**Source code details**

* Main Application or Test file: **Application.java**
* Project file: **Project3.java**
* Configuration file: **config.txt**
* Launcher/testing script: **launcher.sh**
* Node input file: **input.txt**
* Multithreading files: **ReceiveThread.java and SendThread.java**
* SCTP files(KT algorithm code) **SCTPClient.java and SCTPServer.java**
* Clock file: **VectorClock.java**
* Process kill script: **killall.sh**
* neighbourList **neighbours.txt**
* Application Message Sender **MessageNotifier.java**
* TwoPhase Thread **twophase.java**
* Output log file **Output.txt**

**The input.txt file:**

**-**This file contains a set of test cases that can be used in testing the working of the program.

-Instances of checkpointing and recovery nodes are mentioned here.

**The config.txt file:**

**-**This file contains the number of process nodes and the host machine and port number.

**-**This file needs to be edited in order to specify the number of process nodes and the host and port number must be given in this file accordingly. (Presently 4 process nodes are mentioned in this file)

**BANK APPLICATION:**

-We have built a small application on top of this Koo Toueg Protocol similar to Bank Balance transfer.

-When a node sends an application message its initial balance of $100 decreases by $1 and when a node receives a message its Balance increases.

-Each transaction is worth $1.

-Finally the actual sum and the expected sum are compared and the consistency is evaluated.

**The Output.txt file:**

**-**When a node initiates checkpointing or recovery the node number and its vector clock are printed to this file.

**-**Also the checkpoint consistency status along with the current Balance and expected Balance are printed.

**Instructions to COMPILE and RUN the project**

1. Open up a terminal. **For ex:** cs1.utdallas.edu
2. CD to folder containing java files, **“**config.txt**”** file and **“**launcher.sh**”** script.
3. Compile all java source files by executing:

**javac \*.java**

1. Make sure that **launcher.sh** script has **$PROJDIR** environment variable set to location containing the source code of Project3.
2. To run the application just run

**sh launcher.sh**

**NOTE:** Please make sure that for the selected test case from **input.txt** file, the number of nodes and DC machine address are correctly mentioned in the **config.txt** file before executing.

1. The above script runs the project on dc machines as mentioned in the **config.txt** file and **PRINTS** the result in the current terminal.

-Either of the following output formats can be seen in the terminal during permanent checkpoint phase:

“>>>>>>>>>>>>>>>>>>>>MAKE CHECKPOINT PERMANENT<<<<<<<<<<<<<<P:3”

“>>>>>>>>>>>>>>>>>>>>DON’T TAKE CHECKPOINT<<<<<<<<<<<<<<<<<<<<P:3”

-The following message is printed if checkpoints are consistent or not consistent,

“System IS in Consistent Global State”

“System IS NOT in Consistent Global State”

-During Recovery phase either of the following messages are printed,

“ROLLINGBACK ‘ID’”

“NOT ROLLINGBACK CONTINUE EXECUTION”