Activating the network ...

Initializing client sending application ...

Initializing the transactions ...

Connecting client to network ...

Initializing client receiving application ...

Initializing the server ...

Inializing the Accounts database ...

Connecting server to network ...

DEBUG : Server.withdraw - i 1 Current balance 1000.0 Amount 500.0 Thread2

DEBUG : Server.deposit - i 0 Current balance 10.0 Amount 90.0 Thread1

DEBUG : Server.deposit - i 3 Current balance 120000.0 Amount 20000.0 Thread1

DEBUG : Server.withdraw - i 2 Current balance 28000.0 Amount 20000.0 Thread2

DEBUG : Server.withdraw - i 4 Current balance 125.0 Amount 25.0 Thread1

DEBUG : Server.deposit - i 6 Current balance 17000.0 Amount 3000.0 Thread1

Account number 11528 Account Balance 500.0 Message done

Account number 31718 Account Balance 100.0 Message done

Account number 10538 Account Balance 140000.0 Message done

Account number 16783 Account Balance 8000.0 Message done

Account number 21015 Account Balance 100.0 Message done

Account number 82465 Account Balance 20000.0 Message done

DEBUG : Server.query - i 7 Current balance 20500.0 Thread1

DEBUG : Server.query - i 5 Current balance 1750.0 Thread2

DEBUG : Server.deposit - i 8 Current balance 75.0 Amount 25.0 Thread1

Account number 31816 Account Balance 20500.0 Message done

DEBUG : Server.deposit - i 11 Current balance 25.0 Amount 725.0 Thread1

DEBUG : Server.withdraw - i 9 Current balance 1300.0 Amount 1500.0 Thread2

Account number 61326 Account Balance 1750.0 Message done

DEBUG : Server.query - i 12 Current balance 1000.0 Thread1

DEBUG : Server.deposit - i 13 Current balance 1000.0 Amount 100.0 Thread2

Account number 73745 Account Balance 100.0 Message done

DEBUG : Server.deposit - i 15 Current balance 45.0 Amount 55.0 Thread2

DEBUG : Server.withdraw - i 14 Current balance 100.0 Amount 100.0 Thread1

DEBUG : Server.withdraw - i 16 Current balance 0.0 Amount 1000.0 Thread1

DEBUG : Server.withdraw - i 17 Current balance 38000.0 Amount 5000.0 Thread1

DEBUG : Server.query - i 18 Current balance 65000.0 Thread1

Account number 92012 Account Balance 750.0 Message done

Account number 81514 Account Balance -200.0 Message done

Account number 52853 Account Balance 1000.0 Message done

Account number 41714 Account Balance 1100.0 Message done

Account number 62080 Account Balance 100.0 Message done

Account number 58342 Account Balance 0.0 Message done

Account number 21638 Account Balance -1000.0 Message done

Account number 52726 Account Balance 33000.0 Message done

Account number 91316 Account Balance 65000.0 Message done

DEBUG : Server.deposit - i 9 Current balance -200.0 Amount 200.0 Thread2

DEBUG : Server.deposit - i 21 Current balance 1280.0 Amount 220.0 Thread2

DEBUG : Server.withdraw - i 22 Current balance 10.0 Amount 10.0 Thread2

DEBUG : Server.withdraw - i 23 Current balance 2850.0 Amount 1850.0 Thread2

DEBUG : Server.deposit - i 24 Current balance 50.0 Amount 250.0 Thread2

DEBUG : Server.withdraw - i 25 Current balance 0.0 Amount 800.0 Thread2

Account number 81514 Account Balance 0.0 Message done

Account number 41911 Account Balance 1500.0 Message done

Account number 39331 Account Balance 0.0 Message done

Account number 91312 Account Balance 1000.0 Message done

Account number 15307 Account Balance 300.0 Message done

Account number 51728 Account Balance -800.0 Message done

DEBUG : Server.deposit - i 19 Current balance 65.0 Amount 1035.0 Thread1

