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Introduction to CSS3 Media Queries

CSS3 Media Queries Enables the web designers to develop Responsive Web Pages.

"Responsive Design" is the strategy of making a site that "responds" to the browser and device.

Users now use mobile phones, small notebooks, and tablet devices such as iPad or Playbook to access the web.

So the traditional fixed width design doesn't work anymore.

Web design needs to be adaptive.

The layout needs to be automatically adjusted to fit all display resolution and devices

Fixed Layouts & Fluid Layouts

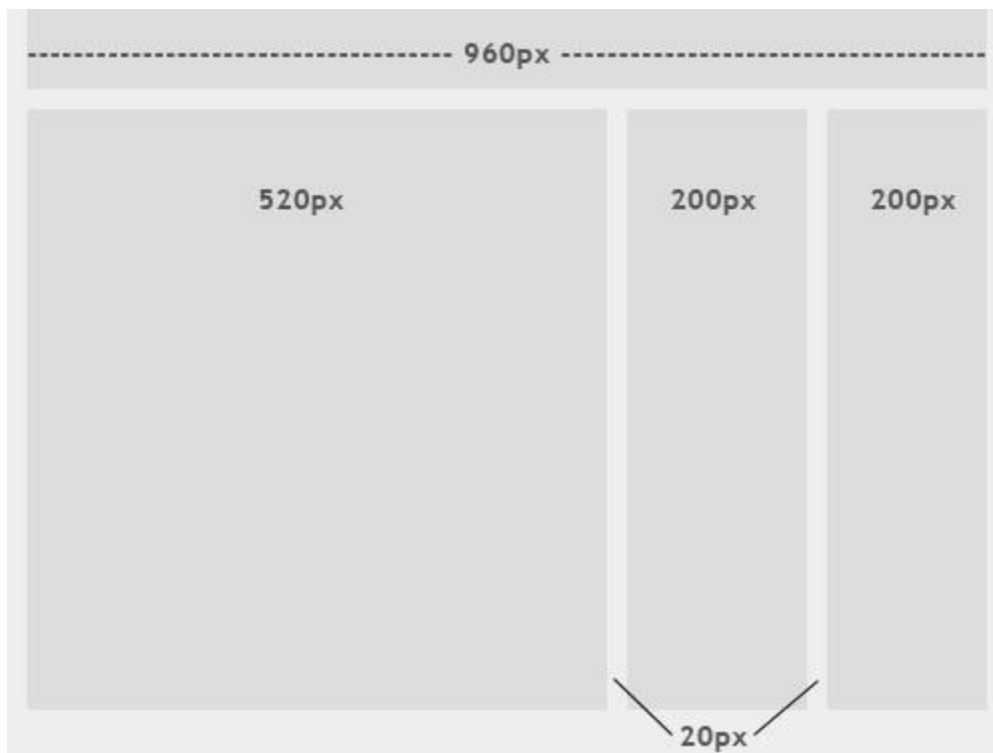
Difference between Fixed and Fluid Layouts

FIXED WEBSITE LAYOUTS

A fixed website layout has a wrapper that is a fixed width, and the components inside it have either percentage widths or fixed widths.

