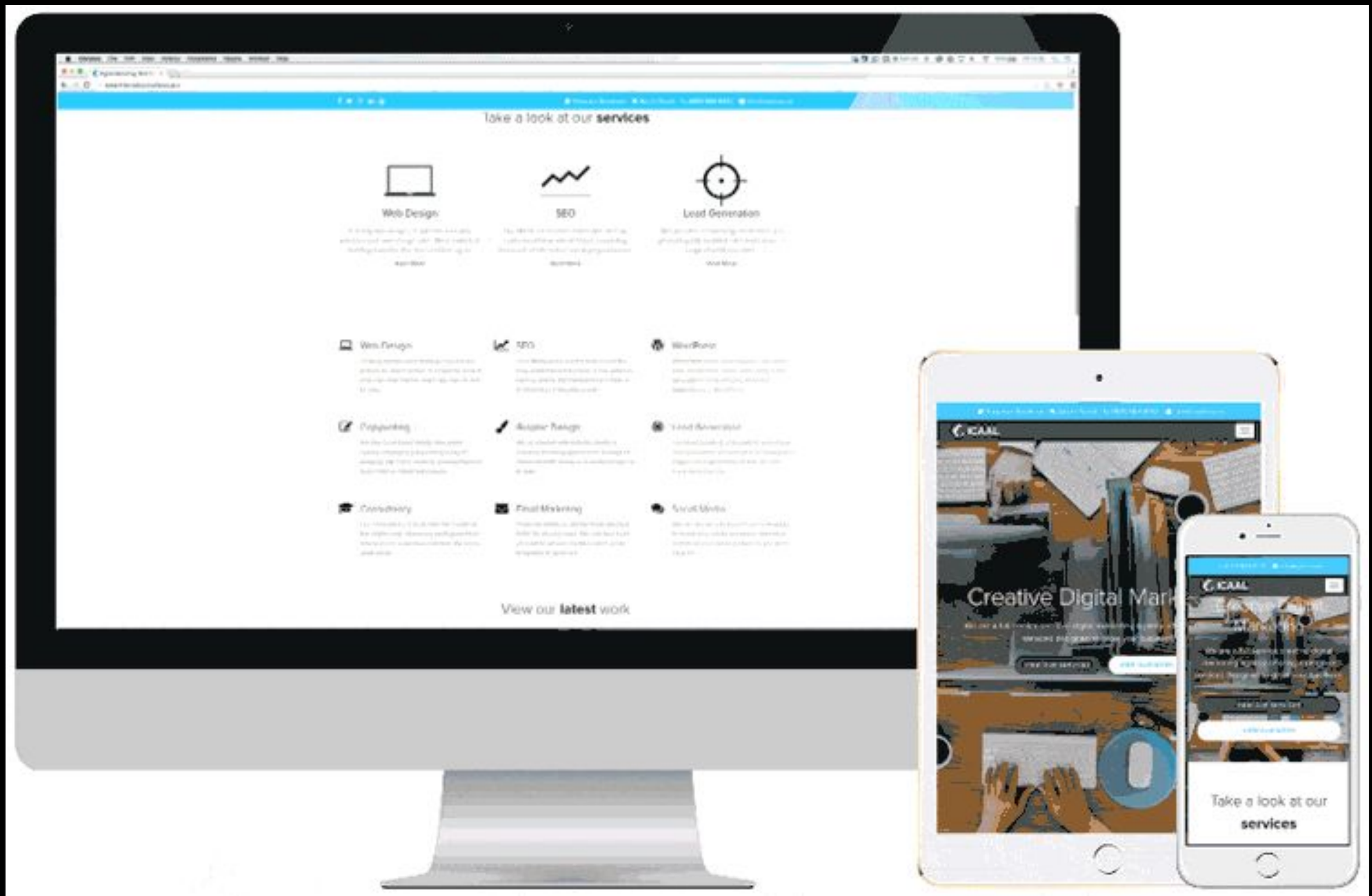
RESPONSIVE WEB DESIGN



RESPONSIVE WEB DESIGN

MOBILE TRAFFIC IS AS RELEVANT AS DESKTOP TRAFFIC NOW

WE SHOULD BUILD FOR THE TYPE OF SCREENS THAT WILL BE USED TO ACCESS OUR SITES - SOMETIMES OUR WEB EXPERIENCES ARE NOT MEANT FOR MOBILE AND THAT IS OK! SERIOUSLY, LET THE CONTENT DO THE TALKING!!!!!!!

METHODS:
1.ALTERNATIVE STYLE SHEETS, E.G. MOBILE.CSS
2.MEDIA QUERIES - FIGURE OUT WHAT RESOLUTION OF DEVICE IT'S BEING SERVED ON
3. FLEXIBLE IMAGES AND FLUID GRIDS
4. FONT ICONS OR SVG

RESPONSIVE WEB DESIGN

MEDIA QUERY

```
<link rel="stylesheet" media='(min-width: 140px) and (max-width:
380px)' href="phone.css"/>
<link rel="stylesheet" media='(min-width: 381px) and (max-width:
700px)' href="tablet.css"/>

@media (max-width: 600px){
    body {
            color: white;
    }
}
```

MOST COMMON INSTANCES USE `min-width` `max-width` PROPERTIES BUT THERE ARE MANY MORE TO FINE TUNE YOUR SITE OR APP'S FUNCTIONALITY AND RESPONSIVENESS - READ UP ON MEDIA QUERY SYNTAX IF YOU REALLLLLLY WANT TO KNOW

ARE BASICALLY "IF" STATEMENTS

RESPONSIVE WEB DESIGN

MOBILE FIRST DESIGN

DESIGN FOR MOBILE BEFORE DESIGNING FOR DESKTOP OR ANY OTHER DEVICE (THIS WILL MAKE THE PAGE DISPLAY FASTER ON SMALLER DEVICES)

