| No. of records> |       | 102000                     |                          | 204001                     |                          |
|-----------------|-------|----------------------------|--------------------------|----------------------------|--------------------------|
| Query No.       | Run # | Time required in Cassandra | Time required in MongoDB | Time required in Cassandra | Time required in MongoDB |
| 1               | 1     | 114.037354                 | 23.65061474              | 210.9455848                | 47.27450514              |
|                 | 2     | 103.9547513                | 23.52874351              | 227.2488482                | 47.01571274              |
|                 | 3     | 105.8618305                | 23.57024002              | 221.2183807                | 47.80712223              |
|                 | Avg   | 107.9513119                | 23.58319942              | 219.8042712                | 47.36578004              |
| 2               | 1     | 0.000290155                | 0.000209093              | 0.000338554                | 6.53E-05                 |
|                 | 2     | 0.000366449                | 0.000202417              | 0.000286579                | 6.79E-05                 |
|                 | 3     | 0.000455379                | 0.000198364              | 0.000263929                | 6.29E-05                 |
|                 | Avg   | 0.000370661                | 0.000203292              | 0.000296354                | 6.54062E-05              |
| 3               | 1     | 0.040290356                | 10.20999837              | 0.05957675                 | 19.99713516              |
|                 | 2     | 0.067286491                | 6.872420073              | 0.053408861                | 19.94910192              |
|                 | 3     | 0.039939165                | 10.31710267              | 0.054956436                | 20.05431819              |
|                 | Avg   | 0.049172004                | 9.133173704              | 0.055980682                | 20.00018509              |
|                 | 1     | 0.00069809                 | 8.32E-05                 | 0.001087904                | 9.94E-05                 |
| 4               | 2     | 0.000754356                | 8.06E-05                 | 0.001027107                | 9.30E-05                 |
| 4               | 3     | 0.000689507                | 0.000114202              | 0.000669241                | 9.23E-05                 |
|                 | Avg   | 0.000713984                | 9.26654E-05              | 0.000928084                | 9.48906E-05              |
| 5               | 1     | 0.001029253                | 0.03919816               | 0.001043081                | 0.076003313              |
|                 | 2     | 0.001114368                | 0.038089991              | 0.001328468                | 0.072303772              |
|                 | 3     | 0.001409769                | 0.037473917              | 0.001342773                | 0.073604107              |
|                 | Avg   | 0.001184464                | 0.038254023              | 0.001238108                | 0.073970397              |
| 6               | 1     | 0.001138449                | 0.041039944              | 0.001007318                | 0.081515789              |
|                 | 2     | 0.000967979                | 0.039074898              | 0.000920773                | 0.07207346               |
|                 | 3     | 0.000962019                | 0.041248322              | 0.000855207                | 0.082269907              |
|                 | Avg   | 0.001022816                | 0.040454388              | 0.000927766                | 0.078619719              |

| 306                        | 6002                     | 408003                     |                          |  |
|----------------------------|--------------------------|----------------------------|--------------------------|--|
| Time required in Cassandra | Time required in MongoDB | Time required in Cassandra | Time required in MongoDB |  |
| 334.5482476                | 70.71305728              | 420.8149152                | 94.19710827              |  |
| 324.7231297                | 71.13235617              | 438.492923                 | 95.05960894              |  |
| 320.5764856                | 72.11417437              | 447.6062841                | 96.38668323              |  |
| 326.6159543                | 71.3198626               | 435.6380408                | 95.21446681              |  |
| 0.000267029                | 6.34E-05                 | 0.000304699                | 6.22E-05                 |  |
| 0.000273705                | 6.68E-05                 | 0.000374079                | 6.46E-05                 |  |
| 0.000262022                | 6.32E-05                 | 0.000378847                | 6.32E-05                 |  |
| 0.000267585                | 6.44525E-05              | 0.000352542                | 6.33399E-05              |  |
| 0.062518835                | 29.87961936              | 0.070617199                | 39.39637256              |  |
| 0.080612659                | 29.29310107              | 0.07090497                 | 39.43742561              |  |
| 0.064101458                | 30.01081729              | 0.072654009                | 39.03089595              |  |
| 0.069077651                | 29.72784591              | 0.071392059                | 39.28823137              |  |
| 0.000674009                | 0.000100613              | 0.000741482                | 0.000106096              |  |
| 0.000729799                | 9.25E-05                 | 0.000633001                | 0.000101566              |  |
| 0.000656366                | 9.49E-05                 | 0.000622272                | 0.000111818              |  |
| 0.000686725                | 9.60032E-05              | 0.000665585                | 0.000106494              |  |
| 0.000997543                | 0.119799614              | 0.001064539                | 0.157089949              |  |
| 0.001000643                | 0.112112999              | 0.001006365                | 0.147200823              |  |
| 0.001081705                | 0.109770298              | 0.001016378                | 0.151049852              |  |
| 0.00102663                 | 0.113894304              | 0.001029094                | 0.151780208              |  |
| 0.001262426                | 0.122258902              | 0.000996351                | 0.159555197              |  |
| 0.000961065                | 0.113565922              | 0.000860453                | 0.150886059              |  |
| 0.0014112                  | 0.126091003              | 0.001181841                | 0.165900946              |  |
| 0.001211564                | 0.120638609              | 0.001012882                | 0.158780734              |  |

