**CSE-5331-001-DBMS MODELS AND IMPLEMENTATION TECHNIQUES**

**Project 1 Phase 2**

**Rigorous 2PL with Wound-Wait protocol**

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**Data Structure:**

The data structure used for rigorous 2PL with wound-wait protocol is as follows:

* Hash Map for Transaction Table and Lock Table
* ArrayList for List of operations waiting

**Additional Information in the lock table:**

A separate column to keep track on the number of read operation in the lock table is added.

**Information stored in transaction Table:**

* transaction\_id
* transaction\_timestamp
* transaction\_state
* list\_of\_items\_locked

**Information stored in Lock Table:**

* item\_name
* lock\_state
* transaction\_holding\_lock
* transaction\_id\_waiting\_for\_lock
* lock\_status
* no\_of reads

**Class Files used in the Project:**

* Rigorous\_2PL.java
* Transaction\_Table.java
* LockTable.java

Source Code is available in the Java Files Folder in the zip file. Please Refer.

**File Path used for the input file:**

N:\\STUDIES\\Semester\\Summer 2019\\Database 2\\Project 1\_Phase 2\\Inputs\\input 1.txt

**Output for the given inputs:**

Input 1:

b1;

r1(Y);

w1(Y);

r1(Z);

b2;

r2(X);

w2(X);

w1(Z);

e1;

r2(Y);

b3;

r3(Z);

w3(Z);

w2(Y);

e2;

b4;

w4(Y);

r3(X);

w3(X);

e3;

w4(X);

e4;

Output\_1:

A screenshot of a cell phone

Description automatically generated

Input 2:

b1;

r1(Y);

w1(Y);

r1(Z);

b2;

r2(X);

w2(X);

w1(Z);

r2(Y);

e1;

b3;

r3(Z);

w3(Z);

w2(Y);

e2;

r3(X);

w3(X);

b4;

w4(X);

e3;

e4;

Output\_2:

A screenshot of a cell phone

Description automatically generated

Input 3:

b1;

r1(Y);

w1(Y);

r1(Z);

b2;

r2(X);

w2(X);

w1(Z);

r2(Y);

e1;

b3;

r3(Z);

w3(Z);

w2(Y);

e2;

b4;

w4(X);

r3(X);

e4;

w3(X);

e3;

Output\_3:

A screenshot of a cell phone

Description automatically generated

Input 4:

b1;

r1(Z);

b2;

r2(X);

w2(X);

w1(Z);

r2(Y);

r1(Y);

w1(Y);

b3;

r3(Z);

e1;

w3(Z);

w2(Y);

e2;

r3(X);

w3(X);

e3;

Output\_4:

A screenshot of a cell phone

Description automatically generated

Input 5:

b1;

r1(Y);

r1(Z);

b2;

r2(Y);

b3;

r3(Y);

w1(Z);

w3(Y);

e1;

e3;

w2(Y);

r2(X);

w2(X);

e2;

Output \_5:

A screenshot of a computer

Description automatically generated

Input 6:

b1;

r1(Y);

r1(Z);

b2;

r2(Y);

b3;

r3(Y);

w1(Z);

w3(Y);

w2(Y);

r2(X);

e1;

e3;

w2(X);

e2;

Output\_6:

A screenshot of a cell phone

Description automatically generated

Input 7:

b1;

r1(Y);

r1(Z);

b2;

r2(Y);

b3;

r3(Y);

w1(Z);

w3(Y);

w2(Y);

r2(X);

e1;

e3;

w2(X);

e2;

Output\_7:

A screenshot of a cell phone

Description automatically generated