INSTEAD OF CHANGING STYLES WHEN THE WIDTH GETS SMALLER, WE SHOULD CHANGE THE DESIGN WHEN THE WIDTH GETS LARGER

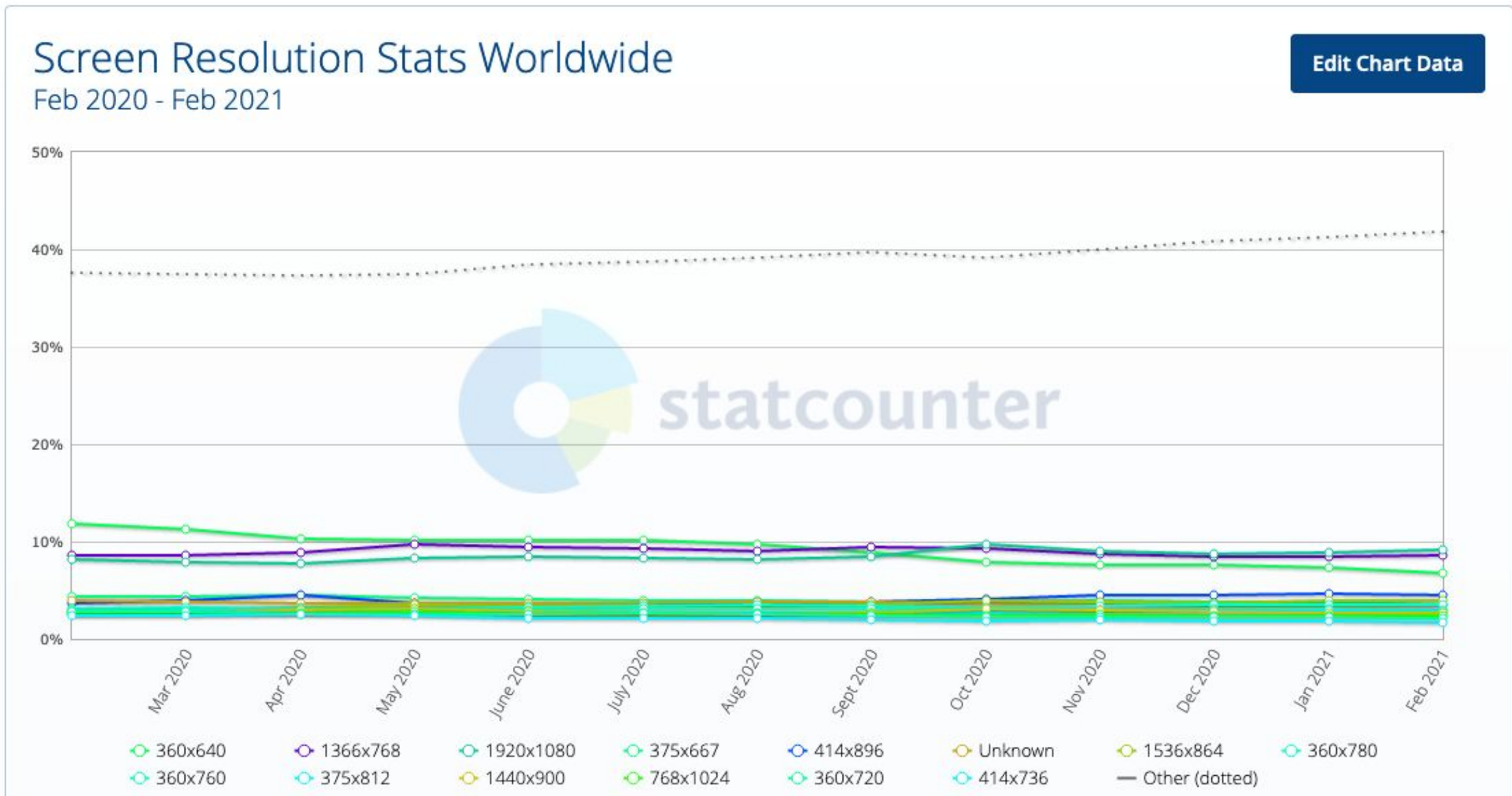
SO IF YOU HAVE A SINGLE STYLE SHEET INCLUDING MEDIA QUERIES, YOUR BASE STYLE SHEET SHOULD CONTAIN ALL STYLES FOR MOBILE THEN THE MEDIA QUERIES CONTROL STYLES FOR LARGER DEVICES

RESPONSIVE WEB DESIGN

COMMON BREAKPOINTS

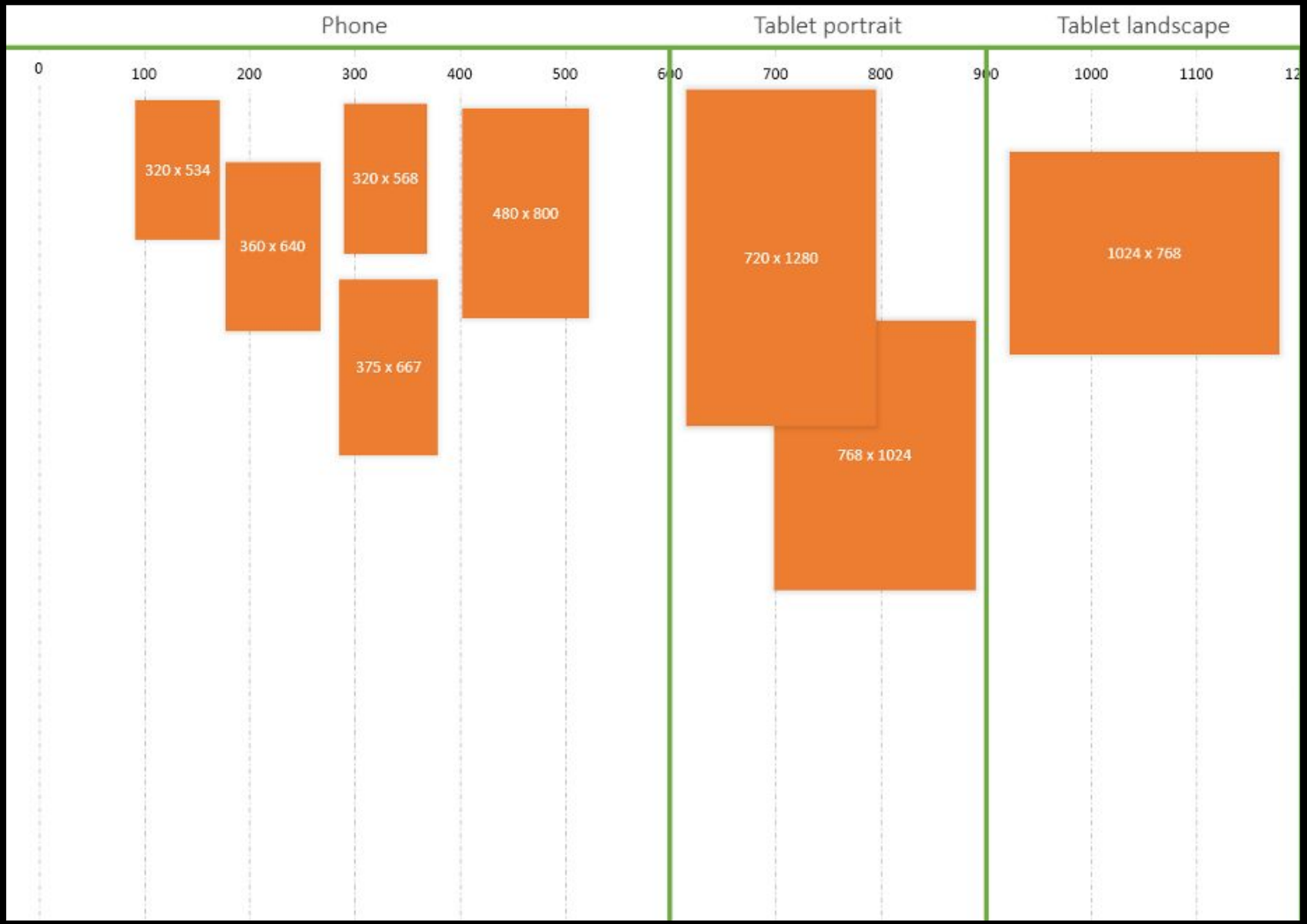
1920x1080	1366x768	360x640	414x896	1536x864	375x667
9.14%	8.63%	6.75%	4.45%	3.92%	3.52%