## **Performance Evaluation**

| 510                        | 004                      | 612005                     |                          |  |
|----------------------------|--------------------------|----------------------------|--------------------------|--|
| Time required in Cassandra | Time required in MongoDB | Time required in Cassandra | Time required in MongoDB |  |
| 529.1476874                | 118.2620597              | 653.7302537                | 144.0068107              |  |
| 542.7129326                | 117.6375198              | 677.1775885                | 142.6533754              |  |
| 513.4659588                | 121.2668636              | 633.4917252                | 144.3601058              |  |
| 528.442193                 | 119.055481               | 654.7998558                | 143.6734306              |  |
| 0.000259638                | 7.37E-05                 | 0.000286341                | 6.65E-05                 |  |
| 0.000257969                | 6.60E-05                 | 0.000344753                | 6.03E-05                 |  |
| 0.000405073                | 7.53E-05                 | 0.000283241                | 7.56E-05                 |  |
| 0.00030756                 | 7.16845E-05              | 0.000304778                | 6.74725E-05              |  |
| 0.099491835                | 41.9629879               | 0.11377883                 | 59.1684382               |  |
| 0.133162737                | 48.7773478               | 0.143628359                | 58.55038834              |  |
| 0.099596262                | 45.18276                 | 0.141824722                | 58.591995                |  |
| 0.110750278                | 45.30769857              | 0.133077304                | 58.77027384              |  |
| 0.000644922                | 0.000105858              | 0.001059055                | 9.01E-05                 |  |
| 0.000673294                | 9.61E-05                 | 0.000685215                | 0.000105143              |  |
| 0.00066781                 | 0.000112295              | 0.00062561                 | 0.000106335              |  |
| 0.000662009                | 0.000104745              | 0.00078996                 | 0.000100533              |  |
| 0.000997066                | 0.187643528              | 0.001315594                | 0.229944229              |  |
| 0.001003742                | 0.188053846              | 0.001060963                | 0.213403702              |  |
| 0.001022816                | 0.183055401              | 0.001006603                | 0.221338272              |  |
| 0.001007875                | 0.186250925              | 0.00112772                 | 0.221562068              |  |
| 0.000892401                | 0.195920706              | 0.00115037                 | 0.240586519              |  |
| 0.000934124                | 0.190418959              | 0.000996828                | 0.232753754              |  |
| 0.001192331                | 0.203072071              | 0.000911474                | 0.241190195              |  |
| 0.001006285                | 0.196470579              | 0.001019557                | 0.238176823              |  |

