Problem 1:

Solution provided.

Output:

*cd "/Users/nabid/Documents/MS TUK/Winter\_19-20/Database System/Exercise/Exercise 10/exec" ; /Library/Java/JavaVirtualMachines/jdk1.8.0\_144.jdk/Contents/Home/bin/java -agentlib:jdwp=transport=dt\_socket,server=n,suspend=y,address=localhost:54566 -Dfile.encoding=UTF-8 -cp "/Users/nabid/Library/Application Support/Code/User/workspaceStorage/6ff3f04169006a1c4a445d34afb09355/redhat.java/jdt\_ws/exec\_67744d7c/bin" Recovery*

--------- Test 1 ---------

--- Input log: ---

[#1, T1, BOT, , , ]

[#2, T2, BOT, , , ]

[#3, T1, A, A-=50, A+=50, #1]

[#4, T2, C, C+=100, C-=100, #2]

[#5, T1, B, B+=50, B-=50, #3]

[#6, T1, COMMIT, , , #5]

[#7, T2, A, A-=100, A+=100, #4]

--- Tests: ---

Loser Transactions: [T2]

Expected Loser Transactions: [T2]

Test 1 successful

Question 2:

1. Rollback is performed on T2 due to ABORT as followed:• Log entries that belong to this transaction are processed in reverse order.  
   • This can be done using the log buffer, since we can see here that the main memory is still intact (Abort happened before crash).  
   • Using PrevLSN we can traverse backward and execute undo operations.  
   • Before the execution of the undo we need to, write a log entry using CLRs.
2. 