Screen Resolution Stats Worldwide - February 2021



RESPONSIVE WEB DESIGN

COMMON BREAKPOINTS



RESPONSIVE WEB DESIGN

COMMON BREAKPOINTS

RESPONSIVE WEB DESIGN

COMMON BREAKPOINTS

320px — 767px: Mobile devices (portrait and landscape)

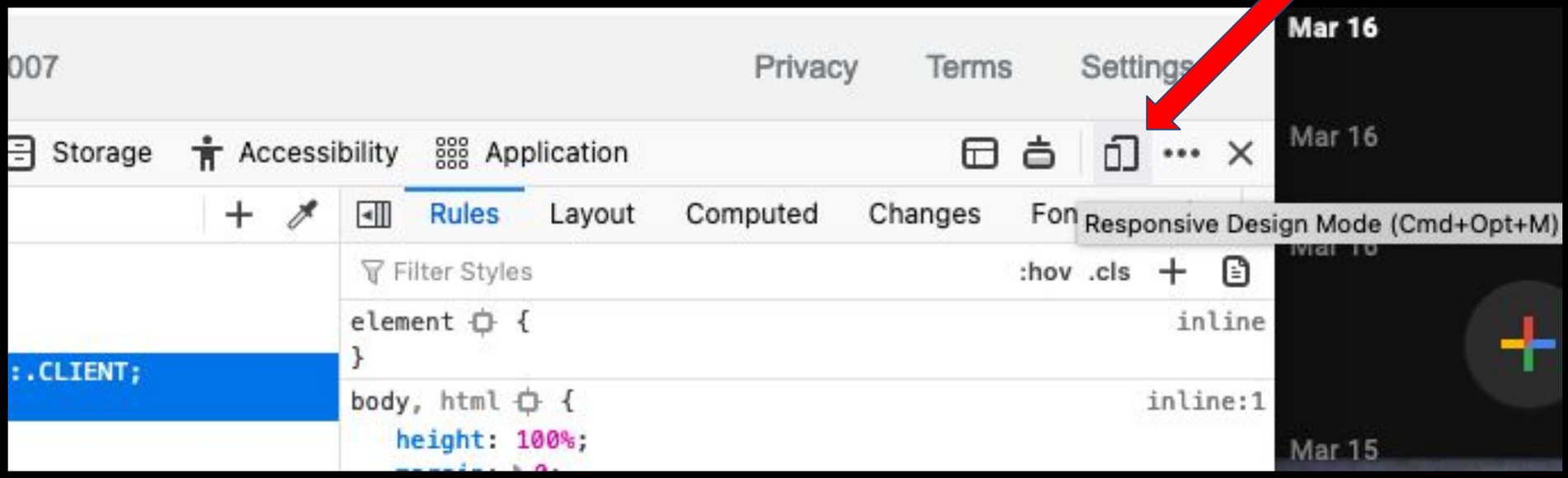
768px — 1024px: iPads, Tablets

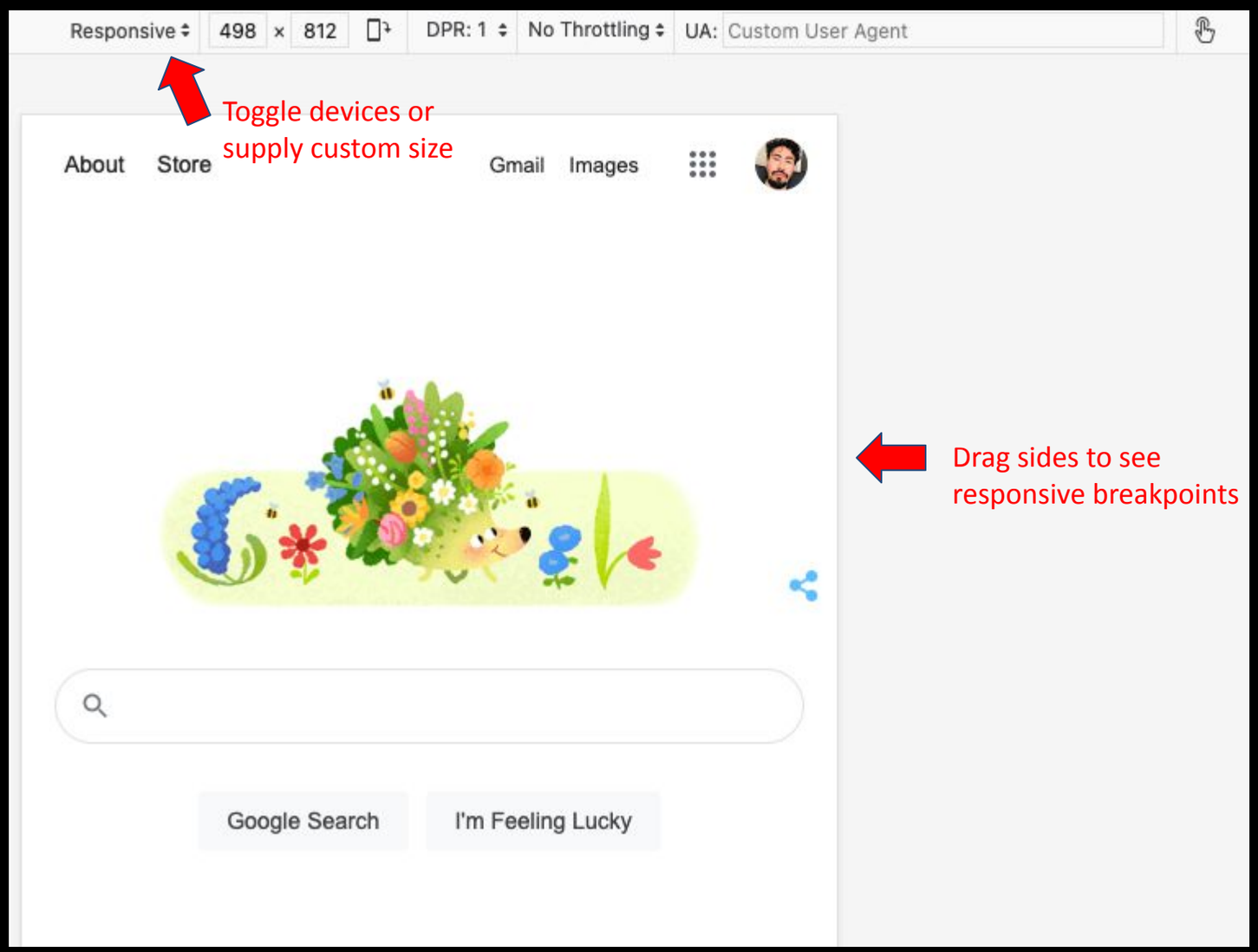
1025px — 1366px: Small Laptop

1367 — 1920px: Laptop, Large Laptop, Monitors

1921px+: Extra large screens, TV

RESPONSIVE WEB DESIGN





Drag sides to see responsive breakpoints

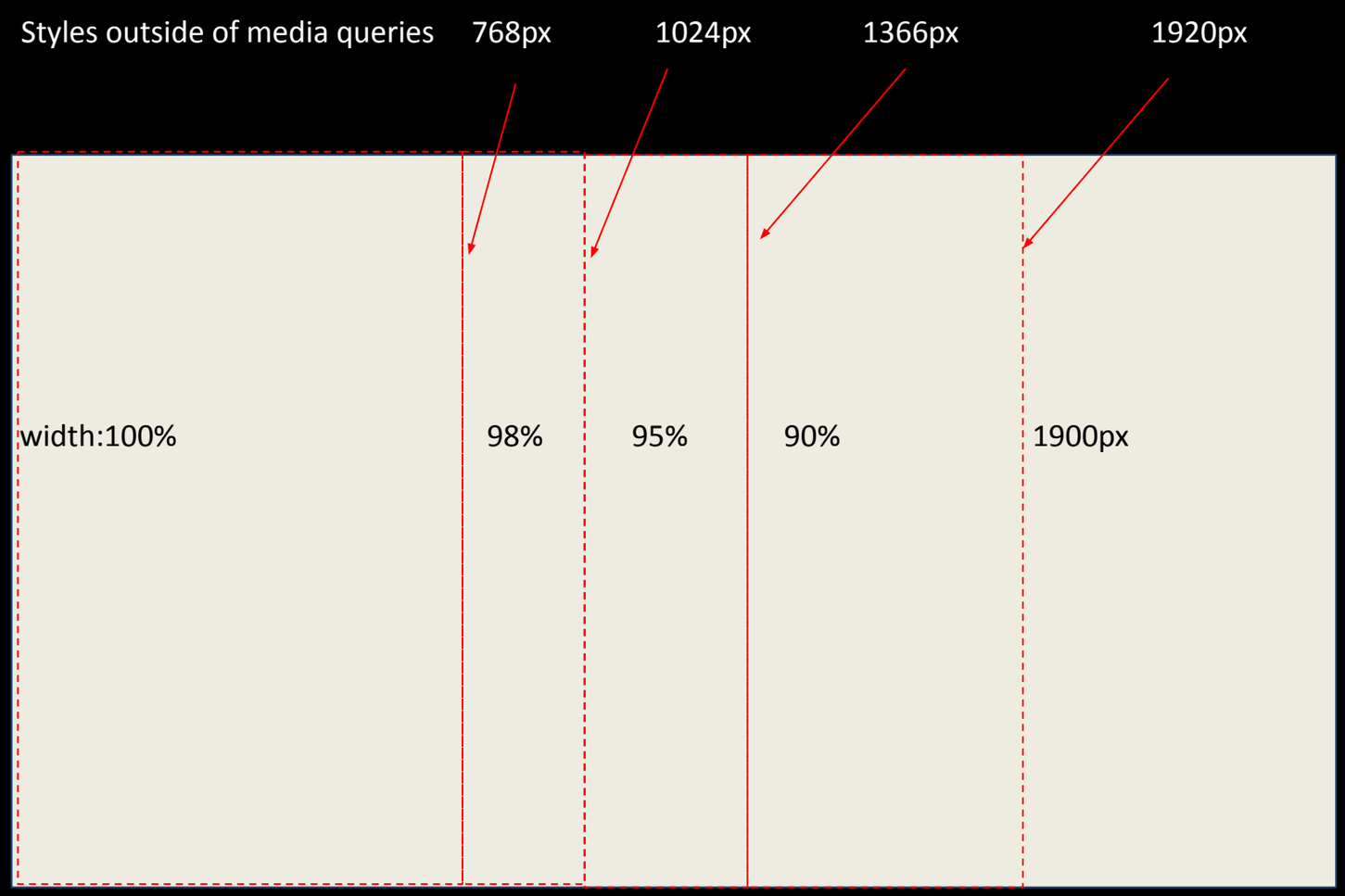
RESPONSIVE WEB DESIGN

COMMON BREAKPOINTS FOR MOBILE FIRST DESIGN

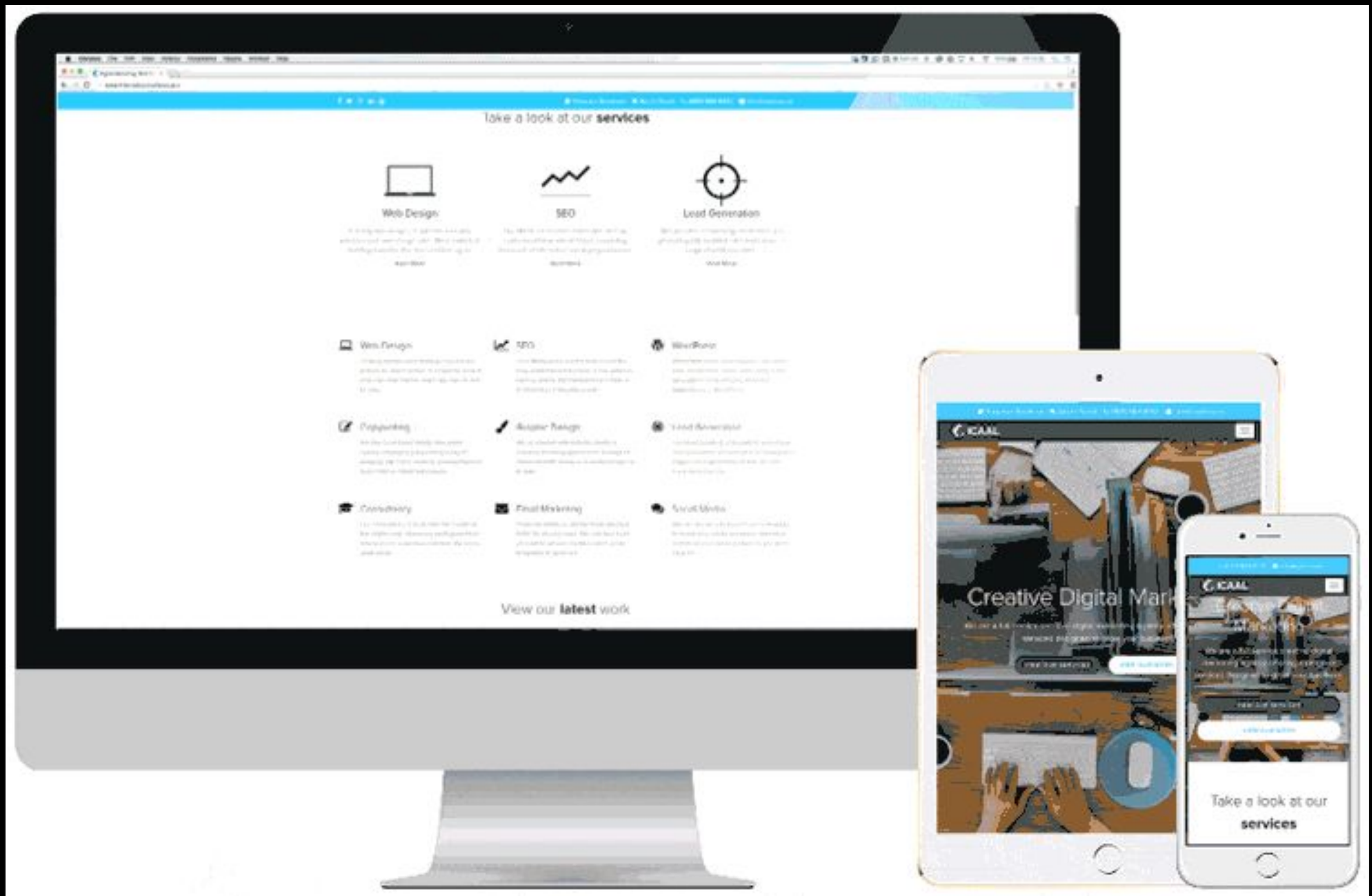
**normal styles address smallest screens then supply media queries to target larger screens. To avoid unexpected cascade: order of queries goes from smallest to largest when using min-width to est breakpoints.

```
body {width: 100%}

@media (min-width: 768px){
   body {
                width:98%;
        }
}
@media (min-width: 1024px){
   body {
                width:95%;
        }
}
@media (min-width: 1366px){
   body {
                width:90%;
        }
}
@media (min-width: 1920px){
   body {
                width: 1900px;
        }
}
```



