

# CS 632 Topics in Distributed System

## Assignment 1

Q1 (A): Use RPC to write a program which outputs corresponding day from given date. The client program will take input date from the user in the format specified below. It should use three different remote functions: (1) Number of days to be added to account for the Leap years (2) Number of days elapsed from 1st January year 1 (3) Computation of day. These three functions would be available on three different servers. **(20 marks)**

Example:

Input: 9/8/2014

Output: Saturday.

Q1 (B): Write another remote function, which can be used by the client program to output number of Thursdays between given two dates (Inclusive). Generalize your program to output number of any specified day given as input, i.e., number of Sundays or number of Saturdays, etc. **(10 marks)**

Example:

Input: 9/8/2014 23/8/2014

Output: 2.

### Notes:

1. You have to code the solution for both given problems using **RPC**.
2. Input format should be DD/MM/YYYY.
3.  $1 \leq MM \leq 12$ ,  $1 \leq DD \leq 31$ ,  $1900 \leq YY \leq 10^{16}$ .
4. For Q1 (B),  $Y1 \leq Y2 \leq (Y1 + 1000)$ .

**This part of the assignment helps you to learn socket programming**

It's a library management system without any Database (i.e. book names should be in some data structure).

Q2(A): Search for a book in the data structure **(5 marks)**

Q2(B): If the book is not issued then give option for issue else give an option is reserve/ renew book **(5 marks)**

Q2(C): Give another option to add book to Data structure  
**(5 marks)**

Q2(D): **Extra marks** : If multiple request can be handled in parallel i.e. if a book say X is not present initially but two requests comes parallel one to add book to data structure and another searching for the book handle request one after the other, search should result with proper output. **(5 marks)**

Data structure should be implemented efficiently.

**Notes:**

1. Plagiarism is severely punishable.
2. You have to demonstrate and explain your code as per schedule which will be informed to you by email and notification on website.
3. Deadline is **16/08/2014, 11.59PM.**