COP 5615 Project 1

Submitted By

Rajat Koujalagi

UFID:61382944

rkouj@ufl.edu

Folder contents

project1: The main program

project1-client: The client program which will get connected to the main

program and start mining

Each of the folders have a build.sbt file and an

src/main/resources/application.conf file for listening on an ip

The .scala file is in src/main/scala

How to run

cd into each of the projects and type sbt "run args" (with quotes)
For instance, if the main program has to be run for getting 4 leading zeroes:
>cd project1
>sbt "run 4"

To run the client program >cd project1_client >sbt "run 127.0.0.1"

The ip of the server and client is to be changed in the application.conf file (ip at which they listen on). To run the programs across two machines, ip of the hostname should be set to it's ip in the network it is connected to. (To run the programs in two different terminals on the same machine, no changes have to be made)

Results

Size of work unit

Approach – For the main program, the Boss receives a START message and starts the workers. Note that the server is also started simultaneously and is listening for any client available to connect. I have a defined a variable (current_suffix_length) which stores the length of the suffix to be added to my gatorlink id. Each worker incrementally adds permutations of combinations of characters of length of current_suffix_length and

computes the hash. For instance -: Worker 1 will add one character to "rkouj",

worker 2 will add 2 and so on.

Server/Client Interaction: When the client program is run, it will get the current suffix length, and send this message to its workers and start the mining process

Result of scala project1.scala 4

```
in116-01:~/codes/Scala/Project1/project1> sbt "run 4"
  Loading /usr/share/sbt/bin/sbt-launch-lib.bash
  Java HotSpot(TM) 64-Bit Server VM warning: ignoring option MaxPermSize=256m; support was removed in 8.0 [info] Set current project to HelloLocal (in build file:/cise/homes/rk7/codes/Scala/Project1/project1/)
  [Info] Set turrent project to hericalcular (In Buria 1113) erec, names, they also project to hericalcular (In Buria 1113) erec, names, they are set of the following (Info] Running project to hericalcular (In Buria 1113) erec, names, they are set of the following (Info] (Info) Remoting (Info) [09/19/2014 19:45:46.526] [run-main] [Remoting] Remoting started; listening on addresses: [akka.tcp://PROJECT10127.0.0.1:
[INFO] [09/19/2014 19:45:46.537] [run-main] [Remoting] Remoting now listens on addresses: [akka.tcp://PROJECT1@127.0.0.1:/rkouj!"#$()'%&* 000054a01727e0e5be16e7b9c98ea2d671fce0a6eea6d576c043bd9ee0180036
| "#$\&\alpha\" | "#$\alpha\" | "#$\al
                                                                                                                   0000f3 ac92f016cc0 e6 ad29702 e8b48f261078c11 a9b45769 ee598705528 edaa\\
rkouj!"#$%',-)+(*& 000
rkouj!"#$%&'()*+,/.1240-3
                                                                                   00003fa631528140d26d0ba826267734d752ce890148583fc7890cabbb7bac43
                                                                                                                    \tt 0000e38909afc804eebdd5b3f1564243b8d84db68b37755d77b6f13e1191d2bf
  ckouj!"#$%&'()*+,-.26/05341
                                                                                                                    00009487861 bc 013104 b8742270098 c96317556 ddf 3443 d27e6412 ec7 bed426 constant and the second s
 rkouj!$(")&#'% 0000f08d6d0a52455fc3b56d1de5abfea9f18376572635d876f59ca2f0589be9
rkouj#&!"- 0000dd50555ced4290ac4fce630db63a5638599693d9a95f5591a4821f68b3642
                                                        0000dd5055ced4290ac4fce630db63a5638599693d9a95f5591a4821f68b3642
rkouj&!,$%"# 0000f
rkouj!"#$%&-'.,(*)+
                                                                                   0000735ab71dea490bb872507271ed7a14eeea7724ad975f72c74e9722f127c5
                                                        00006409bfa4523ab331396fd0d2518924c3c7f8cdeb22cd20f8bd67408c7033
 rkouj!"#$$&'/(+*),-. 00005ec0811c4642f3082d5ba01454ba8ab63a2080cb565306c30e92433c5447
rkouj!"#$$&'()*+,4./-0231 0000ab6c7d41fe42e872dab92028733607f71b85819497a3bb75af91
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rkouj!#"e( 0
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                                                         0000271059cb25ede7a83835273cf6fed885a07c8eee6569d6074098a9a849b8
                                                                                                                 00006440517e2c9205362479edb0b232ac0921ee2009fe46858e1198418eea50
rkouj"#$&i$4 0000cca2b906e4a9c2a62bcde57b08a4c7607ec218dd8352359a6f2452c55e3f
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                                                          00006e3b82a3122102e3d5d60b174123793ff3a6b070ed57c7f38d66e159a6a9
 rkoujv!"#*
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  rkouj!#&:"$
                                                          00006ab472c4c8341f9df963e34e109624074868e17759e82c88238e3cf4bf6a
                                                                                                                                                                                                                                                                                                                                                                                    - 7:51 PM
```

Please note that this only the first page of the results. The program keeps on running and searching for more coins.

Run time for the program

I ran the main program for 4 hrs and got the following result -: $47521.161u\ 934.085s\ 4:09:55.29\ 323.1\%\ 0+0k\ 808+18896io\ 0pf+0w$ CPU time = $47521.161s\ +\ 934.085s\ =\ 48455.246s$ Real time = 14995.29s Number of cores used = $48455.246s/14995.29s\ ^{\sim}\ 3.24$

Thus 3 cores were used in the computation

- Coin with most zeroes 8 zeroes rkoujc !K)"#
- Largest number of working machines

I was able to run the client/server program on 4 machines (1 server + 3 clients)