"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=59323: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 0 milliseconds

Size of Tree after Initial seed : 0

Height of Tree after Initial seed : 0

So, When N = 0 O(ln N) = -Infinity

and When N = 0 O(SquareRoot(N)) = 0.0

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

1.0|1.0|1.0|0.0|1.0

2.0|2.0|2.0|1.0|1.4142135623730951

3.0|2.0|2.0|1.0|1.4142135623730951

4.0|2.0|2.0|1.0|1.4142135623730951

5.0|5.0|3.0|2.321928094887362|2.23606797749979

6.0|6.0|4.0|2.584962500721156|2.449489742783178

7.0|8.0|5.0|3.0|2.8284271247461903

8.0|9.0|5.0|3.1699250014423126|3.0

9.0|11.0|7.0|3.4594316186372978|3.3166247903554

10.0|17.0|8.0|4.08746284125034|4.123105625617661

11.0|21.0|8.0|4.392317422778761|4.58257569495584

12.0|31.0|8.0|4.954196310386876|5.5677643628300215

13.0|39.0|8.0|5.285402218862249|6.244997998398398

14.0|34.0|8.0|5.08746284125034|5.830951894845301

15.0|51.0|9.0|5.672425341971496|7.14142842854285

16.0|50.0|9.0|5.643856189774724|7.0710678118654755

17.0|50.0|10.0|5.643856189774724|7.0710678118654755

18.0|60.0|11.0|5.906890595608519|7.745966692414834

19.0|57.0|11.0|5.832890014164742|7.54983443527075

20.0|57.0|11.0|5.832890014164742|7.54983443527075

21.0|61.0|11.0|5.930737337562887|7.810249675906654

22.0|71.0|13.0|6.149747119504682|8.426149773176359

23.0|78.0|13.0|6.285402218862249|8.831760866327848

24.0|72.0|13.0|6.169925001442312|8.48528137423857

25.0|80.0|14.0|6.321928094887362|8.94427190999916

26.0|90.0|14.0|6.491853096329675|9.486832980505138

27.0|92.0|14.0|6.523561956057013|9.591663046625438

28.0|91.0|14.0|6.507794640198696|9.539392014169456

29.0|106.0|13.0|6.727920454563199|10.295630140987

30.0|106.0|13.0|6.727920454563199|10.295630140987

31.0|120.0|13.0|6.906890595608519|10.954451150103322

32.0|113.0|13.0|6.820178962415189|10.63014581273465

33.0|126.0|13.0|6.977279923499917|11.224972160321824

34.0|112.0|13.0|6.807354922057604|10.583005244258363

35.0|104.0|12.0|6.700439718141092|10.198039027185569

36.0|124.0|11.0|6.954196310386876|11.135528725660043

37.0|145.0|11.0|7.1799090900149345|12.041594578792296

38.0|164.0|11.0|7.357552004618085|12.806248474865697

39.0|165.0|11.0|7.366322214245815|12.84523257866513

40.0|166.0|12.0|7.375039431346925|12.884098726725126

41.0|150.0|11.0|7.22881869049588|12.24744871391589

42.0|148.0|12.0|7.209453365628949|12.165525060596439

43.0|154.0|11.0|7.266786540694902|12.409673645990857

44.0|187.0|11.0|7.546894459887637|13.674794331177344

45.0|154.0|11.0|7.266786540694902|12.409673645990857

46.0|183.0|11.0|7.515699838284044|13.527749258468683

47.0|186.0|11.0|7.539158811108032|13.638181696985855

48.0|167.0|12.0|7.383704292474053|12.922847983320086

49.0|173.0|13.0|7.4346282276367255|13.152946437965905

50.0|160.0|13.0|7.321928094887362|12.649110640673518

51.0|191.0|12.0|7.577428828035749|13.820274961085254

52.0|224.0|12.0|7.807354922057604|14.966629547095765

53.0|179.0|12.0|7.483815777264256|13.379088160259652

54.0|147.0|12.0|7.199672344836364|12.12435565298214

55.0|137.0|12.0|7.098032082960527|11.704699910719626

56.0|141.0|12.0|7.139551352398794|11.874342087037917

57.0|158.0|13.0|7.303780748177103|12.569805089976535

58.0|175.0|13.0|7.45121111183233|13.228756555322953

59.0|200.0|13.0|7.643856189774724|14.142135623730951

60.0|221.0|12.0|7.787902559391432|14.866068747318506

61.0|215.0|13.0|7.74819284958946|14.66287829861518

62.0|182.0|13.0|7.507794640198696|13.490737563232042

63.0|169.0|13.0|7.400879436282184|13.0

64.0|175.0|13.0|7.45121111183233|13.228756555322953

65.0|168.0|12.0|7.392317422778761|12.96148139681572

66.0|176.0|12.0|7.459431618637297|13.2664991614216

67.0|152.0|12.0|7.247927513443586|12.328828005937952

68.0|128.0|12.0|7.0|11.313708498984761

69.0|152.0|12.0|7.247927513443586|12.328828005937952

70.0|165.0|13.0|7.366322214245815|12.84523257866513

71.0|195.0|12.0|7.607330313749611|13.96424004376894

72.0|182.0|12.0|7.507794640198696|13.490737563232042

73.0|147.0|13.0|7.199672344836364|12.12435565298214

74.0|143.0|13.0|7.159871336778389|11.958260743101398

75.0|182.0|14.0|7.507794640198696|13.490737563232042

76.0|165.0|13.0|7.366322214245815|12.84523257866513

77.0|191.0|13.0|7.577428828035749|13.820274961085254

78.0|192.0|12.0|7.584962500721156|13.856406460551018

79.0|162.0|13.0|7.339850002884624|12.727922061357855

80.0|199.0|13.0|7.636624620543649|14.106735979665885

81.0|185.0|13.0|7.531381460516312|13.601470508735444

82.0|205.0|12.0|7.679480099505446|14.317821063276353

83.0|197.0|12.0|7.622051819456376|14.035668847618199

84.0|185.0|13.0|7.531381460516312|13.601470508735444

85.0|159.0|13.0|7.312882955284356|12.609520212918492

86.0|164.0|13.0|7.357552004618085|12.806248474865697

87.0|158.0|13.0|7.303780748177103|12.569805089976535

88.0|168.0|13.0|7.392317422778761|12.96148139681572

89.0|149.0|13.0|7.219168520462162|12.206555615733702

90.0|128.0|13.0|7.0|11.313708498984761

91.0|161.0|12.0|7.330916878114618|12.68857754044952

92.0|148.0|13.0|7.209453365628949|12.165525060596439

93.0|168.0|13.0|7.392317422778761|12.96148139681572

94.0|170.0|13.0|7.409390936137703|13.038404810405298

95.0|175.0|12.0|7.45121111183233|13.228756555322953

96.0|180.0|13.0|7.491853096329675|13.416407864998739

97.0|161.0|12.0|7.330916878114618|12.68857754044952

98.0|124.0|13.0|6.954196310386876|11.135528725660043

99.0|139.0|12.0|7.118941072723508|11.789826122551595

100.0|142.0|10.0|7.149747119504682|11.916375287812984

Number Of Experiments : 100

Average Size of the Tree after is 128.4

Average Height of Tree : 11.27

So average O(ln N) = 6.534629119660147

and average O(SquareRoot(N)) = 10.749011964625293

Process finished with exit code 0