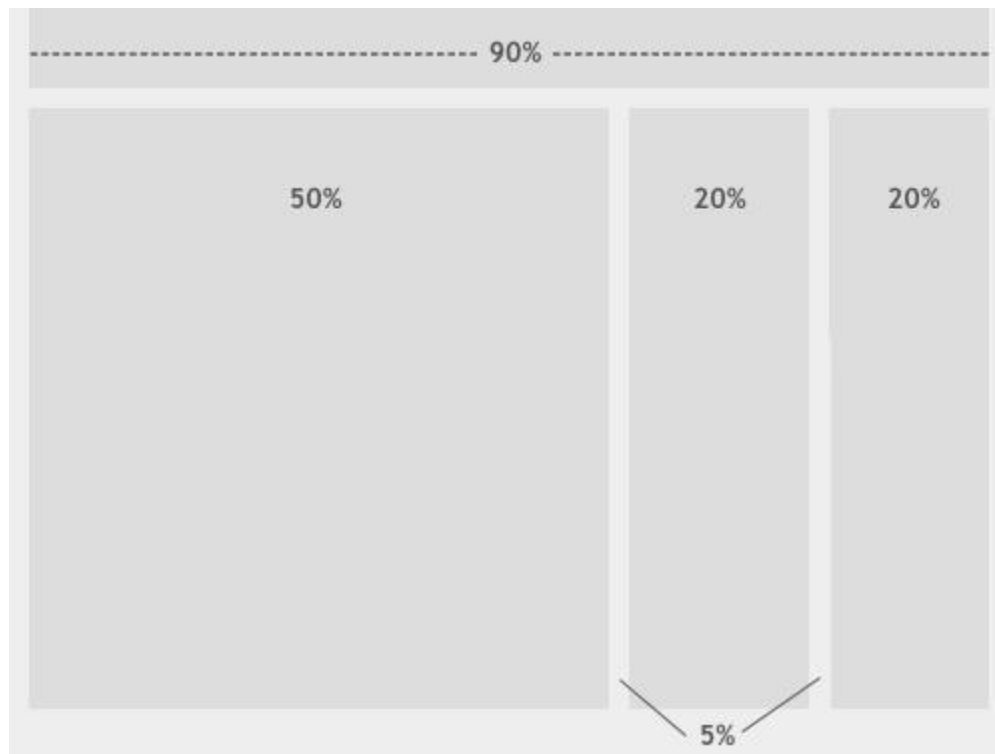
The important thing is that the container (wrapper) element is set to not move.

No matter what screen resolution the visitor has, he or she will see the same width as other visitors.



FLUID WEBSITE LAYOUTS

In a fluid website layout, also referred to as a liquid layout, the majority of the components inside have percentage widths, and thus adjust to the user's screen resolution.



3 ways of inserting CSS media queries:

External stylesheet:

```
<link rel="stylesheet" type="text/css" href="smallscreen.css" media="only screen and (max-width: 480px)" />
```

Imported stylesheet within the <style> element:

```
<style>

    @import "smallscreen.css" only screen and (max-width: 480px);

</style>
```

Within the <style> element as a media rule:

```
<style type="text/css">

    @media only screen and (max-width: 480px){

        /* rules defined inside here are only applied to browsers that support CSS media queries and the
        browser window is 480px or smaller */

    }

</style>
```

In all of the above cases, the respective style sheet will only be applied in the browser when the current browser window is 480px or below, AND only if the browser supports CSS media queries.

Browser support for CSS media queries:

FF : 3.5 +

IE : 9+

Chrome : All known versions

Safari : 4+

Opera : 9.5 +

IOS safari : 3.2 +

Opera Mobile : 10+

Android browser : 2.1+

Media Types:

CSS Media types and printer friendly pages

all : Suitable/intended for all devices (default).

aural : Intended for speech synthesizers.

braille : Intended for braille tactile feedback devices.

embossed : Intended for paged braille printers.

handheld : Intended for handheld devices (typically small screen, monochrome, limited bandwidth).

print : Intended for printed documents (applies to docs viewed in print preview mode too).

projection: Intended for projected presentations (ie: projectors or print to transparencies).

screen : Intended for computer screens.

tty : Intended for media using a fixed-pitch character grid (ie: teletypes or terminals).

tv : Intended for television-type devices.

3 ways of specifying CSS Media types

There are 3 ways to attach a media type to the style sheet, so our CSS is applied only when a particular media (ie: handheld) is used to view the page:

1) Linked style sheets:

```
<link rel="stylesheet" type="text/css" media="print" href="print.css">
```

With the above declaration, "print.css" will only be applied to the page when it's printed (or viewed in Print Preview mode in your browser). You can add additional linked style sheets targeting other media types as well.

2) Imported style sheets:

```
<style type="text/css" media="print, handheld">  
    @import "basic.css";  
</style>
```

Imported style sheets used here has the advantage of being conditionally downloaded, meaning the style sheet will only be downloaded if the device matches that specified in the media attribute.

