INF142 – Mandatory Assignment 1

David Ronen (The assignment was done together with Espen Kleivane)

Dro068@student.uib.no

1.Generally: The program is constructed from 4 components/classes.

- A server class named TCPServer representing the server.
- A client class named TCPClient representing the client.
- A log class named LogObject representing an update/change done to the value of the integer variable 'v'. Any change in the value of v must be logged and registered and everything in Java is an object, hence these changes/updates are represented as objects.
- A protocol class named "MyProtocol" representing the construct that executes instructions to provide the services offered on 'v'.

Once connection between client and server is established the client is welcomed, she is informed about the current value of 'v' and prompt to use any of the services offered. These include adding to 'v', subtracting from 'v', querying about the current value and the history of 'v'. All services presented to the client as well as instructions for operating and executing any one of the services offered. At all time during the client-server-interaction the client is informed about the progress, the client's input is visible as well as the server's responds. At all times the client is informed about what actions are available and how to execute those. The protocol class governs all execution of offered services. That include parsing, execution of arithmetic computation, logging and representing output to the client.
The service offered is connection oriented. Implementing it as such enables the user to first query on the value of 'v', and then respond (or not) according to that given value without the need to re-establish client-server-connection. Otherwise the risk is that while the client is trying to re-establish server-connection (after receiving v's value and deciding to react/change it), meanwhile, another client will connect to the server with instructions to manipulate 'v'. The information that the first client holds about v's value is no longer accurate. Had he known, it might have altered his decision.

2. The processes are implemented using TCP protocol. TCP guaranties the arrival of all packets in the correct order. This is essential, especially when dealing with manipulations of numbers where it is crucial that absolutely ALL data arrives at destination and in the correct

order. The consequences of deficient data or instruction that arrive at the wrong order are critical. For example let ‘v’ = 100. You first want to add 5o and then double ‘v’ to the total of 300. Now suppose that the instruction to double arrives before the one to add …