Recovery

Given a concurrent execution trace, create corresponding log file and perform recovery using that log file. At the end display the recovered values of all data items.

Operations

- Start Transaction: S

  Parameter: Transaction id

  Format of log entry:

  S

  Transaction id

- Read operation: R

  Parameters: Transaction id, Data id

  Format of log entry:

  No log entry required.

- Write operation: W

  Parameters: Transaction id, Data id, Value

  Format of log entry:

  W

  Transaction id

  Data id

  Old value

  New Value

- Commit operation: C

  Parameters: Transaction id

Format of log entry:

C

Transaction id

Consider the given input file.

Line 1 describes the number of data items. t describes two data resources, A and B with their initial values.

Next is a trace of concurrent execution.

Lines 6 and 7 describe starting of transaction 1. Corresponding log entry should be

S

1

Lines 8 and 9 describe that transaction 1 reads the value of A. No log entry should be created.

Lines 18 to 21 describe that transaction 1 writes value 900 for data item A. Previous value of A was 1000. Corresponding log entry should be

W

1

A

1000

900

Lines 33 and 34 describe commit operation for transaction 1. Corresponding log entry should be

C

1

After analyzing this log we notice that transaction 3 should be rolled back. Recovered values of A and B should be 900 and 2500 respectively.

Read from the standard input.

Write log file and recovered values to standard output.

Submit single code file <roll_number>_recovery.cpp