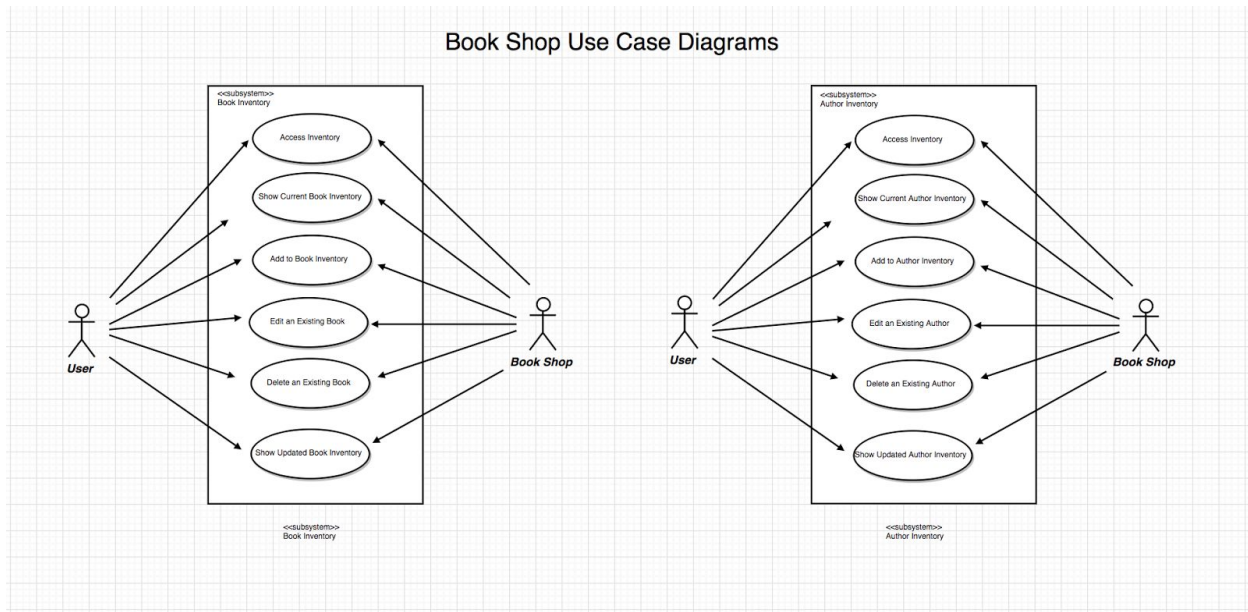<u>Mike Casey - Analysis and Design Unit (SQA PDA:Software Development)</u>
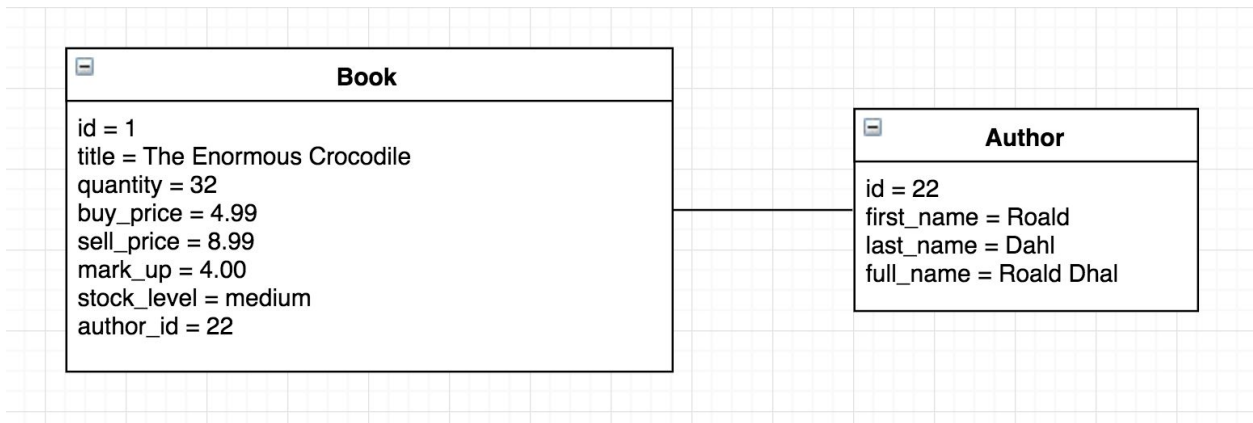
A.D.1 Use Case Diagram

Book Shop Use Case Diagrams

A.D.2 Class Diagram

A.D.3 Object Diagram

Book

id = 1
title = The Enormous Crocodile
quantity = 32
buy_price = 4.99
sell_price = 8.99
mark_up = 4.00
stock_level = medium
author_id = 22

