b1;

Transaction 1 has begun and it has been entered in the transaction table with it's state as Active and timestamp as 1.

r1(Y);

Transaction 1 is Active so entry for data item Y has been made in the lock table and transaction 1 has acquired Read Lock on it.

w1(Y);

For the data item Y and transaction ID 1 lock has been upgraded to Write Lock.

r1(Z);

Transaction 1 is Active so entry for data item Z has been made in the lock table and transaction 1 has acquired Read Lock on it.

b2;

Transaction 2 has begun and it has been entered in the transaction table with it's state as Active and timestamp as 2.

r2(X);

Transaction 2 is Active so entry for data item X has been made in the lock table and transaction 2 has acquired Read Lock on it.

w2(X);

For the data item X and transaction ID 2 lock has been upgraded to Write Lock.

w1(Z);

For the data item Z and transaction ID 1 lock has been upgraded to Write Lock.

r2(Y);

Transaction 2 has been blocked and Read operation Y has been added to the waiting operation queue in the transaction table and transaction Id 2 has been added to the waiting list queue in the lock table.

e1;

Transaction 1 has released write lock on Y

Transaction 2 has been changed from Block to Active

Running its waiting operations

Transaction 2 has acquired Read Lock on data item Y

Transaction 1 has released write lock on Z

Releasing locks aquired by transaction 1

b3;

Transaction 3 has begun and it has been entered in the transaction table with it's state as Active and timestamp as 3.

r3(Z);

Transaction 3 is Active so entry for data item Z has been made in the lock table and transaction 3 has acquired Read Lock on it.

w3(Z);

For the data item Z and transaction ID 3 lock has been upgraded to Write Lock.

w2(Y);

For the data item Y and transaction ID 2 lock has been upgraded to Write Lock.

e2;

Transaction 2 has released write lock on X

Transaction 2 has released write lock on Y

Releasing locks aquired by transaction 2

b4;

Transaction 4 has begun and it has been entered in the transaction table with it's state as Active and timestamp as 4.

w4(X);

Transaction 4 is Active so entry for data item X has been made in the lock table and transaction 4 has acquired Write Lock on it.

r3(X);

Transaction 4 abortes because it has higher timestamp and transaction 3 acquires Read Lock on data item X

Transaction 4 has released read lock on X

e4;

Transaction 4 cannot be committed because it has already been aborted.

w3(X);

Transaction 3 has acquired Write Lock on data item X

e3;

Transaction 3 has released write lock on Z

Transaction 3 has released write lock on X

Releasing locks aquired by transaction 3