**Benefits of Composition**

Because the concept of composition is such a large part of what makes React awesome and incredible to work with, let's dig into it a little bit. Remember that composition is just combining simple functions together to create complex functions. There are a couple of key ingredients here that we don't want to lose track of. These ingredients are:

* simple functions
* combined to create another function

Composition is built from *simple* functions. Let's look at an example:

**function** **getProfileLink** (username) {

**return** 'https://github.com/' + username

}

This function is *ridiculously* simple, isn't it? It's just one line! Similarly, the getProfilePic function is *also* just a single line:

**function** **getProfilePic** (username) {

**return** 'https://github.com/' + username + '.png?size=200'

}

These are definitely *simple* functions, so to compose them, we'd just *combine* them together inside another function:

**function** **getProfileData** (username) {

**return** {

pic: getProfilePic(username),

link: getProfileLink(username)

}

}

Now we *could* have written getProfileData *without* composition by providing the data directly:

**function** **getProfileData** (username) {

**return** {

pic: 'https://github.com/' + username + '.png?size=200',

link: 'https://github.com/' + username

}

}

There's nothing technically wrong with this at all; this is entirely accurate JavaScript code. But this *isn't* composition. There are also a couple of potential issues with this version that *isn't* using composition. If the user's link to GitHub is needed somewhere else, then duplicate code would be needed. A good function should follow the "DOT" rule:

*Do One Thing*

This function is doing a couple of different (however minor) things; it's creating two different URLs, storing them as properties on an object, and then returning that object. In the composed version, each function just does one thing:

* getProfileLink – just builds up a string of the user's GitHub profile link
* getProfilePic – just builds up a string the user's GitHub profile picture
* getProfileData – returns a new object

**React & Composition**

React makes use of the power of composition, heavily! React builds up pieces of a UI using **components**. Let's take a look at some pseudo code for an example. Here are three different components:

<Page />

<Article />

<Sidebar />

Now let's take these *simple* components, combine them together, and create a more complex component (aka, composition in action!):

<Page>

<Article />

<Sidebar />

</Page>

Now the Page component has the Article and Sidebar components *inside*. This is just like the earlier example where getProfileData had getProfileLink and getProfilePic inside it.

We'll dig into components soon, but just know that composition plays a huge part in building React components.

**Composition Recap**

Composition occurs when *simple* functions are *combined* together to create *more complex* functions. Think of each function as a single building block that *does one thing* (DOT). When you combine these simple functions together to form a more complex function, this is **composition**.

**Further Research**

* [Compose me That: Function Composition in JavaScript](https://www.linkedin.com/pulse/compose-me-function-composition-javascript-kevin-greene)
* [Functional JavaScript: Function Composition For Every Day Use](https://hackernoon.com/javascript-functional-composition-for-every-day-use-22421ef65a10)