RESPONSIVE WEB DESIGN



RESPONSIVE WEB DESIGN

COMMON BREAKPOINTS FOR DESKTOP FIRST DESIGN

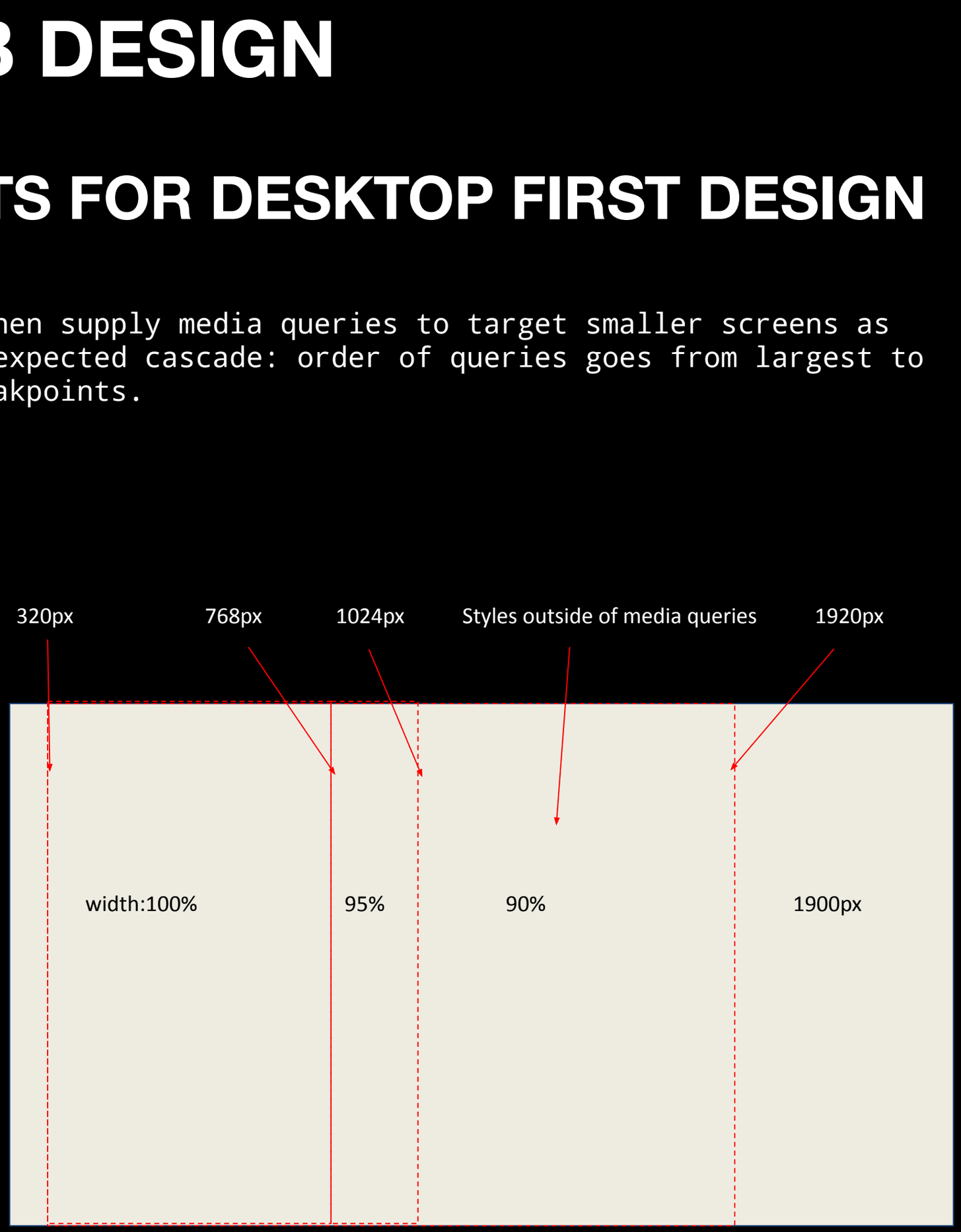
```
**normal styles address larger screens then supply media queries to target smaller screens as well as much larger screens. To avoid unexpected cascade: order of queries goes from largest to smallest when using max-width to est breakpoints.

body{ width: 90%; }

@media (min-width: 1920px){
   body {
                  width: 1900px;
        }
}

@media (max-width: 1024px){
   body {
                  width:95%;
        }
}


@media (min-width: 320px) and
(max-width: 768px){
   body {
                  width:100%;
        }
}
```



RESPONSIVE WEB DESIGN

UNDERSTANDING VIEWPORT AND PIXELS AND DENSITY

RESOLUTION - MAX NUMBER OF PIXELS ON A DISPLAY (W X H : 1920 X 1080)

PPI - PIXELS PER INCH OR PIXEL DENSITY (IPHONE X HAS 453 PPI)

IN OUR CSS, WE USE WHAT IS CALLED CSS PIXELS - AN ABSTRACTION CREATED BY W3C FOR WEB DEVELOPMENT AND IS MOSTLY UNRELATED TO THE ACTUAL DEVICE HARDWARE PIXELS AND PPI

AT ONE POINT IN TIME (LOOOOONG AGO) 1 DEVICE PIXEL = 1 CSS PIXEL

BUT NOW WE HAVE “RETINA DISPLAYS” AND OTHER INNOVATIONS, WHICH HAS CRAMMED MORE PIXELS IN THE SAME AMOUNT OF SPACE

PIXEL RATIO - A MULTIPLIER USED TO MAP HARDWARE PIXELS TO CSS PIXELS

IPHONE 7 = 2.0 PIXEL RATIO // IPHONEX = 3.0 PIXEL RATIO // SAMSUNG S8 = 4.0

CSS PIXEL = DEVICE PIXELS / DEVICE PIXEL RATIO

RESPONSIVE WEB DESIGN

FLEXIBLE IMAGES

USE RELATIVE SIZING

```
img{

    width: 50%;

}
```

RESPONSIVE WEB DESIGN

FLEXIBLE IMAGES

SRCSET

THIS ATTRIBUTE FOR THE IMG ELEMENT ALLOWS US TO GUIDE THE BROWSER IN CHOOSING THE BEST IMAGE AND IMAGE SIZE FOR THE WEBSITE.

RETINA DISPLAYS

```
<img src="photo.png" srcset="photo@2x.png 2x,
photo@3x.png 3x" alt=”trees”>
```

THE ABOVE CODE SUPPLIES A PHOTO.PNG AS THE NORMAL PHOTO FOR THE BROWSER TO USE AND AN ALTERNATIVE FOR RETINA/HIGH DENSITY DISPLAYS.

RESPONSIVE WEB DESIGN

FLEXIBLE IMAGES

SRCSET

THIS ATTRIBUTE FOR THE IMG ELEMENT ALLOWS US TO GUIDE THE BROWSER IN CHOOSING THE BEST IMAGE AND IMAGE SIZE FOR THE WEBSITE.

```
<img src="lighthouse-200.jpg"
     srcset= "lighthouse-100.jpg 100w, lighthouse-200.jpg 200w,
              lighthouse-400.jpg 400w, lighthouse-800.jpg 800w,
              lighthouse-1000.jpg 1000w, lighthouse-1400.jpg 1400w,
              lighthouse-1800.jpg 1800w" alt="a lighthouse">
```

RESPONSIVE WEB DESIGN

FLEXIBLE IMAGES

SRCSET FOR AN IMAGE THAT IS TO DISPLAY AT HALF BROWSER WIDTH

```
---index.html---
<img src="lighthouse-200.jpg"
     srcset= "lighthouse-100.jpg 100w,    lighthouse-200.jpg 200w,
              lighthouse-400.jpg 400w, lighthouse-800.jpg 800w,
              lighthouse-1000.jpg 1000w, lighthouse-1400.jpg 1400w,
              lighthouse-1800.jpg 1800w" alt="a lighthouse">
---style.css----
img{ width: 50vw;}
```