| 714                        | 1006                     | 816007                     |                          |  |
|----------------------------|--------------------------|----------------------------|--------------------------|--|
| Time required in Cassandra | Time required in MongoDB | Time required in Cassandra | Time required in MongoDB |  |
| 753.9285581                | 166.5961337              | 883.1852791                | 190.5358989              |  |
| 743.3954415                | 167.4795501              | 845.7925849                | 191.9362478              |  |
| 762.6707795                | 166.7382743              | 848.6373115                | 192.8019605              |  |
| 753.331593                 | 166.9379861              | 859.2050585                | 191.7580357              |  |
| 0.000290394                | 7.68E-05                 | 0.000382185                | 7.51E-05                 |  |
| 0.00037384                 | 6.51E-05                 | 0.000440121                | 7.44E-05                 |  |
| 0.00036788                 | 6.60E-05                 | 0.000274181                | 6.32E-05                 |  |
| 0.000344038                | 6.93003E-05              | 0.000365496                | 7.08898E-05              |  |
| 0.117336035                | 69.62158847              | 0.156232119                | 78.06456065              |  |
| 0.11619544                 | 69.17258835              | 0.135026217                | 78.75647283              |  |
| 0.115996361                | 66.37285852              | 0.128761292                | 74.80239224              |  |
| 0.116509279                | 68.38901178              | 0.140006542                | 77.20780857              |  |
| 0.000679731                | 9.42E-05                 | 0.000661612                | 9.97E-05                 |  |
| 0.00100565                 | 0.000101089              | 0.000645638                | 0.000100136              |  |
| 0.000663996                | 0.000110865              | 0.000711203                | 9.80E-05                 |  |
| 0.000783126                | 0.000102043              | 0.000672817                | 9.92616E-05              |  |
| 0.000979662                | 0.269529104              | 0.000990152                | 0.296341181              |  |
| 0.001030207                | 0.267445087              | 0.000948906                | 0.29384613               |  |
| 0.001060009                | 0.255199194              | 0.001358271                | 0.296527386              |  |
| 0.001023293                | 0.264057795              | 0.00109911                 | 0.295571566              |  |
| 0.001238346                | 0.281922102              | 0.000867844                | 0.321507931              |  |
| 0.000894785                | 0.264338493              | 0.000880718                | 0.297985792              |  |
| 0.001234293                | 0.283581972              | 0.001120329                | 0.329678774              |  |
| 0.001122475                | 0.276614189              | 0.000956297                | 0.316390832              |  |

| 918                        | 3008                     | 1020009                    |                          |
|----------------------------|--------------------------|----------------------------|--------------------------|
| Time required in Cassandra | Time required in MongoDB | Time required in Cassandra | Time required in MongoDB |
| 953.4085774                | 211.6162422              | 1046.039411                | 234.7668293              |
| 959.5125024                | 215.615586               | 1047.743073                | 238.4607904              |
| 981.5653553                | 218.0483756              | 1056.354397                | 240.427892               |
| 964.8288117                | 215.0934013              | 1050.045627                | 237.8851705              |
| 0.000257254                | 6.08E-05                 | 0.000254869                | 7.84E-05                 |
| 0.000265121                | 6.46E-05                 | 0.000380516                | 7.06E-05                 |
| 0.000258207                | 6.65E-05                 | 0.000333309                | 0.000391245              |
| 0.000260194                | 6.40E-05                 | 0.000322898                | 0.000180086              |
| 0.141624928                | 75.35191989              | 0.142807722                | 94.23441648              |
| 0.13688302                 | 87.75959659              | 0.141466856                | 88.33780551              |
| 0.141101837                | 88.65318775              | 0.143854141                | 96.79674244              |
| 0.139869928                | 83.92156808              | 0.142709573                | 93.12298814              |
| 0.00065279                 | 9.85E-05                 | 0.000656605                | 9.58E-05                 |
| 0.00067687                 | 9.94E-05                 | 0.000649691                | 0.000104904              |
| 0.000658751                | 0.000121832              | 0.000681162                | 0.000183821              |
| 0.000662804                | 0.000106573              | 0.000662486                | 0.00012819               |
| 0.001026154                | 0.36782217               | 0.000959396                | 0.389692307              |
| 0.001271248                | 0.329653263              | 0.000967026                | 0.367403269              |
| 0.000970364                | 0.327161789              | 0.001029491                | 0.371964216              |
| 0.001051188                | 0.341545741              | 0.000985305                | 0.376353264              |
| 0.000945568                | 0.359158993              | 0.000887394                | 0.410181284              |
| 0.000913382                | 0.355431318              | 0.001356602                | 0.371105671              |
| 0.000856161                | 0.365858793              | 0.000944376                | 0.406891584              |
| 0.000905037                | 0.360149701              | 0.001062791                | 0.396059513              |