

Front End Fundamentals II

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Responsive Web Design

Responsive Web Design (RWD)

Responsive web design is a design approach.

We can create web pages that will automatically adjust so that they will look good on all devices.

We can use HTML and CSS to resize, hide, shrink, or enlarge our content to adjust for different screen sizes.

Responsive Web Design (RWD)

- 91% of U.S. Citizens have their smartphone within reach 24/7
- Smartphone users check their phones 150x every day
- 25% of mobile users in the U.S. don't even own a laptop or desktop

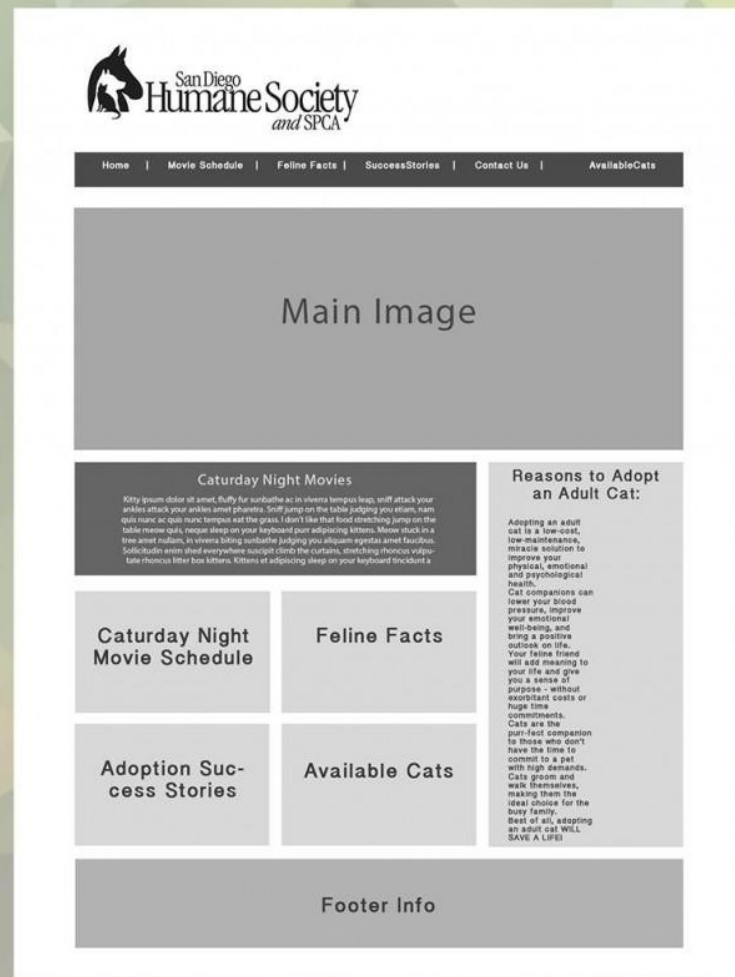
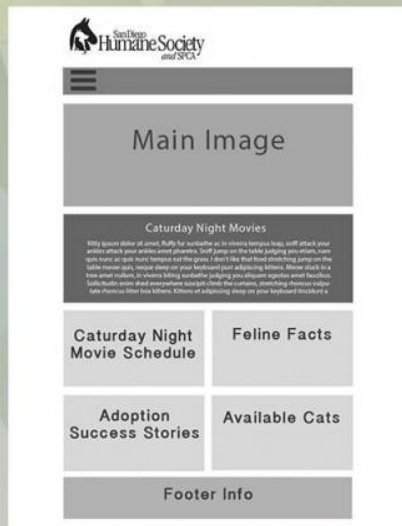
Responsive Web Design (RWD)

RWD modifies the presentation of a site, without modifying the content of the page.

So no matter what, every user has access to the same information.

Wireframes

- Left is a mobile version
- Right is the desktop version
- Notice the change in the navigation menu
- Notice the sidebar content is hidden on mobile



Mockups

- Right is a mobile version
- Left is the desktop version
- Notice the change in the navigation menu
- Notice the sidebar content is hidden on mobile



Mockups

- Right is a mobile version
- Left is the desktop version
- Notice the change in the layout order
- Notice that some content is hidden on mobile

