**CSC 322 Programming Assignments - 2023/2024**

**Assignment 1**

Develop a stand alone program which implements an online shopping application for Books that provides the following services DisplayCatalog(); searchforItem(); PurchaseItem; PayforItem(); The following attributes describe a book as required: Title, Author(s), ISBN, Publisher, Date of publication. The program should maintain a list of books in a text file with the format shown below. No two books should have the same ISBN number.

| S/No Title Authors ISBN Publisher Date of publication |
| --- |
| 1 Network programming xxxxxxx xxxxxx xxxxxxxxx xxxxxxxxxxxxxx  2 |

You should also provide a connection oriented version with client and server running on the same machine. Both programs should be ready for presentation by Friday - 12th April 2024

**Assignment 2**

Your Group is required to implement a client server versions of the program in assignment 1, with client and server running on different machines. You should provide the following variations of the client server program. By 10th May 2024 in Lab on Friday

1. Iterative Connectionless
2. Iterative Connection oriented
3. Concurrent Connectionless
4. Concurrent Connection oriented

* Please let each group print out a hard copy of each program before class with the list of group members (who participated) indicated on the paper.
* Let each program be accompanied by the conceptual server algorithm as applied in that program.
* Let each group have appropriate comments in their program to indicate the various sections of the server (and client) program as per the conceptual server algorithm e.g accept request, process request, formulate reply, send reply to client, exit etc
* Let each group have a separate document where they describe their application protocol in sufficient detail
* Let each group be ready to demo their program using at least three client machines and one server machine.
* Everyone should have read chapter 2 (client server model) and chapter 8 (server software design) of the recommended text book
* Let each group briefly describe their file format and print out a hard copy of a sample file

**Assignment 3**

Develop a stand alone program which implements a simple calculator. The calculator can perform the following operations (addition or multiplication followed by (square root or square)) of any two integers supplied by the user.

Should also have a client server version with the client and server running on different machines

Should be ready for presentation by Friday - 12th May 2024 and !0th May 2024 respectively

Similar instructions as in assignment 1

**Assignment 4**

Read and describe (in a Document + presentation Format) the HTTP application layer protocol - its architecture/components and their functions and the application protocol. Subsequently develop an interactive **client program** that can be used to get a web page from any web server of a user’s choice.

Should be ready for presentation by Monday - 10th May 2024

**Assignment 5**

Convert the two programs (i) Online Bookshop and (ii) calculator into distributed programs that use the RPC paradigm. Distributed programming and RPC to be covered in class.

Should be ready for presentation by Friday - 10th May 2024

Similar instructions as in assignment 1