Sabrina Zhai
Assignment 6

Site: https://sabrinazhai.com/homework_6b/index.html
Github: https://github.com/sabrinazhai/sabrinazhai.github.io/tree/master/homework_6b

Challenges
The largest challenge I encountered was the original grid system I had created for my cart page. I struggled with creating the grid previously, but making the code flexible enough to add in Javascript and create additional elements (when more cart items got added) made it a challenge. I ended up redesigning my grid entirely, since previously I had a column grid layout that made adding items dynamically very difficult, as the formatting wouldn't align properly (the products got added horizontally rather than vertically). By changing up the original grid, I was able to add in new elements easily with Javascript, and helped me overcome this challenge.

Furthermore, I encountered a bug where when I delete an item from the cart, the system removes the item only after refreshing. This bug occurred because as I was creating the elements of the cart from my cart array, I also added the delete item button event listener in this method. Therefore, when deleting this item from the array, the user would have clicked the delete item after the cart was already updated, and would only reflect on the page after the page was reloaded (the update cart function was called on window load). The trick to this was to remove this part of the function and add in the event listener later. I was struggling with this a bit because I wanted to keep adding the event listener in the same function as updating the cart, but the `function()` in the `addeventlistener("click", function()) statement` was a little finicky to work with, and often was quite buggy if I moved the function() elsewhere. I decided to move the entire addeventlistener into a different function to isolate this problem.

Programming Concepts

1. **Local Storage**

Programming concepts I learned as a part of this assignment is how to use local storage, where I was able to store what the user wanted to add to their cart into local storage so I can use this data in other pages to update across the website. I struggled a little with the best way of doing this and how to update it dynamically, and results in using only one key into the local storage (rather than storing each product as a different key). It was also really important how to use this properly since local storage only works in Strings and I was using an Object array to hold all of my cart items. Learning how to use local storage really helps open a lot of possibilities since a lot of projects include saving data, especially user data somewhere. In my learning of using this, I also learned about session storage and the differences between these two. It seems that local storage can hold a lot more, which can be very helpful to certain projects.

2. **Adding and removing classes/ID from the DOM**

I learned how to utilize the ability to add or remove a class from a div element to help with the interactions. I did this with my buttons when on the product detail page where the user can select between different color and pillow fill options. I was initially stuck on this where I wasn't sure how to get the buttons to work the way I wanted and take the information that the user selected to create the cart, but by realizing I had the option to add and remove classes and IDs as much as I wanted

opened the doors for me in figuring out how to develop this. I think by learning these programming concepts, it really opened the ways of how I can create websites / develop in HTML, and gives me the ability to create a lot more dynamic sites.

3. **Adding Javascript elements**

Other programming concepts I learned from this assignment was how to add Javascript elements instead of just altering them. For this assignment, because we needed to add products that the users selected, I needed to add in completely new elements into the page rather than simply selecting one and changing the innerHTML or the style. This required me to rethink how the page was laid out in order to make sure that my code could work efficiently and properly.

4. **Using JS effectively**

The fourth programming concept I learned was setting up scripts in effective areas of the code across the website. At times, I needed to embed a function within a button, or within a click function, or even just on it's own as a script that is called on load. Being able to understand where would be the best place to put this and understanding how to write effective code in this way made it easier for me to develop the actual site and make sure that it was working in an efficient manner.

5. **CSS**

I also learned how to create CSS dynamically. Because I had to create an entire site with multiple pages, I kept in mind the CSS classes and IDs I was using for each element, and making sure that they were easy to be reused across different pages, or create a hierarchy with in case I wanted to add more details to one (for example, creating a basic button, and then coding it in a way so that if I wanted to create more detailed buttons, I could just inherit the properties).