Assignment #3

Course: SEG3103

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Question 1 (20%)

Give one positive and one negative test situation for each functional requirement in

Section A.

F1:

Positive: A book is added to the store's books catalogue with a category, id that is between 5 and 8 characters, title, author name, description, and cost of $9.0.

Negative: Someone attempts to add a book to the store's books catalogue without a category or id, but with an author name, title, description, and cost of $9.0.

F2:

Positive: A customer browses through the store's books catalogue after entering a search that brings up several results.

Negative: A customer attempts to browse through the store's books catalogue after entering a search that does not match any books in the catalogue.

F3:

Positive: A customer adds 1 copy of a book from the catalogue to their books order.

Negative: A customer attempts to add 1 copy of a book that is not in the catalogue to their books order.

F4:

Positive: A customer views their books order after adding 2 books to it.

Negative: A customer attempts to view their books order before adding any books to it.

F5:

Positive: A customer adds 1 more copy to a book in their books order.

Negative: A customer tries to add 1.5 more copies to a book in their books order.

F6:

Positive: The e-BookStore computes and presents the date of, total amount of, amount of taxes of, and the amount of handling and shipping fee of a customer's books order for an order of 2 books.

Negative: The e-BookStore attempts to compute and present the date of, total amount of, amount of taxes of, and the amount of handling and shipping fee of a customer's books order for an order of 0 books.

F7:

Positive: A book in the store's books catalogue is removed.

Negative: Someone attempts to remove a book that is not in the store's books catalogue.

F8:

Positive: An authenticated administrator adds a book to the catalogue.

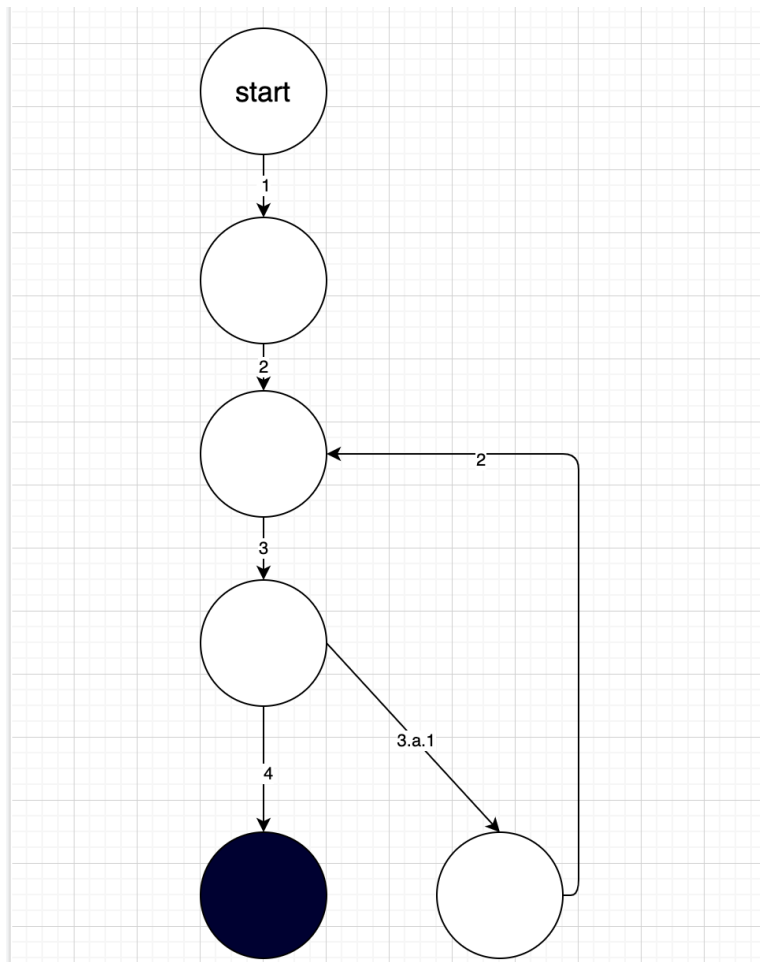Negative: A non-authenticated administrator attempts to add a book to the catalogue.

Question 2 (30%)

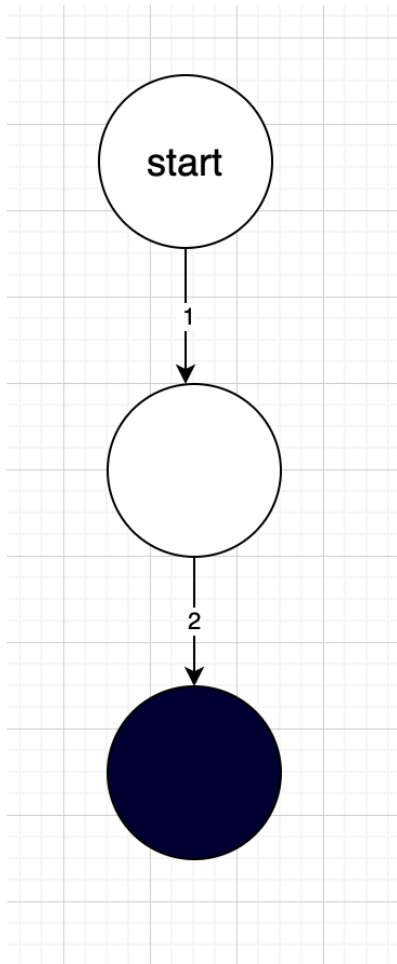Derive test cases based on the use cases in section C. For each use case give

1. A scenario graph

2. A set of scenarios ensuring branch coverage of the scenario graph
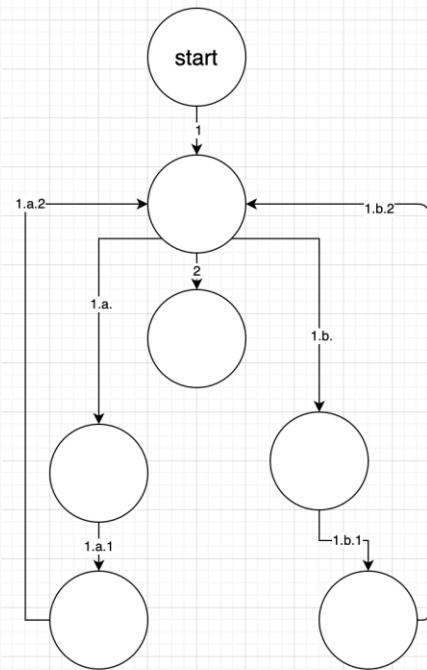
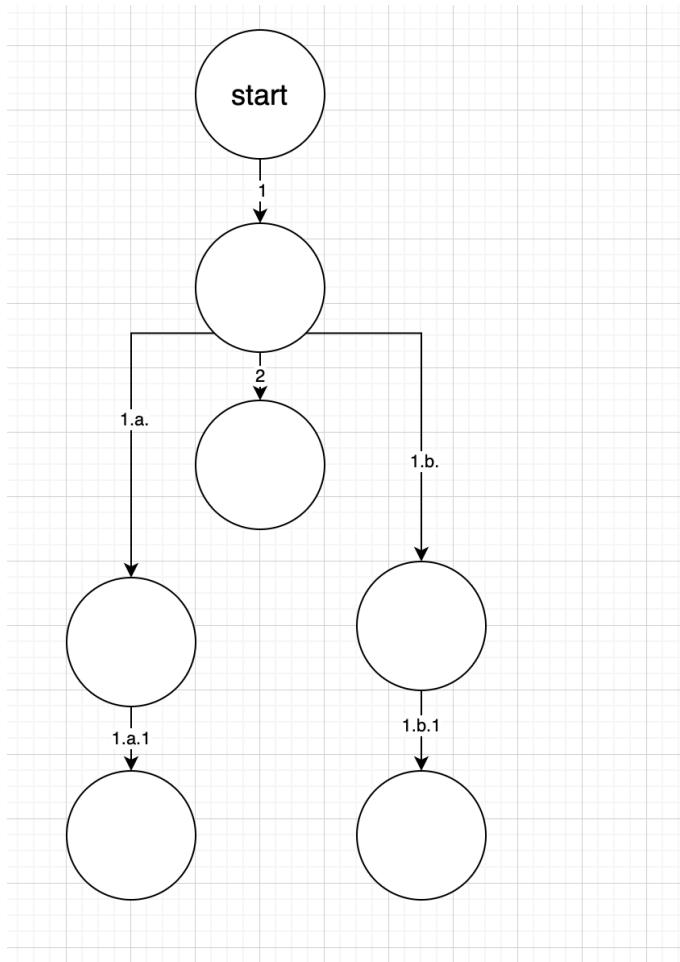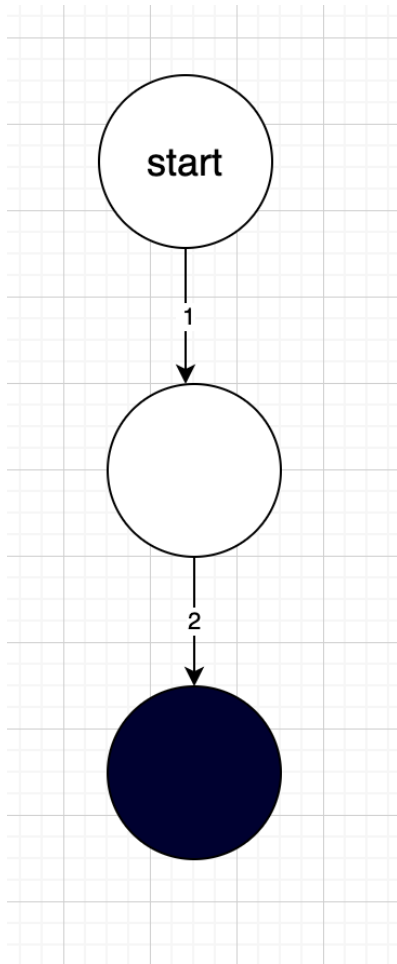3. Abstract test cases corresponding to scenarios

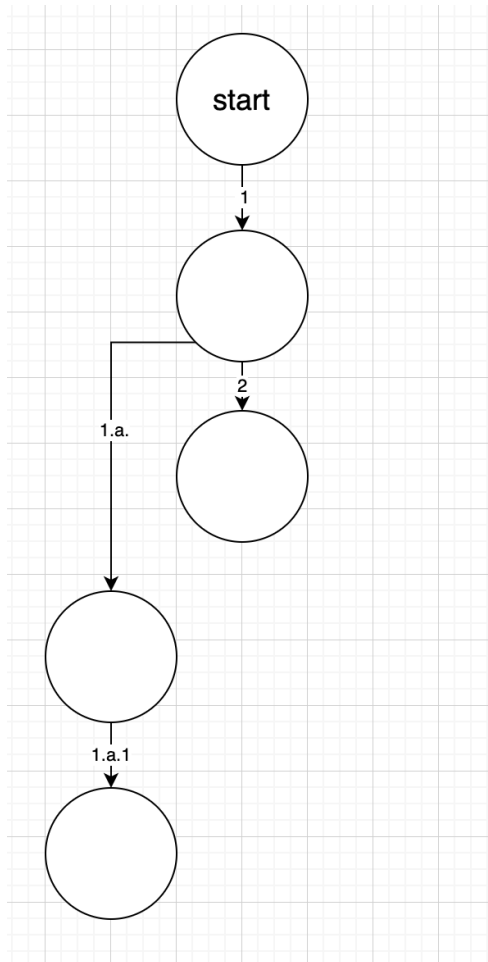1) Scenario Graph

Use Case 1

Use Case 2

Use Case 3

Use Case 4

Use Case 5

Use Case 6

```
      ( start )
          │
          │ 1
          ▼
        (   )
     ┌────┤
     │    │ 2
     │    ▼
1.a. │   (   )
     │
     ▼
    (   )
     │
     │ 1.a.1
     ▼
    (   )
```
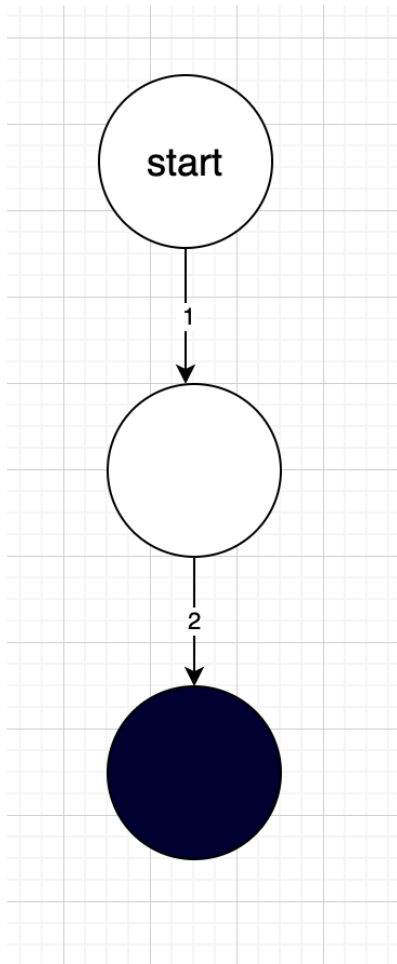
Use Case 7

Use Case 8
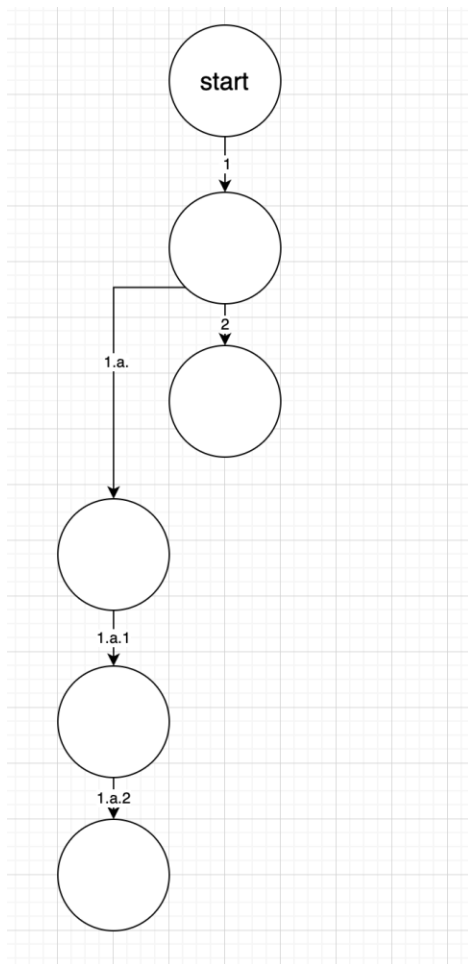
Use Case 9
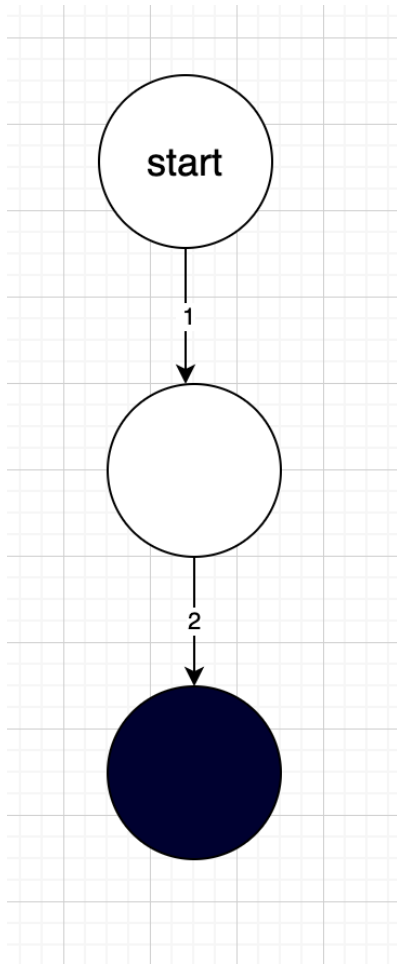
Use Case 10

2)

ID	Events	Description
1.1	1-2-3-4	Administrator enters authorized login information to access operations page.
1.2	1-2-3-3.a.1-2-3-4	Administrator enters authorized login information and does not access operations page.
2.1	1-2	Administrator enters authorized login information and signs out successfully.
3.1	1-2	Administrator enters the book information correctly and adds a book to the store catalogue.
3.2	1-1.a.1-1-2	Administrator enters the book information with missing or wrong information and does not add a book to the store catalogue.

