# CSS Frameworks

By: J. Adam Saenzpardo INFO-2500

[Bootstrap](https://getbootstrap.com/)

Bootstrap is widely considered one of the easiest frameworks to use due to its excellent documentation. I believe every built-in component is displayed with working code in the documentation giving users working examples that can be easily modified to suit user needs. There are also many pre-written bootstrap themes available that can be used to quickly create functional and professional websites. If you truly are a beginner, or new to the framework, there are countless hours of tutorials available to the general public for free. This reduces project development time and increases flexibility allowing developers to quickly adapt to customer needs. Testing is also decreased since the bootstrap framework is designed to look the same on all web browsers and platforms. This will give developers a consistent end product that can be deployed faster with reduced maintenance.

Bootstrap was ranked 1st by popularity in a recent State of CSS survey. Many developers enjoy Bootstrap due to its “mobile first” development approach. It uses a powerful grid system that is easy to develop and reuse. It allows for rapid development through reuse of integrated components that are easily customized. It was designed by Twitter and is used by Spotify, Intel, Walmart and Udemy among many other corporations large and small.

Bootstrap’s outstanding documentation makes it an ideal framework for beginners. The bootstrap web page offers many templates that can be used for a variety of different applications. Using mostly CSS and HTML, it’s not necessary to know JavaScript, jQuery or any other languages or frameworks. Although JavaScript is easily incorporated and there are examples available in the documentation.

A major disadvantage is its sheer size. All features are included by default and can increase loading times along with bandwidth usage. This is less than ideal if you are incorporating a website that is expecting a lot of traffic. Any features you aren’t using must be deleted manually. This may lead to unexpected results if developers are careless.

[Foundation](https://get.foundation/)

Foundation boasts the title of “The most advanced responsive front-end framework in the world.” It is available for installation using popular package managers, direct download and CDN links just like Bootstrap.

It is well documented with starter templates, instructional videos and tutorials.

While it’s not nearly as popular as Bootstrap, it still maintains a large following and has over 28,800 stars on its GitHub repository. It is used by eBay, Disney, National Geographic and Cisco.

One of best advantages is you can write a site using Foundation and it will be completely unique from other sites using the same framework. This is due in part to the “building blocks” component making it easy to piece together a sight and customize it.

It is a time-consuming framework to learn and is not geared towards beginners. Although highly customizable, this comes at the cost of complexity. This can lead to longer development times and increased maintenance. More time must also be allocated for testing as well.

[Materialize CSS](https://materializecss.com/)

Materialize CSS is a newer framework geared towards reducing coding time. Most features are made available for use “out of the box” with a wide variety of JavaScript plugins. The product is well documented with fluid documentation giving nice examples of what changes you can expect based on the code.

Used by NASA, JPMorgan Chase and Unity

Ease of use:

Widespread use in Marketplace:

Highlights or advantages of the framework:

Disadvantages: