"C:\Program Files\Java\jdk-10.0.2\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2018.2.4\lib\idea\_rt.jar=59227:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2018.2.4\bin" -Dfile.encoding=UTF-8 -classpath "C:\Users\varad\IdeaProjects\BST\out\production\BST;C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2018.2.4\plugins\Kotlin\kotlinc\lib\kotlin-stdlib.jar;C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2018.2.4\plugins\Kotlin\kotlinc\lib\kotlin-reflect.jar;C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2018.2.4\plugins\Kotlin\kotlinc\lib\kotlin-test.jar;C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2018.2.4\plugins\Kotlin\kotlinc\lib\kotlin-stdlib-jdk7.jar;C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2018.2.4\plugins\Kotlin\kotlinc\lib\kotlin-stdlib-jdk8.jar;C:\Users\varad\.m2\repository\junit\junit\4.12\junit-4.12.jar;C:\Users\varad\.m2\repository\org\hamcrest\hamcrest-core\1.3\hamcrest-core-1.3.jar" assignment.mainFunction

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Initializing tree with 100 nodes \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Time required to insert 100 nodes is 1 milliseconds

Size of Tree after Initial seed : 100

Height of Tree after Initial seed : 14

So, When N = 100 O(ln N) = 4.605170185988092

and When N = 100 O(SquareRoot(N)) = 10.0

No Of Nodes|Size|Height|O(log N)|O(Sqrt(N))

100100.0|308.0|22.0|8.2667865406949|17.549928774784245

200100.0|389.0|23.0|8.603626344986191|19.72308292331602

300100.0|360.0|22.0|8.491853096329676|18.973665961010276

400100.0|274.0|22.0|8.098032082960527|16.55294535724685

500100.0|261.0|19.0|8.027905996569885|16.15549442140351

600100.0|304.0|25.0|8.247927513443585|17.435595774162696

700100.0|349.0|24.0|8.447083226209653|18.681541692269406

800100.0|334.0|23.0|8.383704292474054|18.275666882497067

900100.0|307.0|22.0|8.262094845370179|17.52141546793523

1000100.0|381.0|21.0|8.573647187493323|19.519221295943137

1100100.0|334.0|20.0|8.383704292474054|18.275666882497067

1200100.0|343.0|23.0|8.422064766172811|18.520259177452136

1300100.0|478.0|21.0|8.90086680798075|21.863211109075447

1400100.0|331.0|22.0|8.370687406807217|18.193405398660254

1500100.0|328.0|22.0|8.357552004618084|18.110770276274835

1600100.0|353.0|22.0|8.46352437327118|18.788294228055936

1700100.0|314.0|23.0|8.294620748891626|17.72004514666935

1800100.0|316.0|22.0|8.303780748177104|17.776388834631177

1900100.0|349.0|21.0|8.447083226209653|18.681541692269406

2000100.0|250.0|21.0|7.965784284662087|15.811388300841896

2100100.0|472.0|20.0|8.88264304936184|21.72556098240043

2200100.0|282.0|20.0|8.139551352398794|16.792855623746664

2300100.0|337.0|22.0|8.396604781181859|18.35755975068582

2400100.0|291.0|21.0|8.184875342908285|17.05872210923198

2500100.0|240.0|22.0|7.906890595608519|15.491933384829668

2600100.0|269.0|21.0|8.071462362556625|16.401219466856727

2700100.0|278.0|23.0|8.118941072723507|16.673332000533065

2800100.0|304.0|22.0|8.247927513443585|17.435595774162696

2900100.0|448.0|21.0|8.807354922057604|21.166010488516726

3000100.0|322.0|22.0|8.330916878114618|17.944358444926362

3100100.0|244.0|23.0|7.930737337562887|15.620499351813308

3200100.0|231.0|22.0|7.851749041416057|15.198684153570664

3300100.0|272.0|21.0|8.08746284125034|16.492422502470642

3400100.0|328.0|19.0|8.357552004618084|18.110770276274835

3500100.0|345.0|22.0|8.430452551665532|18.57417562100671

3600100.0|330.0|22.0|8.366322214245816|18.16590212458495

3700100.0|314.0|20.0|8.294620748891626|17.72004514666935

3800100.0|271.0|22.0|8.082149041353873|16.46207763315433

3900100.0|311.0|21.0|8.280770770130603|17.635192088548397

4000100.0|335.0|22.0|8.388017285345136|18.303005217723125

4100100.0|333.0|22.0|8.379378367071263|18.24828759089466

4200100.0|342.0|21.0|8.417852514885897|18.49324200890693

4300100.0|276.0|22.0|8.108524456778168|16.61324772583615

4400100.0|356.0|22.0|8.475733430966399|18.867962264113206

4500100.0|295.0|22.0|8.204571144249204|17.175564037317667

4600100.0|329.0|21.0|8.361943773735241|18.138357147217054

4700100.0|341.0|21.0|8.413627929024173|18.466185312619388

4800100.0|350.0|20.0|8.451211111832329|18.708286933869708

4900100.0|349.0|23.0|8.447083226209653|18.681541692269406

5000100.0|335.0|24.0|8.388017285345136|18.303005217723125

5100100.0|371.0|21.0|8.535275376620802|19.261360284258224

5200100.0|387.0|21.0|8.59618975614441|19.672315572906

5300100.0|340.0|24.0|8.409390936137703|18.439088914585774

5400100.0|353.0|23.0|8.46352437327118|18.788294228055936

5500100.0|302.0|23.0|8.238404739325079|17.378147196982766

5600100.0|342.0|23.0|8.417852514885897|18.49324200890693

5700100.0|333.0|24.0|8.379378367071263|18.24828759089466

5800100.0|418.0|23.0|8.707359132080883|20.445048300260872

5900100.0|258.0|21.0|8.011227255423254|16.06237840420901

6000100.0|265.0|21.0|8.049848549450562|16.278820596099706

6100100.0|353.0|22.0|8.46352437327118|18.788294228055936

6200100.0|361.0|20.0|8.49585502688717|19.0

6300100.0|445.0|26.0|8.79766152585376|21.095023109728988

6400100.0|319.0|22.0|8.31741261376487|17.86057109949175

6500100.0|348.0|20.0|8.442943495848729|18.65475810617763

6600100.0|304.0|22.0|8.247927513443585|17.435595774162696

6700100.0|248.0|21.0|7.954196310386876|15.748015748023622

6800100.0|308.0|20.0|8.2667865406949|17.549928774784245

6900100.0|439.0|22.0|8.778077129535358|20.952326839756964

7000100.0|289.0|23.0|8.17492568250068|17.0

7100100.0|375.0|19.0|8.550746785383243|19.364916731037084

7200100.0|406.0|21.0|8.665335917185176|20.149441679609886

7300100.0|304.0|23.0|8.247927513443585|17.435595774162696

7400100.0|402.0|22.0|8.651051691178928|20.049937655763422

7500100.0|346.0|20.0|8.434628227636725|18.601075237738275

7600100.0|308.0|23.0|8.2667865406949|17.549928774784245

7700100.0|286.0|23.0|8.159871336778389|16.911534525287763

7800100.0|353.0|21.0|8.46352437327118|18.788294228055936

7900100.0|337.0|21.0|8.396604781181859|18.35755975068582

8000100.0|233.0|20.0|7.86418614465428|15.264337522473747

8100100.0|301.0|22.0|8.233619676759702|17.349351572897472

8200100.0|359.0|21.0|8.487840033823051|18.947295321496416

8300100.0|307.0|23.0|8.262094845370179|17.52141546793523

8400100.0|282.0|21.0|8.139551352398794|16.792855623746664

8500100.0|288.0|23.0|8.169925001442312|16.97056274847714

8600100.0|322.0|21.0|8.330916878114618|17.944358444926362

8700100.0|336.0|21.0|8.39231742277876|18.33030277982336

8800100.0|234.0|23.0|7.870364719583405|15.297058540778355

8900100.0|428.0|23.0|8.741466986401146|20.688160865577203

9000100.0|277.0|21.0|8.113742166049189|16.64331697709324

9100100.0|246.0|22.0|7.94251450533924|15.684387141358123

9200100.0|350.0|20.0|8.451211111832329|18.708286933869708

9300100.0|282.0|22.0|8.139551352398794|16.792855623746664

9400100.0|242.0|21.0|7.9188632372745955|15.556349186104045

9500100.0|353.0|22.0|8.46352437327118|18.788294228055936

9600100.0|296.0|21.0|8.20945336562895|17.204650534085253

9700100.0|398.0|21.0|8.63662462054365|19.949937343260004

9800100.0|272.0|22.0|8.08746284125034|16.492422502470642

9900100.0|335.0|22.0|8.388017285345136|18.303005217723125

1.00001E7|313.0|22.0|8.290018846932618|17.69180601295413

Number Of Experiments : 100

Average Size of the Tree after is 325.47

Average Height of Tree : 21.75

So average O(ln N) = 8.328347798792738

and average O(SquareRoot(N)) = 17.984359233927897

Process finished with exit code 0