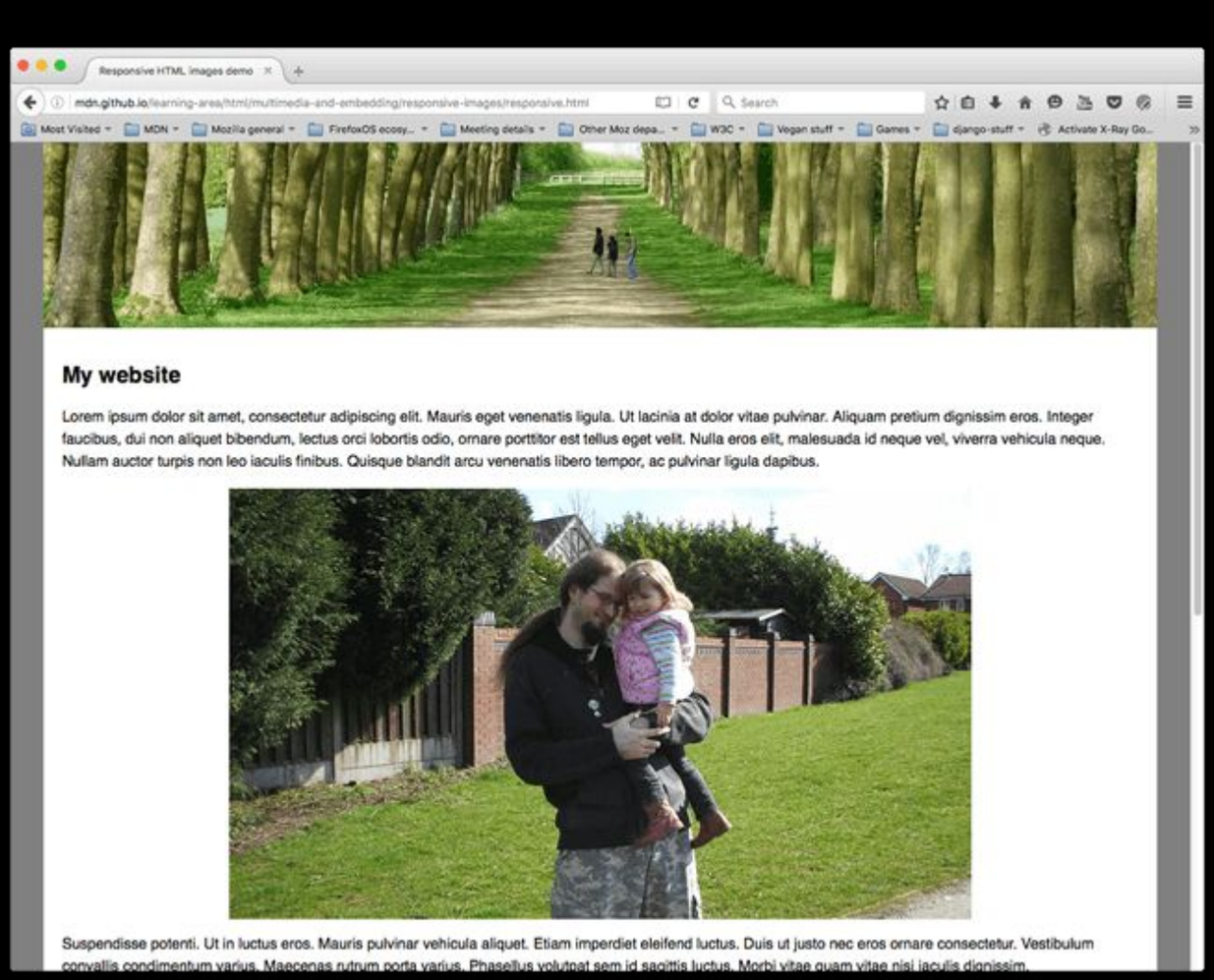
Browser width	Device pixel ratio	Image used	Effective resolution
400px	1	**200.png**	1x
400px	2	**400.png**	2x
320px	2	**400.png**	2.5x
600px	2	**800.png**	2.67x
640px	3	**1000.png**	3.125x
1100px	1	**1400.png**	1.27x

RESPONSIVE WEB DESIGN

FLEXIBLE IMAGES

PICTURE ELEMENT TO CONTROL ART DIRECTED IMAGES FOR LAYOUT

```
<picture>
   <source media="(max-width:799px)" srcset="cropped-image.jpg">
   <img src="original.jpg" alt="Cool Image">
</picture>
```



RESPONSIVE WEB DESIGN

ZOOM

```
<meta name="viewport" content="width=device-width,
initial-scale=1.0">
```