3.3	1-1.b.1-1-2	Administrator enters the book information which has a duplicate book id and does not add a book to the store catalogue.
4.1	1-2	User enters a category and the catalogue search is performed.
4.2	1-1.a.1	User does not specify a category.
4.3	1-1.b.1	User enters a category with no matching books.
5.1**	1-2	Administrator selects a book to remove and the e-BookStore shows the list without the removed book.
6.1	1-2	Customer selects a book and adds it to their order.
6.2	1-1.a.1	Customer adds a book that is already in their order.
7.1**	1-2	Customer selects to view their books order and it shows the books order information.
8.1	1-2	Customer specifies the number of copies for a book and the e-Bookstore updates the total cost.
8.2	1-1.a.1-1.a.2	Customer adds less than or equal to 0 number of copies to their order.
9.1	1-2	Customer selects to check out and order is processed and information is displayed.
10.1	1-2	Customer selects a language and the information is displayed in the selected language.

3)

Test Case: TC1.1

Goal: Test the main course of events.

Scenario Reference: 1.1

Setup: e-Bookstore is ON, Create authorized administrator with username =admin and password = password

Course of test case

	External	Expected Reaction	Comments
1	Enter user Username = admin, Password = password	E-Book Store displays the operations page.	Username and password entered when the system is prompting for login.

Pass criteria: Administrator is logged in, the e-Bookstore is showing the operations for the store's catalogue.

Test Case: TC1.2

Goal: Test an unauthorized attempt to log in.

Scenario Reference: 1.2

Setup: e-Bookstore is ON, Create unauthorized administrator with username =test and password = test

Course of test case

	External	Expected Reaction	Comments
1	Enter user Username = test1, Password = test1	E-Book Store displays invalid credentials error message.	Username and password entered when the system is prompting for login.

Pass criteria: Administrator is not logged in, the e-Bookstore has shown an invalid credentials error. message.

Test Case: TC2.1

Goal: Test an attempt by the administrator to sign out.

Scenario Reference: 2.1

Setup: Administrator is logged in.

Course of test case

	External	Expected Reaction	Comments
1	Select sign out operation.	E-Book Store displays text that acknowledges the administrator signed out with "You have been logged out" text on the page.	Sign out operation clicked when the system is prompting for log out.

Pass criteria: Administrator is not logged in anymore.

Test Case: TC3.1

Goal: Test the main course of events in an attempt to add a book – correct book information on the first try

Scenario Reference: 3.1

Setup: Administrator is logged in and on the adding book page.

Course of test case

	External	Expected Reaction	Comments
1	Choose add new book operation.	The e-BookStore allows administrator to enter book information.	
2	Enter book Book category =test3 Book id = test3 Book title =test3 Book author name = test3 Cost = 10.0	E-BookStore displays the new book in the store's catalogue.	Book category, Book id, book title, book author, and cost entered when the system is prompting for information to add a new book.

Pass criteria: A new book has been added to the store's catalogue.

Test Case: TC3.2

Goal: Test incorrect or missing information entry for book, followed by correct information
Scenario Reference: 3.2

Setup: Administrator is logged in and on the adding book page

	External	Expected Reaction	Comments
1	Choose add new book operation.	The e-BookStore allows administrator to enter book information.	
2	Enter book **Book category missing** Book id = test3_2 Book title =test3_2 Book author name = test3_2 Cost = 12.0	E-BookStore displays the pertinent error messages.	Possible variation: interrupt the scenario and checks that a new book cannot be added.
3		The e-BookStore allows administrator to enter book information.	
4	Enter book Book category = test3_2 Book id = test3_2 Book title =test3_2 Book author name = test3_2 Cost = 12.0	E-BookStore displays the new book in the store's catalogue.	Book category, Book id, book title, book author, and cost entered when the system is prompting for information to add a new book.

Pass criteria: The e-Bookstore is showing the book information parameters and a new book can be added.