3) Inline style sheets, through the @media rule:

```
<style type="text/css">  
    @media projection{  
        body{ background-color:#FFFFFF; }  
        #heading{ font-size:28px; }  
    }  
</style>
```

```
<link rel="stylesheet" type="text/css" href="example.css" media="screen" />
```

```
@media screen and (max-width: 765px){
```

```
  body{
```

```
    font-size: 80%;
```

```
  }
```

```
}
```

```
@media screen and (max-width: 765px){
```

```
  body{
```

```
    font-size: 80%;
```

```
  }
```

```
}
```

```
@media screen and (min-width: 1280px), print and (min-resolution: 300dpi){
```

```
  /* some css here */
```

```
}
```


Difference between width and device-width:

- device-width refers to the width of the device itself, in other words, the screen resolution of the device.
- width: refers to the width of the browser window.

Using CSS media queries to target different devices and screen dimensions

Targeting Small screen Devices:

```
@media screen and (max-device-width: 480px){  
  
  /* some css here */  
  
}
```

Targeting devices in "landscape" and "portrait" modes:

```
/* ##### CSS to apply to small screen devices in general (whether portrait or landscape mode) ##### */  
  
@media screen and (max-device-width: 480px){  
  
  /* some CSS here */  
  
}  
  
  
/* ##### CSS to apply to small screen devices in portrait mode only ##### */  
  
@media screen and (max-device-width: 480px) and (orientation: portrait){  
  
  /* some CSS here */  
  
}
```

More examples:

```
body {  
    background: white;  
}
```

```
@media screen and (min-width: 980px) /* Desktop */ {  
    body {  
        background: red;  
    }  
}
```

```
@media screen and (max-width: 979px) /* Tablet */ {  
    body {  
        background: blue;  
    }  
}
```

```
@media screen and (max-width: 500px) /* Mobile */ {  
    body {  
        background: green;  
    }  
}
```

```
/* ##### Mobile Phones Portrait ##### */
```

```
@media screen and (max-device-width: 480px) and (orientation: portrait){  
    /* some CSS here */  
}
```

```
/* ##### Mobile Phones Landscape ##### */
```

```
@media screen and (max-device-width: 640px) and (orientation: landscape){  
    /* some CSS here */  
}
```

```
}
```

```
/* ##### Mobile Phones Portrait or Landscape ##### */
```

```
@media screen and (max-device-width: 640px){
```

```
/* some CSS here */
```

```
}
```

```
/* ##### iPhone 4+ Portrait or Landscape ##### */
```

```
@media screen and (max-device-width: 480px) and (-webkit-min-device-pixel-ratio: 2){
```

```
/* some CSS here */
```

```
}
```

```
/* ##### Tablets Portrait or Landscape ##### */
```

```
@media screen and (min-device-width: 768px) and (max-device-width: 1024px){
```

```
/* some CSS here */
```

```
}
```

```
/* ##### Desktops ##### */
```

```
@media screen and (min-width: 1024px){
```

```
/* some CSS here */
```

```
}
```

Working with <meta name="viewport"/> tag

The viewport meta tag is the key to preparing a page for mobile devices optimization.

If you test out CSS media queries on a mobile device, you most likely won't see the expected media queries applied initially.

There's nothing wrong with your syntax, it's just that your mobile browser thinks it's a desktop browser until someone clues it in.

By default mobile devices such as iPhone or Android zoom out on webpages automatically when they are viewed to give the user a more expansive view of the page, meaning everything appears smaller, but also, more pixels are squeezed onto the screen

So whenever you're optimizing a webpage for mobile devices, the first step is to define a particular META tag on your page to alter/ disable the "zoom in" behaviour of mobile browsers, and that's with:

```
<meta name="viewport" content="width=device-width, initial-scale=1">
```

The viewport meta tag supports a handful of other properties for the "content" attribute:

Property	Description
width	The width of the virtual viewport of the device. Enter a number (pixels assumed), or the keyword "device-width" to set the viewport to the physical width of the device's screen.
height	The height of the virtual viewport of the device. Enter a number (pixels assumed), or the keyword "device-height" to set the viewport to the physical height of the device's screen.
initial-scale	The initial zoom of the webpage, where a value of 1.0 means no zoom.
minimum-scale	The minimum level the user is able to zoom out of a webpage, where a value of 1.0 means the user isn't able to at all.
maximum-scale	The maximum level the user is able to zoom in on a webpage, where a value of 1.0 means the user isn't able to at all.
user-scalable	Sets whether the user can zoom in and out of a webpage. Set to yes or no.

```
<meta name="viewport" content="width=device-width, initial-scale=1, maximum-scale=1">
```

Let us work on the Example:

The page's container has a width of 980px which is optimized for any resolution wider than 1024px.