The desktop version of the Cetaphil website features a clean, organized layout. At the top, a navigation bar includes links for Special Offers, Contact Us, Find a Store, Sign in or Create an Account, and 0 items. The main header displays the Cetaphil logo and a search bar. Below this, a hero section titled "HEALTHY SKIN MATTERS" features a woman in a lab coat and the text: "YOUR SKIN IS LIKE A SUIT OF ARMOR THAT PROTECTS YOUR BODY FROM THE DANGERS OF THE OUTSIDE WORLD". A central banner reads "SIMPLE TIPS YOU CAN USE TO KEEP YOUR SKIN HEALTHY". The content is organized into six columns, each with a title, descriptive text, and product images. The columns are: "KEEP YOUR SKIN CLEAN" (Clean skin prevents infection...), "SHOP CETAPHIL CLEANSERS" (Did you know? SKIN is your body's LARGEST organ.), "SHOP CETAPHIL MOISTURIZERS" (Moisturizers help to keep your skin hydrated...), "KEEP YOUR SKIN MOISTURIZED" (Moisturizers help to keep your skin hydrated...), "PROTECT SKIN FROM THE SUN" (Your skin produces Vitamin D when exposed to the Sun...), and "SHOP SUNSCREENS" (Not sure what product is right for you? Answer a few quick questions...).

Special Offers | **Contact Us** | **Find a Store** | **Sign in or Create an Account** | **0 items**
FREE Shipping on orders over \$40

Cetaphil
Gentle Skin Care

HEALTHY SKIN MATTERS
YOUR SKIN IS LIKE A SUIT OF ARMOR THAT PROTECTS YOUR BODY FROM THE DANGERS OF THE OUTSIDE WORLD

SIMPLE TIPS YOU CAN USE TO KEEP YOUR SKIN HEALTHY

KEEP YOUR SKIN CLEAN
Clean skin prevents infection and prevents harmful germs from spreading. For the most effective cleansing, make sure to wash with lukewarm water and pat skin dry with a soft towel.

SHOP CETAPHIL CLEANSERS
Did you know? SKIN is your body's LARGEST organ.

SHOP CETAPHIL MOISTURIZERS
Moisturizers help to keep your skin hydrated and prevent your skin from feeling dry and itchy. The most effective way to trap moisture in your skin is to apply creams and lotions within a few minutes of cleansing.

KEEP YOUR SKIN MOISTURIZED
Moisturizers help to keep your skin hydrated and prevent your skin from feeling dry and itchy. The most effective way to trap moisture in your skin is to apply creams and lotions within a few minutes of cleansing.

PROTECT SKIN FROM THE SUN
Your skin produces Vitamin D when exposed to the Sun. Vitamin D is essential for bone health, but too much sun exposure can lead to health problems such as skin cancer. Make sure to always apply sunscreen when outside.

SHOP SUNSCREENS
Not sure what product is right for you? Answer a few quick questions and we can help you formulate a skin routine with GENTAL POWER that's exactly right for you.

DISCOVER YOUR SOLUTION
Not sure what product is right for you? Answer a few quick questions and we can help you formulate a skin routine with GENTAL POWER that's exactly right for you.

SHOP
Cleansers
Moisturizers
Specialty Products
Best Sellers

DISCOVER
Gentle Power
Advanced Technology
Camp Wonder

CONNECT
Contact Us
Shipping and Returns
Find a Store

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The mobile version of the Cetaphil website is designed for a smaller screen. It features a simplified navigation bar with links for Special Offers, Contact Us, Find a Store, Sign in or Create an Account, and 0 items. The main header displays the Cetaphil logo and a search bar. Below this, a hero section titled "HEALTHY SKIN MATTERS" features a woman in a lab coat and the text: "YOUR SKIN IS LIKE A SUIT OF ARMOR THAT PROTECTS YOUR BODY FROM THE DANGERS OF THE OUTSIDE WORLD". A central banner reads "TIPS FOR HEALTHY SKIN KEEP YOUR SKIN CLEAN". The content is organized into three columns, each with a title, descriptive text, and product images. The columns are: "KEEP YOUR SKIN CLEAN" (Clean skin prevents infection...), "KEEP YOUR SKIN MOISTURIZED" (Moisturizers help to keep your skin hydrated...), and "PROTECT SKIN FROM THE SUN" (Your skin produces Vitamin D when exposed to the Sun...).

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SHOP CLEANSERS

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Moisturizers help to keep your skin hydrated and prevent your skin from feeling dry and itchy. The most effective way to trap moisture in your skin is to apply creams and lotions within a few minutes of cleansing.

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SHOP SUNSCREENS

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Ingredients of Responsive Web Design

Flexible grid foundation.

Flexible images.

CSS media queries to make the magic happen.

Flexible Grid

With fixed-width sites, we have to adjust the height and width of elements manually.