Author

id = 22
first_name = Roald
last_name = Dahl
full_name = Roald Dhal
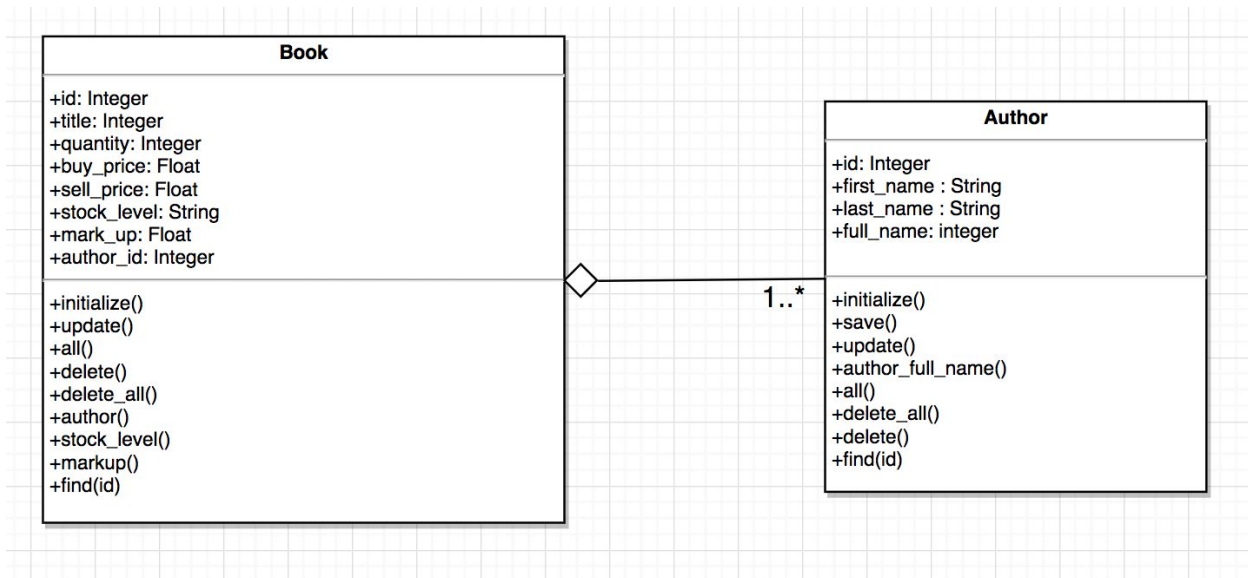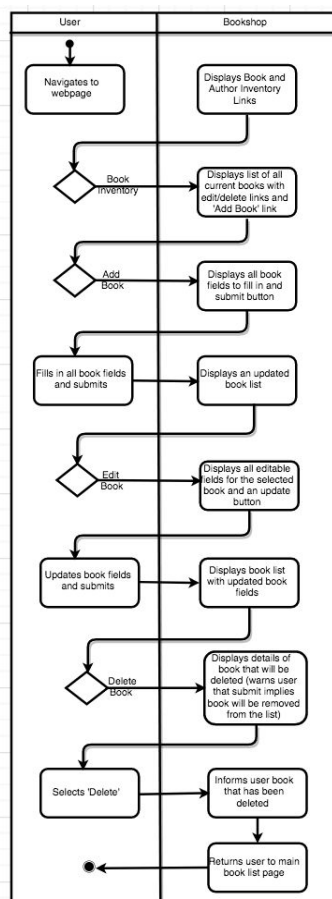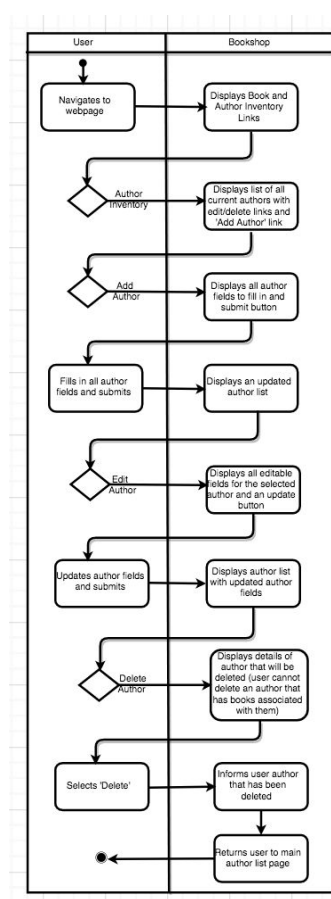
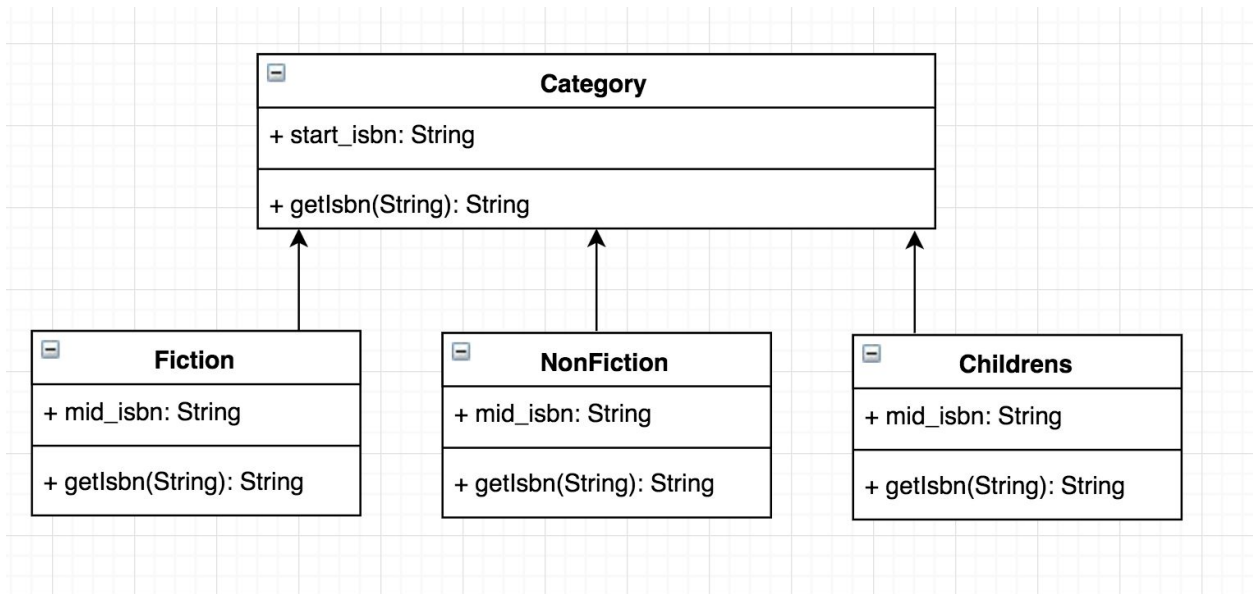## A.D.4 Activity Diagrams