Media query has to check if the viewport is narrower than 980px, then the layout will turn to fluid width instead of fixed width.

If the viewport is narrower than 650px, it expands the content container and sidebar to full width to form a single column layout.

```
<div id="pagewrap">
  <header id="header">
    <hgroup>
      <h1 id="site-logo">Demo</h1>
      <h2 id="site-description">Site Description</h2>
    </hgroup>
    <nav>
      <ul id="main-nav">
        <li><a href="#">Home</a></li>
      </ul>
    </nav>
    <form id="searchform">
      <input type="search">
    </form>
  </header>
```

```
<div id="content">
```

```
    <article class="post">
```

```
        blog post
```

```
    </article>
```

```
</div>
```

```
<aside id="sidebar">
```

```
    <section class="widget">
```

```
        widget
```

```
    </section>
```

```
</aside>
```

```
<footer id="footer">
```

```
    footer
```

```
</footer>
```

```
</div>
```

```

<!DOCTYPE html>
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
  <title></title>
  <meta name="viewport" content="width=device-width" />
  <link rel="stylesheet" href="reset.css" />
  <link rel="stylesheet" href="media.css" />
</head>
<body>
  <div id="pagewrap">
    <header id="header">
      <hgroup>
        <h1 id="site-logo">Demo Application</h1>
        <h2 id="site-description">Home Project</h2>
      </hgroup>
      <nav>
        <ul id="main-nav">
          <li><a href="#">Home</a></li>
          <li><a href="#">About</a></li>
          <li><a href="#">Contacts</a></li>
          <li><a href="#">Login</a></li>
          <li><a href="#">SignUp</a></li>
        </ul>
      </nav>
      <form id="searchform">
        <input type="search"/>
      </form>
    </header>

    <div id="content">

      <article class="post">
        blog post
      </article>
    </div>

    <aside id="sidebar">

      <section class="widget">
        widget1<br />
        Widget2<br />
      </section>

    </aside>

    <footer id="footer">
      &copy; Marlabs-2015
    </footer>

  </div>
</body>
</html>

```


Reset.css

```
/*
*****
RESET
*****
*****/
html, body, address, blockquote, div, dl, form, h1, h2, h3, h4, h5, h6, ol, p, pre,
table, ul,
dd, dt, li, tbody, td, tfoot, th, thead, tr, button, del, ins, map, object,
a, abbr, acronym, b, bdo, big, br, cite, code, dfn, em, i, img, kbd, q, samp, small,
span,
strong, sub, sup, tt, var, legend, fieldset {
    margin: 0;
    padding: 0;
}

img, fieldset {
    border: 0;
}

/* set image max width to 100% */
img {
    max-width: 100%;
    height: auto;
    width: auto;
}

/* set html5 elements to block */
article, aside, details, figcaption, figure, footer, header, hgroup, menu, nav, section {
    display: block;
}

/*
*****
GENERAL STYLING
*****
*****/
body {
    background: #0d1424;
    font: .81em/150% Arial, Helvetica, sans-serif;
    color: #666;
}
a {
    color: #026acb;
    text-decoration: none;
    outline: none;
}
a:hover {
    text-decoration: underline;
}
p {
    margin: 0 0 1.2em;
    padding: 0;
}
```

```

/* list */
ul, ol {
    margin: 1em 0 1.4em 24px;
    padding: 0;
    line-height: 140%;
}
li {
    margin: 0 0 .5em 0;
    padding: 0;
}

/* headings */
h1, h2, h3, h4, h5, h6 {
    line-height: 1.4em;
    margin: 20px 0 .4em;
    color: #000;
}
h1 {
    font-size: 2em;
}
h2 {
    font-size: 1.6em;
}
h3 {
    font-size: 1.4em;
}
h4 {
    font-size: 1.2em;
}
h5 {
    font-size: 1.1em;
}
h6 {
    font-size: 1em;
}

/* reset webkit search input styles */
input[type=search] {
    -webkit-appearance: none;
    outline: none;
}
input[type="search"]::-webkit-search-decoration,
input[type="search"]::-webkit-search-cancel-button {
    display: none;
}

/*****
*****
STRUCTURE
*****
*****/
#pagewrap {
    width: 980px;
    margin: 0 auto;
}

/*****
*****