Test Case: TC3.3

Goal: Test duplicate id for book, followed by correct information

Scenario Reference: 3.3

Setup: Administrator is logged in and on the adding book page

	External	Expected Reaction	Comments
1	Choose add new book operation.	The e-BookStore allows administrator to enter book information.	
2	Enter book with same ID twice Book category = test3_3 Book id = test3_3 Book title = test3_3	The e-BookStore displays duplicate book id error message.	Username and password entered when the system is prompting for login.

	Book author name = Nobody Cost = 11.0		
3		The e-BookStore allows administrator to enter book information.	
4	Enter book Book category = test3_3 Book id = id2021 Book title = test3_3 Book author name = test3_3 Cost = 11.0	E-BookStore displays the new book in the store's catalogue.	Book category, Book id, book title, book author, and cost entered when the system is prompting for information to add a new book.

Pass criteria: The e-Bookstore is showing the book information parameters and a new book can be added.

Test Case: TC4.1

Goal: Test the main course of events to browse the catalogue.

Scenario Reference: 4.1

Setup: e-Bookstore is ON

Course of test case

ASSUMPTION: There are no categories on the site so this cam not be implemented as a test case.

	External	Expected Reaction	Comments
1	Enter book category	E-Book Store displays a list of selected books.	Category entered when the system is prompting for information for a catalogue search.

Pass criteria: A valid category is entered, and the e-BookStore is showing a list of selected books.

Test Case: TC4.2

Goal: Test an attempt by the user to browse the catalogue with no category specified.

Scenario Reference: 4.2

Setup: e-Bookstore is ON, perform search with category = ""

Course of test case

	External	Expected Reaction	Comments
1	Enter empty category field	E-Book Store displays a list of all the books in the catalogue.	No category entered when the system is prompting for

			information for a catalogue search.

Pass criteria: No category is entered, and the e-BookStore is showing a list of all the books in the catalogue.

Test Case: TC4.3

Goal: Test an attempt by the user to browse the catalogue with a non-existent category specified.

Scenario Reference: 4.3

Setup: e-Bookstore is ON, perform search with category = "action"

Course of test case

	External	Expected Reaction	Comments
1	Enter category Book category = action	E-Book Store displays a no matching book found message.	An invalid category entered when the system is prompting for information for a catalogue search.

Pass criteria: An invalid category is entered, and the e-BookStore has shown a no matching book found message.

Test Case: TC5.1

Goal: Test an attempt by the administrator to remove a book.

Scenario Reference: 5.1

Setup: Administrator is logged in, and list of books in the catalogue are being displayed.

Course of test case

	External	Expected Reaction	Comments
1	Select remove book operation.	E-Book Store displays the list of books without the removed book.	Remove a book operation clicked when the system prompts this operation by displaying it on the page.

Pass criteria: The removed book is not in the list of books anymore.

Test Case: TC6.1

Goal: Test an attempt by the customer to add a book to a books order.

Scenario Reference: 6.1

Setup: A list of catalogue books is being displayed.

Course of test case

	External	Expected Reaction	Comments
1	Enter book Book id = order-hall001	E-Book Store updates order with the added book.	Book id entered when the system is displaying all the books for the user to select from to add to the cart.

Pass criteria: The added book is in the books order.

Test Case: TC6.2

Goal: Test an attempt by the customer to add a book to a books order with an incorrect entry of adding a book with the same id.

Scenario Reference: 6.2

Setup: A list of catalogue books is being displayed.

Course of test case

	External	Expected Reaction	Comments
1	Enter book id twice Book id = order-hall001	E-Book Store displays the book order with the number of copies of the book incremented.	Book id entered when the system is displaying all the books for the user to select from to add to the cart.

Pass criteria: The number of added books in incremented in the books order.

Test Case: TC7.1

Goal: Test an attempt by the customer to view a books order.

Scenario Reference: 7.1

Setup: A list of catalogue books is being displayed.

Course of test case

	External	Expected Reaction	Comments
1	Select view books order operation.	E-Book Store displays the customer's book order.	The books added are displayed when view books order operation is clicked and the system prompts this operation by displaying it on the page.