Book Inventory

Author Inventory

A.D.5 Inheritance Diagram

A.D.6 Implementations Constraints Plan

Topic	Constraint	Effect of Constraint on Product	Solution
Hardware and software platforms	Product tested on only one operating system (Mac) and on two browsers (Chrome and Safari). Product only tested in a laptop environment.	Product testing on another operating system e.g. Windows and on other available browsers (e.g. Firefox/Edge/NetSurf) may cause the product to function incorrectly. Product is not available for mobile environments such as phones and tablets.	Test the product on the Mac platform with several different browsers. Port the product to another operating system, re-build and test on several browsers. This will determine whether the product is able to function cross platform in different browser environments. Consider developing product for mobile environments.
Performance Requirements	Current product is small scale with relatively few authors and books in the database.	If the product is required to scale up significantly i.e. thousands of books and authors, the existing code may not be efficient in retrieving the information to the user and carrying out actions on the database contents. The user maybe left waiting for actions to be performed.	Generate a large database of authors and books to reflect a real world bookshop. Test the efficiency of the product when carrying out actions on the scaled up database.
Persistent Storage Transactions	As the product database is currently small scale, testing of persistence storage transactions has been limited.	The product may well be developed with several more web pages and a scaled up database of authors and books. It could be the case that performing CRUD (Create/Read/Update/Delete) operations on a more comprehensive product could result in issues with persistence with regard to data storage.	Scale up the database of authors and books. Fully test persistence of the data when applying CRUD operations.
Usability	Product assumes user has no visual	Assumption that product meets MVP and has satisfactory usage is questionable	Develop functionality to take into account usage by visually impaired

	impairment. Product not tested by third parties - only developer. No testing program developed.	considering only developer has tested it. Product may not be particularly usable to a wide range of users.	users. Consider testing by a range of users, gaining feedback on the UX. Implement any changes required.
Budgets	No consideration as to how much this product could be sold to a bookshop or the costs for product maintenance or development.	No financial considerations for product maintenance, developer could lose out on income. The user may ask for product developments after initial purchase and this must be taken into account by developer in terms of budget available and charges made.	If product is purchased then a contract must be drawn up detailing costs for initial purchase and associated maintenance. Any requested developments must be fully understood by developer and associated costs and timescales calculated.
Time Limitations	Initial product met MVP in required timescale. Any requested product developments, however, may have time constraints based on developer workload and availability.	A customer may ask for additional functionality or require a change in the functionality of the product. Time could well be limited based on the workload of the developer. A customer may become unhappy that there needs are not addressed in a timely manner.	Meetings held between the developer and customer to fully capture the needs of the customer. Developer to inform the customer of the timescales involved in carrying out tasks.