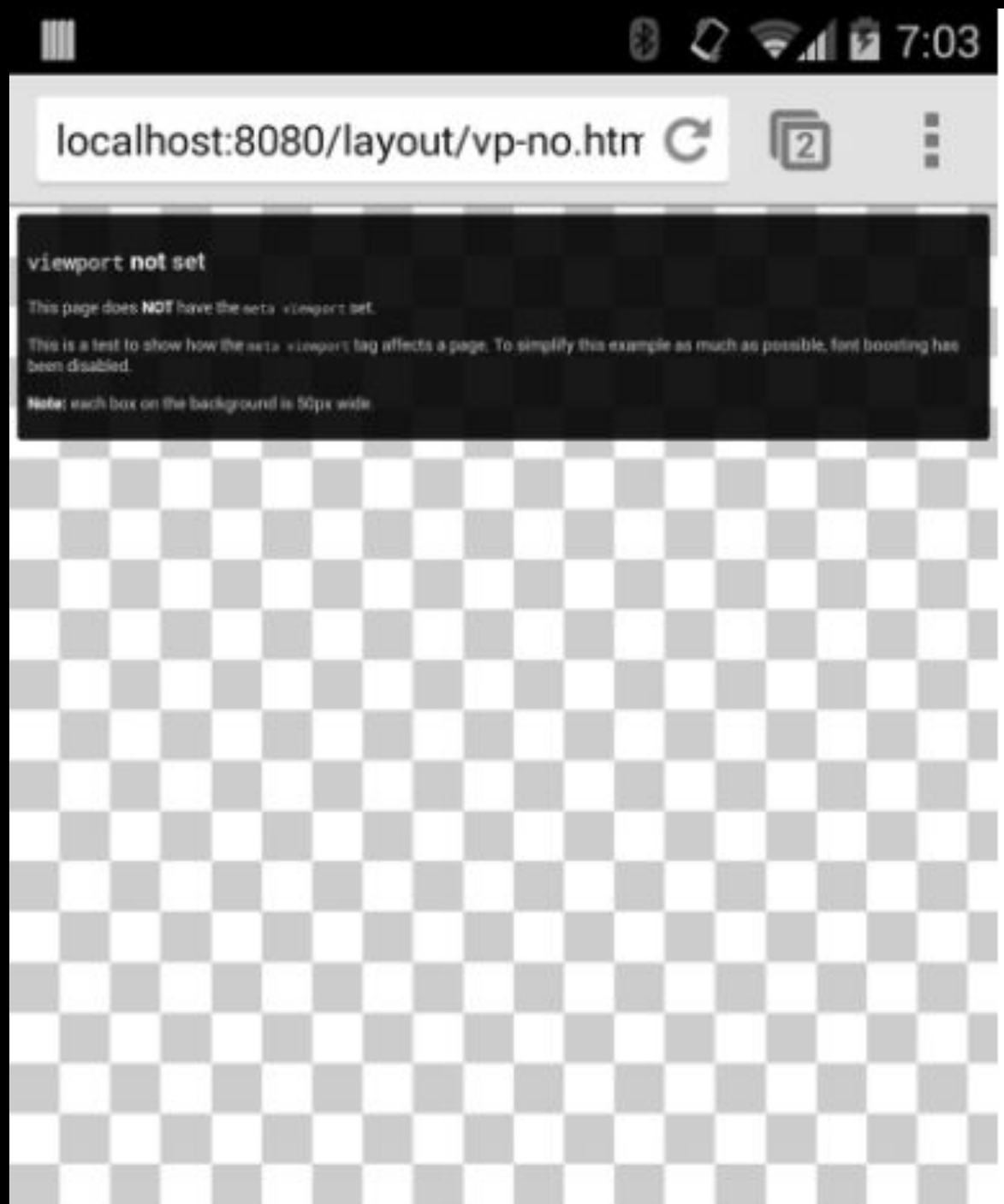
PAGES OPTIMIZED FOR A VARIETY OF DEVICES MUST INCLUDE A META VIEWPORT TAG IN THE HEAD OF THE DOCUMENT. A META VIEWPORT TAG GIVES THE BROWSER INSTRUCTIONS ON HOW TO CONTROL THE PAGE'S DIMENSIONS AND SCALING.

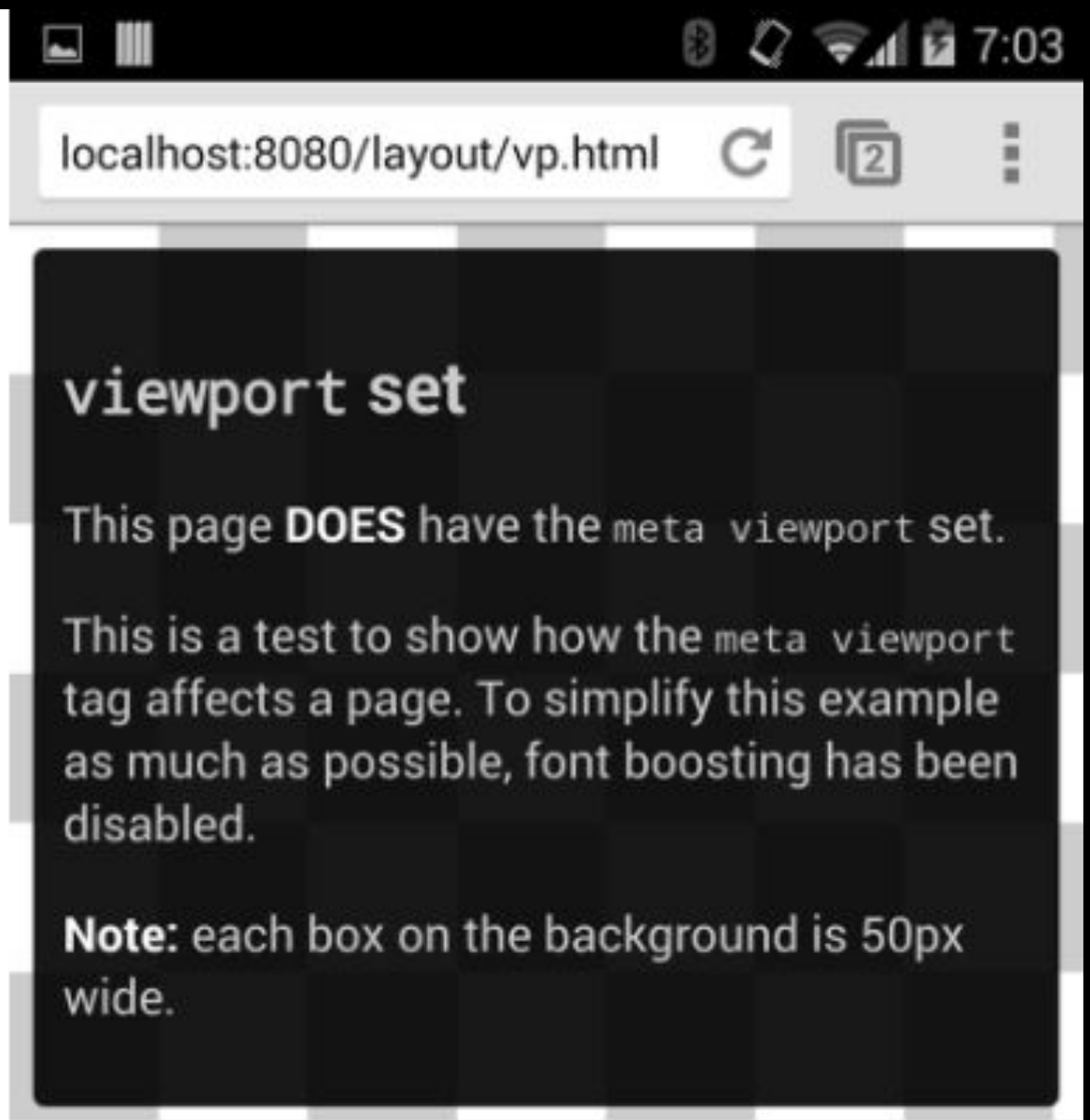
`width=device-width` **match the screen's width in device-independent pixels.**

`initial-scale=1` **establishes a 1:1 relationship between CSS pixels and device-independent pixels.**

RESPONSIVE WEB DESIGN

ZOOM





RESPONSIVE WEB DESIGN

ZOOM