```

```

HEADER
*****
*****/
#header {
    position: relative;
    height: 160px;
}

/* site logo */
#site-logo {
    position: absolute;
    top: 10px;
    color: #ccc;
}
#site-logo a {
    font: bold 30px/100% Arial, Helvetica, sans-serif;
    color: #fff;
    text-decoration: none;
}

/* site description */
#site-description {
    font: italic 100%/130% "Times New Roman", Times, serif;
    color: #fff;
    position: absolute;
    top: 55px;
}

/* searchform */
#searchform {
    position: absolute;
    right: 10px;
    bottom: 6px;
    z-index: 100;
    width: 160px;
}
#searchform #s {
    width: 140px;
    float: right;
    background: #fff;
    border: none;
    padding: 6px 10px;
    /* border radius */
    -webkit-border-radius: 5px;
    -moz-border-radius: 5px;
    border-radius: 5px;
    /* box shadow */
    -webkit-box-shadow: inset 0 1px 2px rgba(0,0,0,.2);
    -moz-box-shadow: inset 0 1px 2px rgba(0,0,0,.2);
    box-shadow: inset 0 1px 2px rgba(0,0,0,.2);
    /* transition */
    -webkit-transition: width .7s;
    -moz-transition: width .7s;
    transition: width .7s;
}

/*****
*****

```

MAIN NAVIGATION

```
*****
*****/
#main-nav {
    width: 100%;
    background: #ccc;
    margin: 0;
    padding: 0;
    position: absolute;
    left: 0;
    bottom: 0;
    z-index: 100;
    /* gradient */
    background: #6a6a6a url(images/nav-bar-bg.png) repeat-x;
    background: -webkit-gradient(linear, left top, left bottom, from(#b9b9b9), to
(#6a6a6a));
    background: -moz-linear-gradient(top, #b9b9b9, #6a6a6a);
    background: linear-gradient(-90deg, #b9b9b9, #6a6a6a);
    /* rounded corner */
    -webkit-border-radius: 8px;
    -moz-border-radius: 8px;
    border-radius: 8px;
    /* box shadow */
    -webkit-box-shadow: inset 0 1px 0 rgba(255,255,255,.3), 0 1px 1px rgba
(0,0,0,.4);
    -moz-box-shadow: inset 0 1px 0 rgba(255,255,255,.3), 0 1px 1px rgba(0,0,0,.4);
    box-shadow: inset 0 1px 0 rgba(255,255,255,.3), 0 1px 1px rgba(0,0,0,.4);
}
#main-nav li {
    margin: 0;
    padding: 0;
    list-style: none;
    float: left;
    position: relative;
}
#main-nav li:first-child {
    margin-left: 10px;
}
#main-nav a {
    line-height: 100%;
    font-weight: bold;
    color: #fff;
    display: block;
    padding: 14px 15px;
    text-decoration: none;
    text-shadow: 0 -1px 0 rgba(0,0,0,.5);
}
#main-nav a:hover {
    color: #fff;
    background: #474747;
    /* gradient */
    background: -webkit-gradient(linear, left top, left bottom, from(#282828), to
(#4f4f4f));
    background: -moz-linear-gradient(top, #282828, #4f4f4f);
    background: linear-gradient(-90deg, #282828, #4f4f4f);
}

/*****
```

```

*****
CONTENT
*****
*****/
#content {
    background: #fff;
    margin: 30px 0 30px;
    padding: 20px 35px;
    width: 600px;
    float: left;
    /* rounded corner */
    -webkit-border-radius: 8px;
    -moz-border-radius: 8px;
    border-radius: 8px;
    /* box shadow */
    -webkit-box-shadow: 0 1px 3px rgba(0,0,0,.4);
    -moz-box-shadow: 0 1px 3px rgba(0,0,0,.4);
    box-shadow: 0 1px 3px rgba(0,0,0,.4);
}

/* post */
.post {
    margin-bottom: 40px;
}
.post-title {
    margin: 0 0 5px;
    padding: 0;
    font: bold 26px/120% Arial, Helvetica, sans-serif;
}
.post-title a {
    text-decoration: none;
    color: #000;
}
.post-meta {
    margin: 0 0 10px;
    font-size: 90%;
}

/* post image */
.post-image {
    margin: 0 0 15px;
}

/*****
*****
SIDEBAR
*****
*****/
#sidebar {
    width: 280px;
    float: right;
    margin: 30px 0 30px;
}
.widget {
    background: #fff;
    margin: 0 0 30px;
    padding: 10px 20px;
    /* rounded corner */

