School of Science, Computing and Engineering Technologies
Swinburne University of Technology
SWE30003 Software Architectures and Design
Tutorial Week 10
(Architecture Design & Quality Attributes)

Please carefully read the description of the following outline of a software system and within a group of three to four students, come up with an *architectural solution* for the given case study. Justify your solution and discuss the quality implications of the approach taken.

You can assume that the system is for a medium-sized bookstore with app. 50,000 book titles on record, on average, about 10,000 books (including duplicates) in stock, app. 20 sales transactions per hour, and 5 staff members in the store at all times.

Case Study: Bookshop

Goals:
- To reduce the average number of staff members required on-site by at least 15% within the first 6 months.
- To speed up the average time taken to search for a book in the store by at least 10% over the first month.

Domain:
- The product shall support adding of books, including their Title, Author, Serial # and Date of Publication.
- The product shall support selling of books.
- The product shall support returning or refunding of books.
- The product shall support searching for books and offering a guide for finding their physical location.
- The product shall support categorisation of books by genre (Science Fiction, Horror, Action, etc.)

Product:
- The product shall have a function for adding and removing books from a database. This function must ensure there are no duplicate books listed in the database.
- The product shall have a function for altering the on-hand stock count of each book in the database. When a book is sold, it must decrease the stock count, or when more stock arrives, it must support incrementing it.
- The product must have a function for recording sales, including which book was sold and for how much.
- The product must allow users to search the database by either Title, Author, Serial #, Genre, or a combination of these. This function must return all details on the book, such as the aforementioned values, the year of publication, the books physical location in the store, the current stock count for the book, as well as its retail price.
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Any questions from weekly submissions?