DEBUG : Server.withdraw - i 26 Current balance 1100.0 Amount 100.0 Thread1

DEBUG : Server.withdraw - i 19 Current balance 1100.0 Amount 100.0 Thread2

DEBUG : Server.deposit - i 27 Current balance 5200.0 Amount 1800.0 Thread1

DEBUG : Server.query - i 28 Current balance 2000.0 Thread2

Account number 60520 Account Balance 1100.0 Message done

DEBUG : Server.deposit - i 31 Current balance 1005.0 Amount 495.0 Thread2

Account number 43902 Account Balance 1000.0 Message done

Account number 60520 Account Balance 1000.0 Message done

DEBUG : Server.deposit - i 32 Current balance 5300.0 Amount 500.0 Thread2

DEBUG : Server.query - i 33 Current balance 0.0 Thread2

Account number 52521 Account Balance 7000.0 Message done

DEBUG : Server.withdraw - i 34 Current balance 1090.0 Amount 90.0 Thread2

Account number 31215 Account Balance 2000.0 Message done

DEBUG : Server.withdraw - i 35 Current balance 100.0 Amount 500.0 Thread2

Account number 41024 Account Balance 1500.0 Message done

Account number 38421 Account Balance 5800.0 Message done

Account number 70321 Account Balance 0.0 Message done

Account number 12421 Account Balance 1000.0 Message done

Account number 82411 Account Balance -400.0 Message done

DEBUG : Server.deposit - i 29 Current balance 20.0 Amount 80.0 Thread1

DEBUG : Server.deposit - i 36 Current balance 85.0 Amount 15.0 Thread1

DEBUG : Server.withdraw - i 29 Current balance 100.0 Amount 50.0 Thread2

DEBUG : Server.deposit - i 37 Current balance 675.0 Amount 325.0 Thread1

DEBUG : Server.withdraw - i 38 Current balance 1900.0 Amount 900.0 Thread2

Account number 22310 Account Balance 100.0 Message done

DEBUG : Server.deposit - i 41 Current balance 1500.0 Amount 1500.0 Thread2

Account number 21117 Account Balance 100.0 Message done

DEBUG : Server.withdraw - i 42 Current balance 200.0 Amount 300.0 Thread2

Account number 22310 Account Balance 50.0 Message done

DEBUG : Server.deposit - i 43 Current balance 250.0 Amount 250.0 Thread2

Account number 00925 Account Balance 1000.0 Message done

DEBUG : Server.deposit - i 44 Current balance 95.0 Amount 305.0 Thread2

Account number 31820 Account Balance 1000.0 Message done

DEBUG : Server.deposit - i 45 Current balance 0.0 Amount 1000.0 Thread2

Account number 32613 Account Balance 3000.0 Message done

Account number 13133 Account Balance -100.0 Message done

Account number 43018 Account Balance 500.0 Message done

Account number 91412 Account Balance 400.0 Message done

Account number 11314 Account Balance 1000.0 Message done

DEBUG : Server.deposit - i 39 Current balance 65.0 Amount 35.0 Thread1

DEBUG : Server.query - i 46 Current balance 1620.0 Thread1

Account number 91715 Account Balance 100.0 Message done

DEBUG : Server.withdraw - i 39 Current balance 100.0 Amount 150.0 Thread2

DEBUG : Server.withdraw - i 47 Current balance 10000.0 Amount 10000.0 Thread1

DEBUG : Server.deposit - i 48 Current balance 35.0 Amount 65.0 Thread2

Account number 00812 Account Balance 1620.0 Message done

DEBUG : Server.withdraw - i 51 Current balance 1345.0 Amount 345.0 Thread2

DEBUG : Server.withdraw - i 49 Current balance 0.0 Amount 250.0 Thread1

Account number 91715 Account Balance -50.0 Message done

DEBUG : Server.deposit - i 53 Current balance 300.0 Amount 700.0 Thread1

DEBUG : Server.deposit - i 52 Current balance 145.0 Amount 155.0 Thread2

DEBUG : Server.withdraw - i 55 Current balance 1850.0 Amount 350.0 Thread2

Account number 61527 Account Balance 0.0 Message done