```

```

        -webkit-border-radius: 8px;
        -moz-border-radius: 8px;
        border-radius: 8px;
        /* box shadow */
        -webkit-box-shadow: 0 1px 3px rgba(0,0,0,.4);
        -moz-box-shadow: 0 1px 3px rgba(0,0,0,.4);
        box-shadow: 0 1px 3px rgba(0,0,0,.4);
    }
    .widgettitle {
        margin: 0 0 5px;
        padding: 0;
    }
    .widget ul {
        margin: 0;
        padding: 0;
    }
    .widget li {
        margin: 0;
        padding: 6px 0;
        list-style: none;
        clear: both;
        border-top: solid 1px #eee;
    }
}

/*****
*****
FOOTER
*****
*****/
#footer {
    clear: both;
    color: #ccc;
    font-size: 85%;
}
#footer a {
    color: #fff;
}

```

Media.css

```
/******smaller than 980
******/
@media screen and (max-width: 980px) {

    /* pagewrap */
    #pagewrap {
        width: 95%;
    }

    /* content */
    #content {
        width: 60%;
        padding: 3% 4%;
    }

    /* sidebar */
    #sidebar {
        width: 30%;
    }
    #sidebar .widget {
        padding: 8% 7%;
        margin-bottom: 10px;
    }

}

/******
*****
smaller than 650
*****
******/
@media screen and (max-width: 650px) {

    /* header */
    #header {
        height: auto;
    }

    /* search form */
    #searchform {
        position: absolute;
        top: 5px;
        right: 0;
        z-index: 100;
        height: 40px;
    }
    #searchform #s {
        width: 70px;
    }
    #searchform #s:focus {
        width: 150px;
    }

    /* main nav */
    #main-nav {
```

```

        position: static;
    }

    /* site logo */
    #site-logo {
        margin: 15px 100px 5px 0;
        position: static;
    }

    /* site description */
    #site-description {
        margin: 0 0 15px;
        position: static;
    }

    /* content */
    #content {
        width: auto;
        float: none;
        margin: 20px 0;
    }

    /* sidebar */
    #sidebar {
        width: 100%;
        margin: 0;
        float: none;
    }
    #sidebar .widget {
        padding: 3% 4%;
        margin: 0 0 10px;
    }
}

```

```

/*****
*****
smaller than 560
*****
*****/
@media screen and (max-width: 480px) {

    /* disable webkit text size adjust (for iPhone) */
    html {
        -webkit-text-size-adjust: none;
    }

    /* main nav */

```



```
#main-nav a {  
    font-size: 90%;  
    padding: 10px 8px;  
}  
}
```

Flexible Images

To make the images flexible, simply add max-width:100% and height:auto

Flexible Embedded Videos

To make the embedded videos flexible, use the same trick as mentioned above

```
.video embed,  
.video object,  
.video iframe {  
    width: 100%;  
    height: auto;  
}
```

Initial Scale Meta Tag (iPhone)

By default, iPhone Safari shrinks HTML pages to fit into the iPhone screen.

The following meta tag tells iPhone Safari to use the width of the device as the width of the viewport and disable the initial scale.

