DATABASE SYSTEMS (CSE 441)
Assignment 3
Deadline: Sunday, 13th, November 2016, 09:00 P.M.

Instructions:
1. Plagiarism will not be tolerated. Copy from any source and in any form (friends/seniors/internet) will fetch you straight 0 marks in all the assignments and quiz.
2. Be careful about your submissions. You must strictly follow the upload format. Failure to do so will fetch you a zero.

In this assignment you have to implement the Log files of Undo and Redo logging methods for the given below transactions.

Initial Values of A, B are 8, 8:
Transaction 1 (T1) is as follows:

READ(A,t)
t := t*2
WRITE(A, t)
READ(B, t)
t := t*2
WRITE(B, t)
OUTPUT(A)
OUTPUT(B)

Initial values of C, D are 5, 10:
Transaction 2 (T2) is as follows:

READ(C, t1)
READ(D, t2)
t1 = t1+t2
WRITE(C, t1)
t1 = t1-t2
t1 = t1+t2
WRITE(D, t1)
OUTPUT(C)
OUTPUT(D)

Initial Values of E, F are 5, 10:
Transaction 3 (T3) is as follows:

READ(F, t)
t = t+1
WRITE(E, t)
READ(E, t)
t = t+1
WRITE(F, t)
OUTPUT(E)
OUTPUT(F)

Consider the above transactions and assume round robin method for processing these transactions(i.e First take T1 , then T2 and then T3), taking time quantum to be varying from 1 action each to entire transaction at a time and give undo, redo, undo/redo log records for each quantum.

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Time Quantum varying from 1 action at a time to entire transaction
at a time means:

1) 1st step of T1 then 1st step of T2 and then 1st step of T3

   and again 2nd step of T1 and so on ...

2) 2 steps of T1 then 2steps of T2 and then 2 steps of T3

   and again next 2 steps of T1 and so on ...

3) ... ... ...

.

.

n) Total n steps of T1 then Total n steps of T2 and then Total n steps of
T3. and done.
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Also while writing the log, for each line do mention the values of all the variables (A, B, C, D, E, F) , besides the log in the same file.

Please follow the same format for writing the log as it is in the text book, one log per line.
Also do name the transactions as **T1, T2, T3** in our log files. Follow the format give below for showing variable values:

ex:- <start T1> A 8 B 8 C 5 D 10 E 5 F 10
<commit T3> A 16 B 16 C 15 D 15 E 6 F 7
Single space after each.

And indicate what are the cases that holds **The correctness principle.**

Last line of the output file will contain numbers separated by spaces indicates that these cases holds the correctness principle.

(Ex: 2 3 10)

Regarding evaluation, it is **automated**, we check the values of the variables of each transaction, by running a script on the output files generated by you(for all quantums).

Deliverables:

You need to put your code in the **“code”** named folder and all your log files in the **“log”** named folder, the name of each log file should be **<quantum_no>.txt<method of logging>** {ex:- 1.txt_undo, 1.txt_redo 2.txt_undo, 2.txt_redo and so on}. You should submit a **tar file** named **<roll number.tar>** which consists these code and log folders.

Note:

Consider the order of arrival to be T1,T2,T3 but almost all at the same time. Also though the evaluation is automated, we will also be doing a manual evaluation and will go through your log files. During manual evaluation if we find any case where you hardcoded the values of the variables into log file, you will be given a straight away **ZERO** marks.