

## Reflection

My initial idea for the shopping cart was to create a side panel that popped out from the side of whatever page the user is on in the website. The main challenge I ran into with this method was that it meant the entire cart needed to be created with JavaScript; all the elements needed to be generated when the user enters the page and opens the cart. This meant writing a fair amount more code than I liked for creating elements, assigning class names and id, and adding them to the DOM. Another challenge I ran into was using localStorage. I found that it was difficult to debug what was in localStorage when adding and removing objects to the cart. I had to add in the delete functionality to make it easier to quickly debug adding and updating items. A challenge that came with this was finding the correct item to delete in the cart. Since the order that the cart is rendered is the same as the list of objects in localStorage, I was able to use the index of the child node (DOM element representing the item in the cart) to index the place in the cart list containing the object, then use the splice method to remove it. This solution only came after realizing that the order that items rendered was not the same order as they were stored in localStorage. One other common bug I ran into was forgetting that items in localStorage are strings, so trying to multiply or access a property of what I thought was a number or object didn't work as I expected. Debugging to the console wasn't particularly helpful as it is difficult to tell the type of the output. Once I realized that everything is stored as a string, I was able to overcome this issue easily.

## Programming Concepts

1. **LocalStorage.** I'd never used this aspect of the browser before. Keeping a state was easy with this method of storing objects between pages.
2. **Removing an item with the splice() method.** I could find the index of the item I wanted to remove, then call `list.splice(index, 1)` to remove it.
3. **Animation with css properties.** I animated the cart in and out using the css "right" property on the absolute positioned element, simply adding a couple of pixels ever few milliseconds.
4. **Transferring between string and JSON.** I used `JSON.stringify()` and `JSON.parse()` to encode and decode objects to be stored in localStorage for the cart. It's a bit unfortunate that this method has to be done, but it was good to learn.
5. **Programmatically creating elements and adding to the DOM.** I'd never used the manual way of creating and adding elements to the DOM, in addition to directly modifying their attributes. Other frameworks like React do this work for you, so it was a good experience to do it all myself.