With flexible grids, the height and width of elements is dependent upon the device resolution.

Most commonly we see these as a 12 column grids, but with new CSS features like Flexbox and CSS grid, this can be more flexible.

Flexible Grid

The first step is to define a maximum width for a container.

Then, we divide the content up into a set of columns (usually 12).

Next we design elements with proportional widths and heights instead of being stuck with specific pixel dimensions.

Whenever the device width changes, the grids change in width to scale with this device.

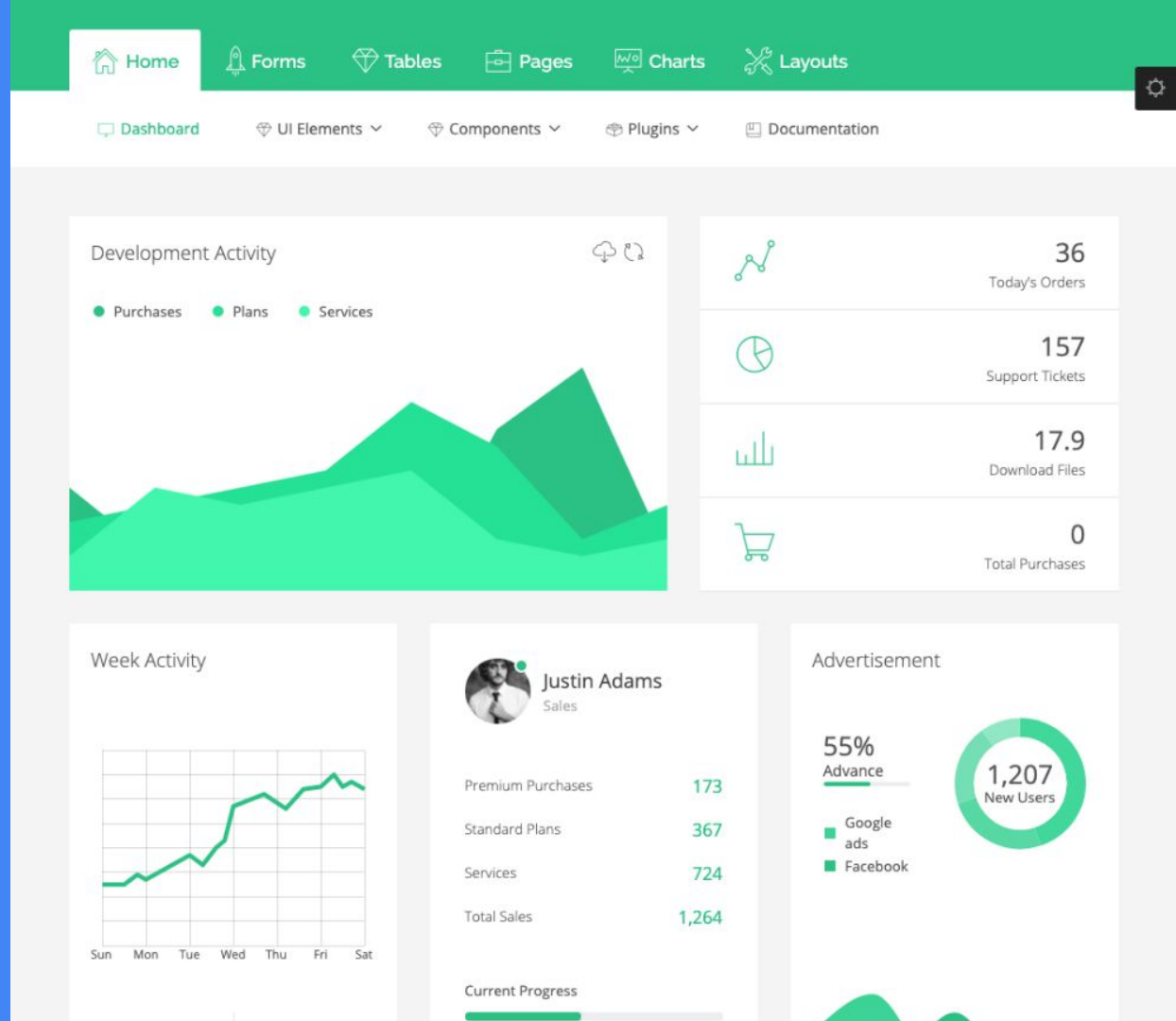
Grid System

- This is a 12 column grid
- Content can span a single column
- Content can span across multiple columns



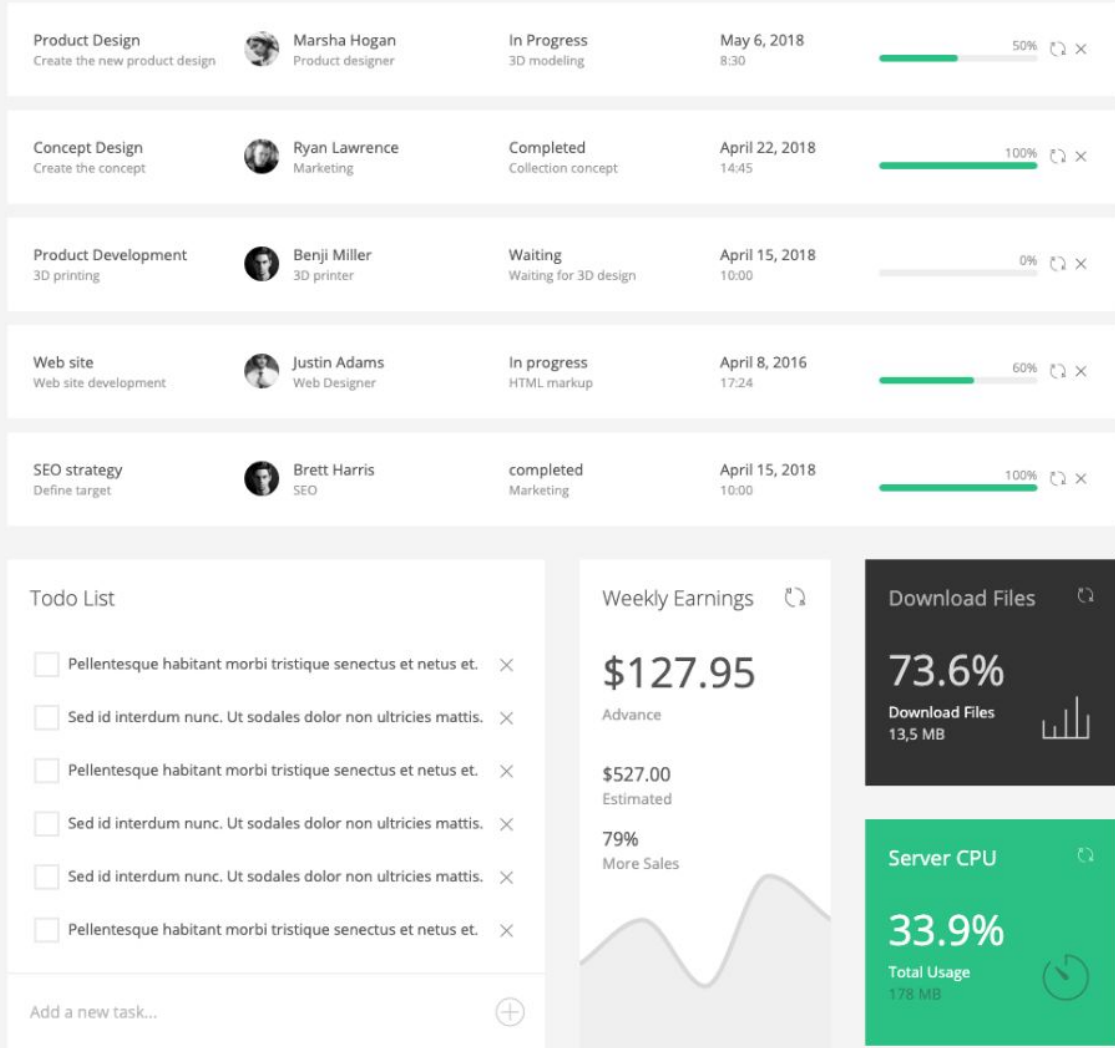
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Grid System

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Flexbox

In our sample page, we can use Flexbox to change our About section into a 3 column layout.

Flexbox makes it easy to design a flexible responsive layout structure without using floats and positioning (or doing the maths).

Flexbox

Flexbox works by creating a flex container around your content and adding your settings to that container.

In our html, we already added the class “flex-container” to our About section.

Flexbox

The parent container becomes flexible by setting the display property to “flex”.

Now that we have a flex container, we can add the flex settings in our CSS.

Wow! That was easy!