Pass criteria: The book order information is shown.

Test Case: TC8.1

Goal: Test an attempt by the customer to update the number of ordered copies of a book.

Scenario Reference: 8.1

Setup: The customer's books order is being shown.

Course of test case

	External	Expected Reaction	Comments
1	Enter number of books Added books = 2	E-Book Store displays the updated number of books and total cost.	The number of copies of a book entered when the system is showing the books order page.

Pass criteria: The book order is shown with the updated number of copies and cost.

Test Case: TC8.2

Goal: Test an attempt by the customer to update the number of ordered copies of a book with an incorrect parameter.

Scenario Reference: 8.2

Setup: The customer's books order is being shown.

Course of test case

	External	Expected Reaction	Comments
1	Enter number of books Added books = 0	E-Book Store displays the updated number of books without the book.	The number of copies of a book entered when the system is showing the books order page.

Pass criteria: The books order is updated with a total cost of that book as 0 and have the book removed from the order.

Test Case: TC9.1

Goal: Test an attempt by the customer to check out a book and complete the order.

Scenario Reference: 9.1

Setup: The customer's books order is being shown.

Course of test case

	External	Expected Reaction	Comments
1	Select checkout operation.	E-Book Store process the order and displays the payment information.	Checkout clicked when the system prompts this operation by displaying this on the page.

Pass criteria: The books order is processed and the payment information is shown.

Test Case: TC10.1

Goal: Test an attempt by the user to select a language for the e-BookStore.

Scenario Reference: 10.1

Setup: e-Bookstore is ON

Course of test case

	External	Expected Reaction	Comments
1	Select a language. Language = French	E-Book Store displays the information in the selected language.	Language is selected when the operation is displayed on the page for user to select.

Pass criteria: The selected language is used by the e-BookStore with translated contents on the page.

Question 3 (50%)

Provide a implementation of the test situations derived from the functional

requirements in Question 1 and use case scenarios Question 2. Ensure you have

traceability between your test implementation and the test situation. Give a brief

explanation if you determine that a test situation cannot be implemented.

The function requirements should be written in Selenium using WebDriver, and the

use case scenarios can be implemented using either Selenium directly, or with

Cucumber (with StepDefs and Selenium invocation).

Attach screenshots of the result of running your tests to your report.

The test situation for Question 2 test case 7 was not implemented because there is no negative test case or more than one path that can be possible. This test case is also covered in our other test cases so we did not implement it.

The test situation for Question 1 test case F3 negative was implemented but was partially commented out because it throws an error for attempting to reference something that doesn't exist (like we want it to according to the test situation).

The test situation for Question 1 test case F8 negative was implemented but was commented out because it throws an error since a non-authenticated user cannot access the page it is attempting to go to, as we are testing in this test situation.

The test case for Question 2 in test case 5 is commented out because it is checking for an element that doesn't exist and will return an error for this reason.

Screenshot of results:

```
[INFO]
[INFO] Results:
[INFO]
[ERROR] Failures:
[ERROR]    ExampleSeleniumTest.TC3_3:539 expected: <Book with same id already exist> but was: <Successfully added book>
[ERROR]    ExampleSeleniumTest.TC8_1:703 expected: <$39.95> but was: <$79.90>
[ERROR]    ExampleSeleniumTest.testF1negative:169 expected: <Successfully> but was: <Validation>
[ERROR]    ExampleSeleniumTest.testF2negative:196 expected: <We> but was: <Sorry>
[INFO]
[ERROR] Tests run: 33, Failures: 4, Errors: 0, Skipped: 0
[INFO]
[INFO] ------------------------------------------------------------------------
[INFO] BUILD FAILURE
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  02:39 min
[INFO] Finished at: 2021-07-20T22:49:02-04:00
[INFO] ------------------------------------------------------------------------
```

Please note that the 4 failures are purposely implemented as part of our tests.

The failure for testF1negative showed up as a result of testing if a user would successfully add a book to the catalog without having all the necessary information (it did not work, as expected). The failure for testF2negative showed up as a result of testing if a user would be able to search through a catalog of results when searching in a category that wouldn't display any results (so it did not work , as expected).