**IT628 SYSTEMS PROGRAMMING   
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**PROJECT : BOOKSTORE**

**Bring Your Book into The Market…**

1. Goal of the Project

* The project will have two main actors:

(I)Publication Companies

(II)Bookstore

* The Publication Companies will be able to manage their published books through a locally stored book-information file.
* They will communicate with the bookstore to send the details of their books for selling them into the market.
* The bookstore will keep track of all the information about each published book.

1. Requirements

* The publication company will be provided with the functionality of managing their book details in which they will be provided with two options:

1. Adding new book details into local file
2. Viewing all the book details from a local file

* The publication company will be provided with the functionality of sending their book details to the bookstore by fetching details from his/her local file through the book id.
* After fetching the details publication company will be asked about the additional details of their book like no. of copies he wants to send, the discount he wishes to give to the bookstore.
* For sending book details , publication company will login as a client. If the login credentials are wrong even after three attempts, client will have to wait for 10 secs and retry. After five wrong attempts client will have to restart the system.
* More than one publication company can login as a client at a time.
* Provided with book id , no. of copies and discount , the system will calculate the total amount receivable from bookstore.
* The Bookstore will receive all the information from various publication companies and it will be stored into a single file at his side.

1. Assumptions

* The Bookstore will have the login details i.e., username and password of publication companies into a file in a pre-defined manner.
* The publication companies will be registered into the system.
* The discount amount is pre-decided and pre-discussed between Publication Company and Bookstore.
* Both Publication Company and Bookstore needs to manually update or delete the book details from the file itself keeping the pre-defined format in mind.

1. Implementation

* Client (publication company) – Server(bookstore) communication will be established by using concept of Network Programming.
* Shell script will be executed at client side which will provide him option to manage his/her local files or send book details to the bookstore , which will be achieved by connecting him to the server.
* If the publication company wishes to add book details into existing file or view the local file , concepts of FILE IO will be used.
* If the publication company wishes to send details of his books to the bookstore, concept of Process Management will be used.
  + The parent process will read book id , no. of copies and discount from client terminal and pass it to the child process through Pipes.
  + For each book detail passed , a new child process will be created who will read details from the parent , fetch book details from the file and calculate the total amount receivable from bookstore by multiplying copies with price after discount.
  + The child process will then send the whole information to the bookstore.
* The server will have a file containing all login details for each publication company , which will be stored into a list for faster access.
* For handling different clients at same time , the server will create a new child process for each client.
* The server will read book details received from clients and will update the file at his side with the book details list, for which thread and locking mechanism will be used.
* The concept of Signals will be used to monitor the termination of processes and clear the dynamically allocated memory before termination.