List of software tools used and comments about the group experience with them:

One of the main software tools used was draw.io. This is an online diagram drawing tool that we used extensively to make all of the diagrams for this project. It had a number of UML-specific shapes, such as boxes for class diagrams and different types of arrows for class diagrams, sequence diagrams, and state machine diagrams. This was useful and made it easier to create and edit a diagram. However, the interface made the site hard to use because it was hard to connect arrows to boxes so that parts of the diagram could be moved and the arrows would remain connected. One advantage to draw.io, however, was that we could save our diagrams directly to the GitHub repository.

GitHub was very useful for this project. We used a repository to keep all of the project files together and to track what we had done when. The GitHub site makes it very easy to see who added files and what the current state of the project is. Not only did we keep the diagrams we created on the repository, but we keep a record of what tasks need to be done.

**Class Diagram**

For this class diagram, we make use of the State design pattern. This is because the shopping basket is in a number of states during the use of the application. Either the basket is empty, has some number of items in it, or it is “completed” and the user is proceeding to checkout and is about to turn the basket into an order. As a result, we created an abstract basket class which is extended by the 3 different states. When a user uses the QR code scanner to add an item to their basket, the basket moves from the empty state to the normal state. Once the user is ready to checkout, an order can be created which contains data such as the order status, the date created, and date shipped.