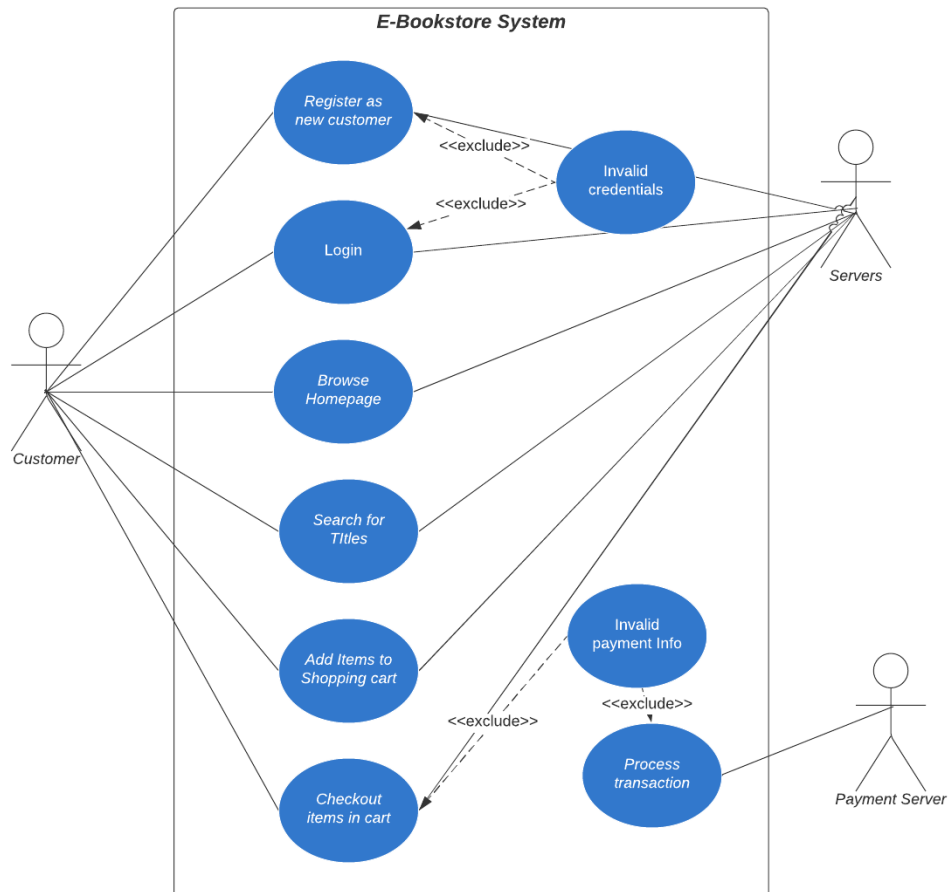For this assignment, I developed three UML diagrams to model an online bookstore website. As shown below, the models utilize use case, class, and sequence diagrams.

**Figure 1:** Use case diagram for E-Bookstore system

The use case diagram demonstrates the different functions of the online store. One actor is the customer. The customer can interact with the system in the following ways including registering for the first time, logging in, searching for specific book titles, and checking out the desired items. Another actor shown in the diagram is the backend servers. These include the web and database servers which interact together to provide the necessary information that is displayed to the user. The payment server is another actor that is vital in this system because its role is to not only process the transactions towards the user's payment account, but also will notify the user if there is an error with the payment information provided.

Figure 2: Class diagram for E-Bookstore system
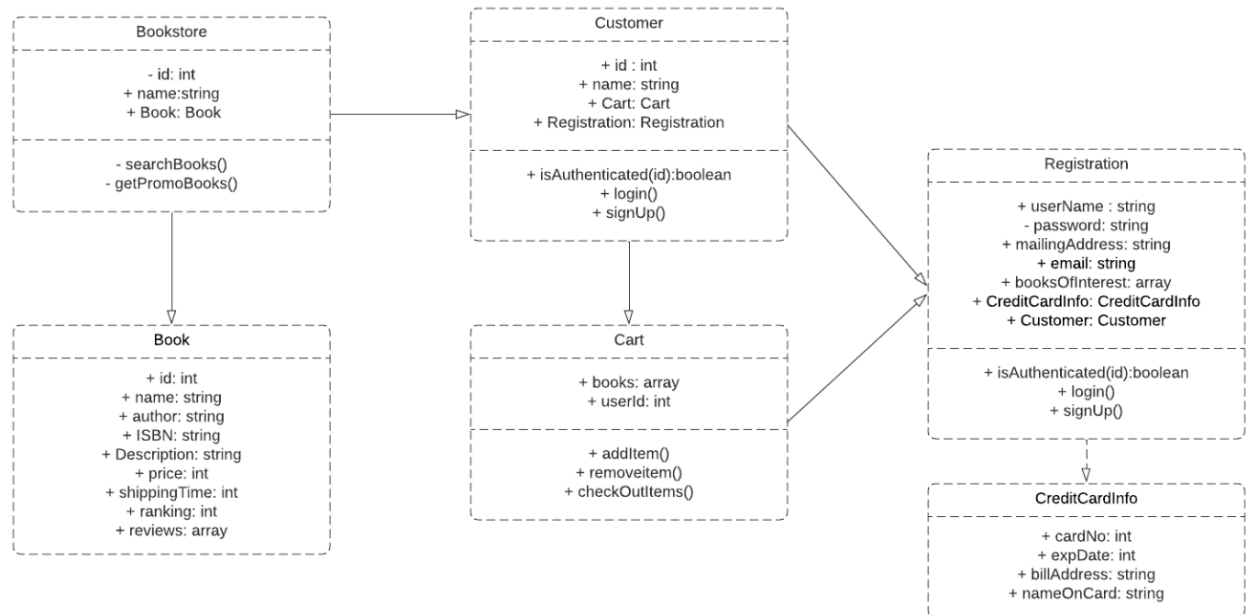
The class diagram was organized into the following entities: bookstore, book, customer, cart, registration, and credit card information. The bookstore is the super class as it is the main component of the system that calls the other classes. The book class does not contain any method in this scenario as it doesn't necessarily need to accomplish any task, but it is called upon by the bookstore class whenever requested by the customer. The customer class contains basic attributes about the user in addition to calling other methods such as authentication and login.

Figure 3: Sequence diagram for one use case in E-Bookstore system
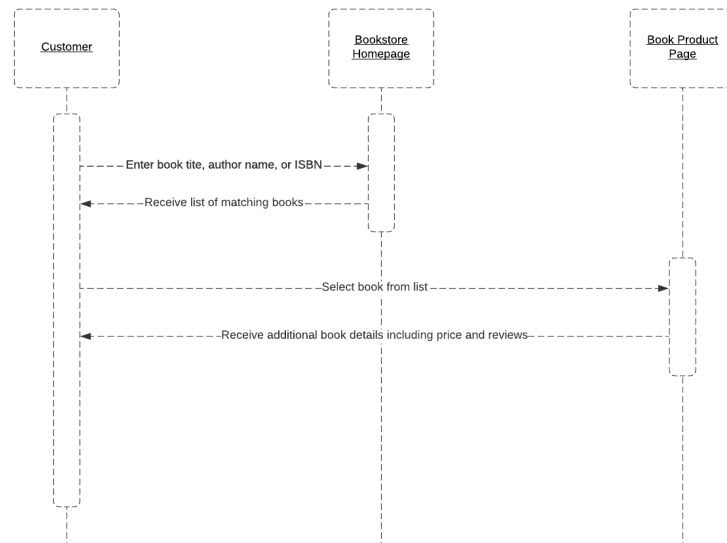
For the sequence diagram, I decided to model the use case involving the customer browsing the homepage for books to show how it is interacting with other classes in the system. The starting point in this scenario is the customer entering either a book title, author name, or ISBN into the homepage screen. The bookstore system will then return all the matching books in the list back to the customer. From there, the customer may choose to click on one of the items in the list. This will take them to the product page, where the system will return more detailed information about the desired book like price and customer reviews.