DEBUG : Server.deposit - i 54 Current balance 560.0 Amount 300.0 Thread1

Account number 43817 Account Balance 100.0 Message done

Account number 92716 Account Balance 1000.0 Message done

Account number 92018 Account Balance -250.0 Message done

Account number 60716 Account Balance 1000.0 Message done

Account number 01113 Account Balance 300.0 Message done

DEBUG : Server.withdraw - i 56 Current balance 2350.0 Amount 2000.0 Thread1

Account number 13331 Account Balance 1500.0 Message done

Account number 01823 Account Balance 860.0 Message done

Account number 81368 Account Balance 350.0 Message done

DEBUG : Server.deposit - i 57 Current balance 1420.0 Amount 180.0 Thread1

DEBUG : Server.withdraw - i 58 Current balance 3500.0 Amount 2300.0 Thread1

Account number 91214 Account Balance 1600.0 Message done

Account number 91245 Account Balance 1200.0 Message done

DEBUG : Server.withdraw - i 59 Current balance 980.0 Amount 900.0 Thread1

Account number 42018 Account Balance 80.0 Message done

DEBUG : Server.query - i 61 Current balance 1.05E7 Thread1

DEBUG : Server.withdraw - i 62 Current balance 1740.0 Amount 1500.0 Thread1

Account number 01314 Account Balance 1.05E7 Message done

Account number 20922 Account Balance 240.0 Message done

DEBUG : Server.query - i 63 Current balance 535000.0 Thread1

DEBUG : Server.deposit - i 64 Current balance 845250.0 Amount 134750.0 Thread1

Account number 21219 Account Balance 535000.0 Message done

Account number 83530 Account Balance 980000.0 Message done

DEBUG : Server.withdraw - i 65 Current balance 375.0 Amount 250.0 Thread1

DEBUG : Server.withdraw - i 59 Current balance 80.0 Amount 80.0 Thread1

DEBUG : Server.deposit - i 66 Current balance 50000.0 Amount 50000.0 Thread1

DEBUG : Server.deposit - i 67 Current balance 1290.0 Amount 1110.0 Thread1

DEBUG : Server.deposit - i 68 Current balance 350.0 Amount 650.0 Thread1

DEBUG : Server.withdraw - i 69 Current balance 625.0 Amount 600.0 Thread1

Account number 83830 Account Balance 125.0 Message done

Account number 42018 Account Balance 0.0 Message done

Account number 72820 Account Balance 100000.0 Message done

Account number 92318 Account Balance 2400.0 Message done

Account number 42520 Account Balance 1000.0 Message done

Account number 61612 Account Balance 25.0 Message done

Terminating client sending thread - Running time 332 milliseconds

DEBUG : Server.deposit - i 49 Current balance -250.0 Amount 350.0 Thread2

Account number 92018 Account Balance 100.0 Message done

DEBUG : Server.deposit - i 69 Current balance 25.0 Amount 75.0 Thread1

Account number 61612 Account Balance 100.0 Message done

Terminating client receiving thread - Running time 437 milliseconds

Terminating server thread - Thread1 Running time 432 milliseconds

Terminating server thread - Thread2 Running time 432 milliseconds

Terminating network thread - Client disconnected Server disconnected

: We chose synchronized statements over synchronized methods because our program allows multiple threads to operate on different accounts simultaneously. The key concern is to prevent them from modifying the same account concurrently. Synchronized methods would restrict access to the entire method, blocking other threads even when they work on separate accounts. Synchronized statements, however, allow us to specifically synchronize access to individual accounts, enabling more efficient concurrent operations while ensuring thread safety for account modifications.