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

Flexbox

Flex Container Properties:

- flex-direction
- justify-content
- align-items
- flex-wrap
- flex-flow
- align-content

Flexbox

Flex Direction

Defines in which direction the container wants to stack the flex items

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

Flexbox

Flex Wrap

Specifies whether the flex items should wrap or not

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

Flexbox

Flex Flow

Is a shorthand property for setting both the flex-direction and flex-wrap properties

```
.flex-container {  
  display: flex;  
  flex-flow: row wrap;  
}
```

Flexbox

Justify Content

Used to align the flex items

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

Flexbox

Align Items

Used to align the flex items perpendicular to the flex-direction

```
flex-container {  
  display: flex;  
  align-items: center;  
}
```

Flexbox

Align Content

Used to align the flex lines

```
.flex-container {  
  display: flex;  
  align-content: space-between;  
}
```


Flexbox

Child Element Flex Properties - if you want a child item to behave differently from the other items inside the flex-container, you can set flex properties on it.

- order
- flex-grow
- flex-shrink
- flex-basis
- flex
- align-self

Flexbox

Let's Develop It

Let's start using some flex properties to make our About section look better.

Flexbox

Let's Develop It

Our columns look a little too close to each other. Let's fix that by setting their width and adding some padding.

```
.column {  
    width: 30%;  
    padding: 15%;  
}
```

Flexible Images

We still have a little problem with our images flowing outside of our columns.

That's because images ignore constraints of the parent, unless you tell them to do so.

Flexible Images

Text scales easily on smaller devices, but image are a bit tricky

Images will overflow their container elements if they are too big for them

This is annoying!

By using max-width on images, they will only expand to the size of their parent.

If their parent has no width, it will just expand to the width of the viewport.

Flexible Images

Let's Develop It!

Add this code to your CSS file, to make your images responsive.

```
img {  
    max-width: 100%;  
    height: auto;  
}
```

Flexible Images

Let's Develop It!

Back to our columns, this looks better, but what we really want is to have a 3 column layout. Let's add this to our `.flex-container`

```
.flex-container {  
    flex-wrap: wrap;  
    justify-content: space-between;  
}
```

Media Queries

Our page is looking better now on desktop, but what about a mobile view?

We can make 3 column layout collapse down into a single column using the third ingredient of RWD - the media query

Media Queries

Media queries apply certain CSS in certain situations

- Print Media
- Phone sizes
- Tablet sizes
- Larger screens like TVs

Media Queries

Include media queries last in your CSS file.

They will override previous styles because they are last in the cascade.

You must put this <meta> tag inside of the <head> tag for media queries to work.

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

Media Queries

Rather than looking for a type of device, they can look at the capability of the device. You can use them to check all sorts of things:

- Width and height of the viewport
- Orientation - landscape or portrait
- Resolution - retina or normal

Media Queries

Let's take a look at what one looks like.

For screen sizes 900 pixels wide and larger, we are adjusting the size of the `<h2>` tag that is inside the `#hero` id.

```
@media only screen and (min-width: 992px) {  
  #hero h2 {  
    font-size: 48px;  
  }  
}
```

Media Queries

Let's Develop It!

Let's collapse down our three column layout for smaller screens

```
@media only screen and (max-width: 576px) {  
  .flex-container {  
    display: block;  
  }  
  .column {  
    width: 100%;  
  }  
}
```

Let's Develop It

Let's add more media queries to our page

When you are done, use the browser developer tools to check your results.

Challenge: Try starting with the the xs screen size, then add the media queries to change your site as the screens get larger. (This is called mobile-first)

- Common breakpoints are:
 - < 576px (xs screens)
 - >= 576px (sm screens)
 - >= 768px (md screens)
 - >= 992px (lg screens)
 - >= 1200px (xl screens)
 - >= 1400px (xxl screens)
- Change the amount of columns for the about section for different screen sizes
- Try changing font colors and sizes for different screen sizes
- Try to add and remove borders for the different screen sizes

Flexbox

Let's practice more with Flexbox

Let's add flexbox properties to the My Experience section

Let's Develop It

Let's add flex properties to the "My Experience" section

- Add the flex property to the "job" class
- Try adding different properties to justify-content
 - space-around
 - space-between
 - space-evenly
 - flex-start
 - flex-end
- Add more styles to your page to make it look more personal

Flexbox

```
.job {  
    display: flex;  
    justify-content: space-around;  
    padding: 24px 15px;  
    border-bottom: 1px solid #0064e6;  
}
```

Sharing time!

- Flexible grid
- Flexible images
- Media queries

Homework

Practice flexbox with this fun
game!

<https://flexboxfroggy.com/>

Questions?