CS550 Advanced Operating Systems

Programming Assignment 3

Manual

Submitted by

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The assignment is done is Java and run through ANT build file. ANT is used to automate the execution of the program .

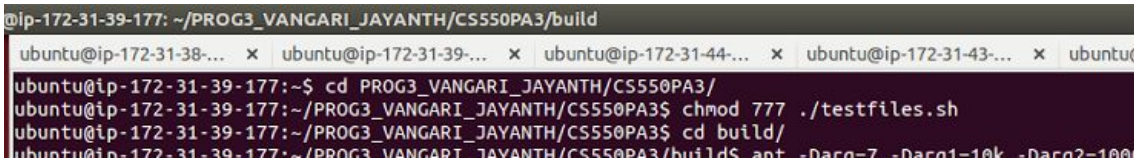
There are two Main Classes to be executed.

- PA3.java
- Evaluation.java

Execution:

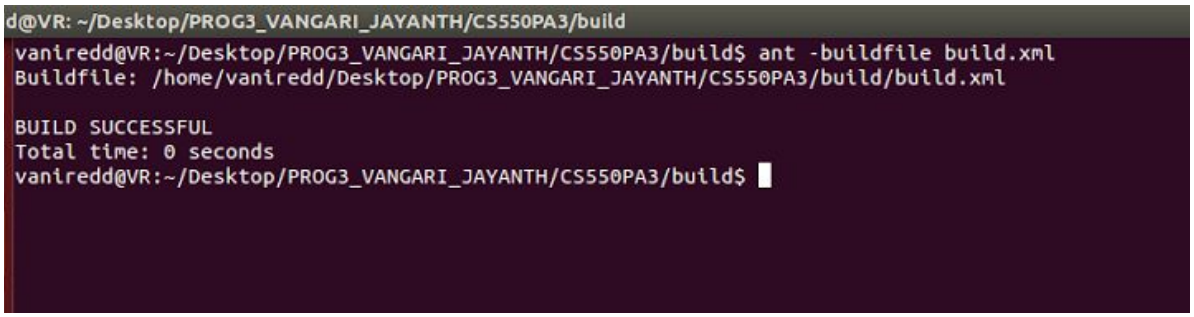
The program is run through ANT build file in the project CS550PA3/build/ folder.

Before that change the permissions of the script file ./testfiles.sh



To execute the program in Linux systems.

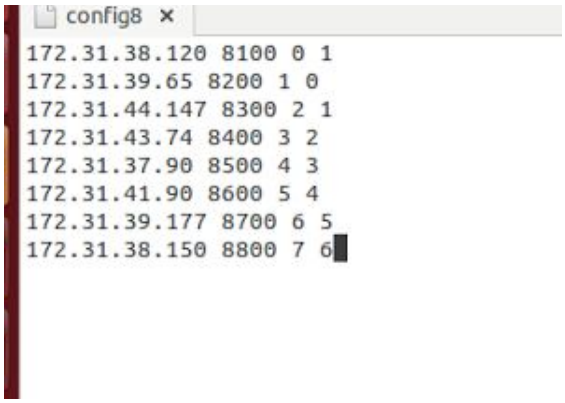
First Open terminal and navigate to the build directory containing build.xml



and run the command ant -buildfile build.xml

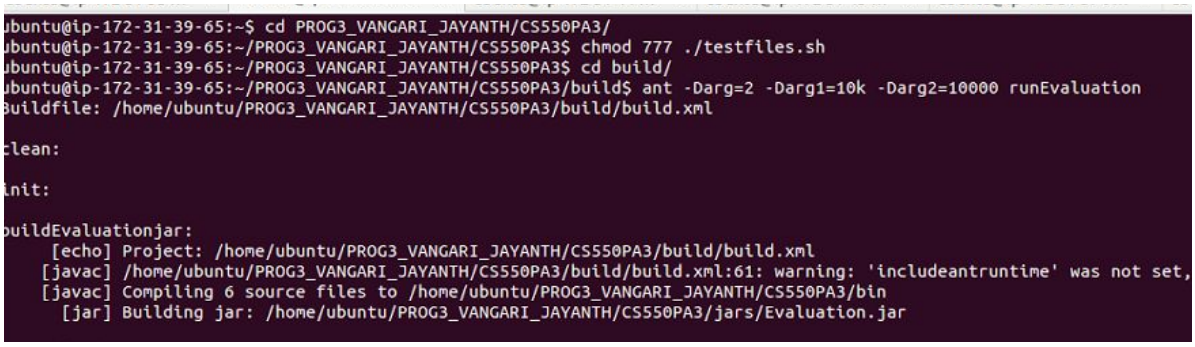
you are prompted on terminal with “BUILD SUCCESSFUL”.

Config file :



Before executing the peers , make a config file with their ipaddresses . and use the port address in the image below do not change them, just change the ipaddresses.

And execute the PA3 or Evaluation program for peers in the order they are in the config file.



like in the above image , the server with port 8200 in the config file is executed by command
ant -Darg=2 -Darg1=10k -Darg2=10000 runEvaluation for the Evaluation Program.

1. **Executing PA3.java**

PA3 program can be executed with or without replication

Without Replication :

The command “ant -Darg={num} runPA3” compiles and runs the source files. It essentially executes the PA3.java program

{num} can be any integer from 1 to 8 representing Peers.

To start 8 Peers run commands:

ant -Darg=1 runPA3

ant -Darg=2 runPA3

ant -Darg=3 runPA3

ant -Darg=4 runPA3

ant -Darg=5 runPA3

ant -Darg=6 runPA3

ant -Darg=7 runPA3

ant -Darg=8 runPA3

first start all the peers and then press any key.

directory is created for the peer. and if it exists, just a prompt appears, that directory exists

Now , load the files into the peer directory name (**peer$i**) ‘i’ is the value ‘peer id’ entered through command line during execution.

and then perform operations register(1) , search(2) and obtain(3) selecting options in chronological order. and then press ‘0’ to exit in the end.

With Replication:

The command “ant -Darg={num} -Darg1=r runPA3” compiles and runs the source files. It essentially executes the PA3.java program

{num} can be any integer from 1 to 8 representing Peers.

To start 8 Peers run commands:

ant -Darg=1 -Darg1=r runPA3

ant -Darg=2 -Darg1=r runPA3

ant -Darg=3 -Darg1=r runPA3

ant -Darg=4 -Darg1=r runPA3

ant -Darg=5 -Darg1=r runPA3

ant -Darg=6 -Darg1=r runPA3

ant -Darg=7 -Darg1=r runPA3

ant -Darg=8 -Darg1=r runPA3

and then follows the instructions as given in the above execution program for PA3 without replication.

Executing Evaluation

To evaluate the performance, first execute PeerServer without replication using the command mentioned above and then

run command ant -Darg={num} -Darg1={filesize} -Darg2={no.of.files} runEvaluation.

It builds the Evaluation.jar source files and prompts as shown in the figure below {num} can be any integer from 1 to 8 representing clients

Experiment 1:

To start 8 Peers to evaluate on 10000 files of 10KB size files run commands:

ant -Darg=1 -Darg1=10k -Darg2=10000 runEvaluation

ant -Darg=2 -Darg1=10k -Darg2=10000runEvaluation

ant -Darg=3 -Darg1=10k -Darg2=10000 runEvaluation

ant -Darg=4 -Darg1=10k -Darg2=10000 runEvaluation

ant -Darg=5 -Darg1=10k -Darg2=10000 runEvaluation

ant -Darg=6 -Darg1=10k -Darg2=10000 runEvaluation

ant -Darg=7 -Darg1=10k -Darg2=10000 runEvaluation

ant -Darg=8 -Darg1=10k -Darg2=10000 runEvaluation

Experiment 2 :

To evaluate performance for varying filesizes change the argument -Darg1={filesize}

-Darg1 for various filesizes:

1KB : -Darg1=1k

10KB : -Darg1=10k

100KB : -Darg1=100k

1MB : -Darg1=1M

10MB : -Darg1=10M

100MB : -Darg1 =100M

1GB : -Darg1=1G

And then follow the steps as shown in the image below, for evaluating register ,search and obtain operations . select them in chronological order .

```
ubuntu@ip-172-31-39-65:~/PROG3_VANGARI_JAYANTH/CS550PA3$ cd build/
ubuntu@ip-172-31-39-65:~/PROG3_VANGARI_JAYANTH/CS550PA3/build$ ant -Darg=2 -Darg1=10k -Darg2=10000 runEvaluation
Buildfile: /home/ubuntu/PROG3_VANGARI_JAYANTH/CS550PA3/build/build.xml

clean:

init:

buildEvaluationjar:
     [echo] Project: /home/ubuntu/PROG3_VANGARI_JAYANTH/CS550PA3/build/build.xml
    [javac] /home/ubuntu/PROG3_VANGARI_JAYANTH/CS550PA3/build/build.xml:61: warning: 'includeantruntime' was not set
    [javac] Compiling 6 source files to /home/ubuntu/PROG3_VANGARI_JAYANTH/CS550PA3/bin
      [jar] Building jar: /home/ubuntu/PROG3_VANGARI_JAYANTH/CS550PA3/jars/Evaluation.jar

runEvaluation:
     [java] Total Servers : 8
     [java] start all the peers and press any key
     [java] server started at port:8200

     [java] Directory created at:/home/ubuntu/PROG3_VANGARI_JAYANTH/CS550PA3/peer2
     [java]
     [java] Choose options in sequence:
     [java] 1. get register time
     [java] 2. get search time
     [java] 3. get download time
     [java] 0. exit
1
     [java]
     [java] Time elapsed to register 10k files:6569 millisecs
     [java]
     [java] Choose options in sequence:
     [java] 1. get register time
     [java] 2. get search time
     [java] 3. get download time
     [java] 0. exit
2
     [java] Time elapsed to search 10k files:4937 millisecs
     [java]
     [java] Choose options in sequence:
     [java] 1. get register time
     [java] 2. get search time
     [java] 3. get download time
     [java] 0. exit
3
     [java] Time elapsed to download 10k  files:10874 millisecs
     [java] delete files? Press any key..
```