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

Example:

```
<!DOCTYPE html>
<html>
<head>
<meta charset='UTF-8'>
<title>CSS Media Queries Sidebar</title>
<link rel='stylesheet' href='reset.css' />
<link rel="stylesheet" href="media.css" />
<script src="//ajax.googleapis.com/ajax/libs/jquery/1.4/jquery.min.js"></script>
</head>

<body>

    <div id="demo-top-bar">

        <div id="demo-bar-inside">

            <h2 id="demo-bar-badge">
                <a href="/">CSS- Example</a>
            </h2>
            <h2>Marlabs Inc</h2>

            <div id="demo-bar-buttons">
            </div>

        </div>

    </div>
    <div id="fluid-wrap">

        <div id="sidebar">
            <h3>Super team:</h3>
            <ul id="nav">
                <li><a data-email="chriscoyier@gmail.com" href="mailto:chriscoyier@gmail.com">Chris
Coyier</a></li>
                <li><a data-email="isuredo@likeher.com" href="mailto:isuredo@likeher.com">Elisabeth
Moss</a></li>
                <li><a data-email="marry@me.com" href="mailto:marry@me.com">Amanda Righetti</a></li>
            </ul>
        </div>

        <div id="main-content">
            <p>Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac
turpis egestas. Vestibulum tortor quam, feugiat vitae, ultricies eget, tempor sit amet,
ante. Donec eu libero sit amet quam egestas semper. </p>

        </div>

    </div>
</body>

</html>
```

Reset.css

```
* {  
    margin: 0;  
    padding: 0;  
}  
body {  
    overflow-x: hidden;  
}  
#demo-top-bar {  
    text-align: left;  
    background: #808080;  
    position: relative;  
    zoom: 1;  
    width: 100%;  
    z-index: 6000;  
    padding: 20px 0 20px;  
}  
#demo-bar-inside {  
    text-align: left;  
    width: 960px;  
    margin: 0 auto;  
    position: relative;  
    overflow: hidden;  
}  
#demo-bar-buttons {  
    padding-top: 10px;  
    float: right;  
}  
#demo-bar-buttons a {  
    font-size: 12px;  
    margin-left: 20px;  
    color: red;  
    margin: 2px 0;  
    text-decoration: none;  
    font: 14px "Lucida Grande", Sans-Serif;  
}  
#demo-bar-buttons a:hover,  
#demo-bar-buttons a:focus {  
    text-decoration: underline;  
}  
#demo-bar-badge {  
    display: inline-block;  
    width: 302px;  
    padding: 0 !important;  
    margin: 0 !important;  
    background-color: transparent;  
}  
#demo-bar-badge a {  
    width: 100%;  
    height: 38px;  
    border-radius: 0;  
    bottom: auto;  
    margin: 0;  
    background-size: 100%;  
    overflow: hidden;  
    text-indent: -9999px;  
}  
#demo-bar-badge:before, #demo-bar-badge:after {
```

```
display: none ;  
}
```

Media.css

```
@charset "utf-8";  
  
* { margin: 0; padding: 0; }  
body { font: 14px Georgia, serif; background: #ccc; }  
  
article, aside, figure, footer, header, hgroup,  
menu, nav, section { display: block; }  
  
h2 { font: 24px Georgia; margin: 0 0 10px 0; }  
h3 { margin: 0 0 8px 0; }  
p { margin: 0 0 20px 0; }  
  
#fluid-wrap {  
    width: 70%;  
    margin: 60px auto;  
    padding: 20px;  
    background: #eee;  
    overflow: hidden;  
}  
  
#sidebar {  
    width: 35%;  
    float: left;  
}  
  
#sidebar ul {  
    list-style: none;  
}  
  
#sidebar ul li a {  
    color: #900;  
    text-decoration: none;  
    padding: 3px 0;  
    display: block;  
}  
  
@media (min-width: 1001px) {  
    #sidebar ul li a:after {  
        content: " (" attr(data-email) )";  
        font-size: 11px;  
        font-style: italic;  
        color: #666;  
    }  
}  
  
@media (max-width: 1000px) and (min-width: 700px) {  
    #sidebar ul li a:before {  
        content: "Email: ";  
        font-style: italic;  
        color: #666;  
    }  
}
```

```
@media (max-width: 699px) and (min-width: 520px), (min-width: 1151px) {  
  #sidebar ul li a {  
    padding-left: 21px;  
    background: url(../images/email.png) left center no-repeat;  
  }  
}  
  
#main-content {  
  width: 65%;  
  float: right;  
}
```