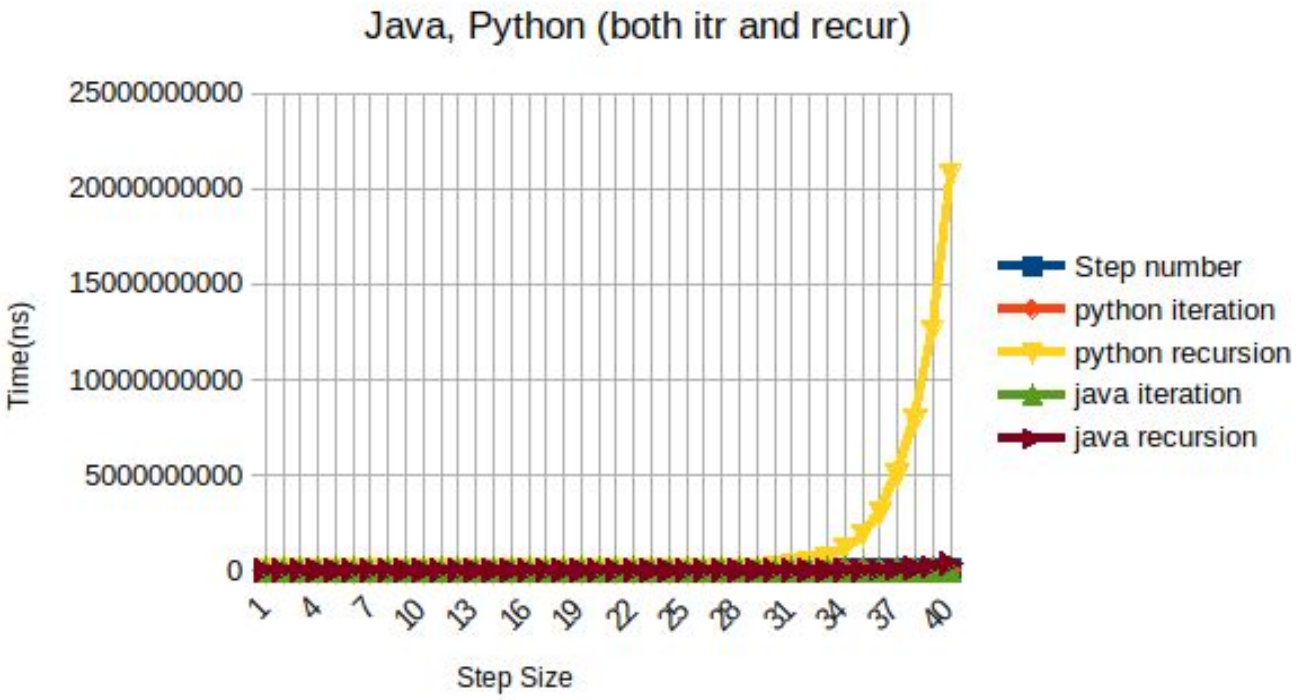
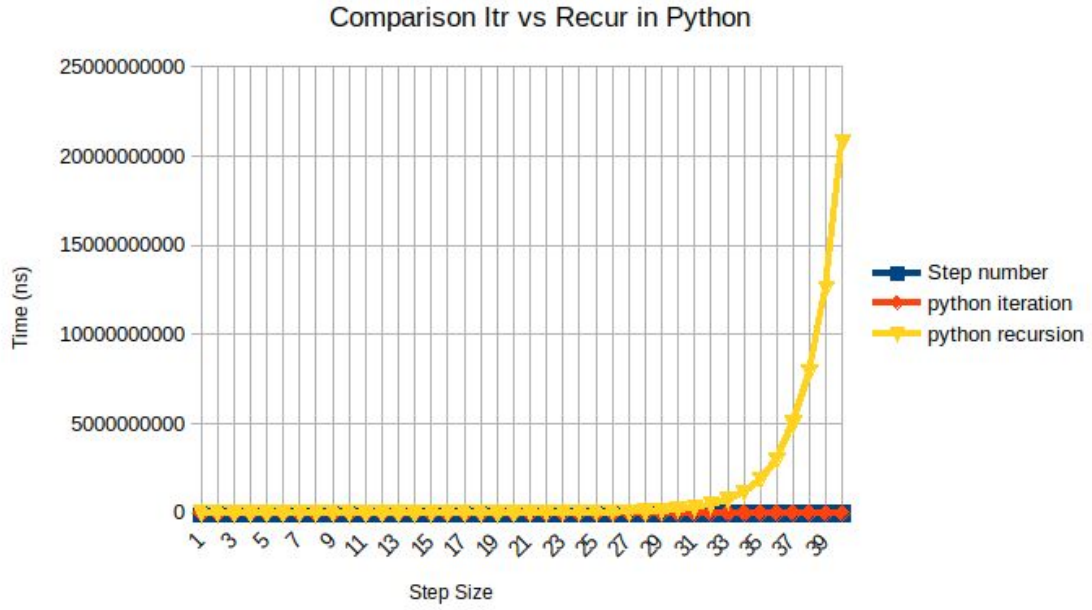
E/15/280
Premathilaka M.P.U

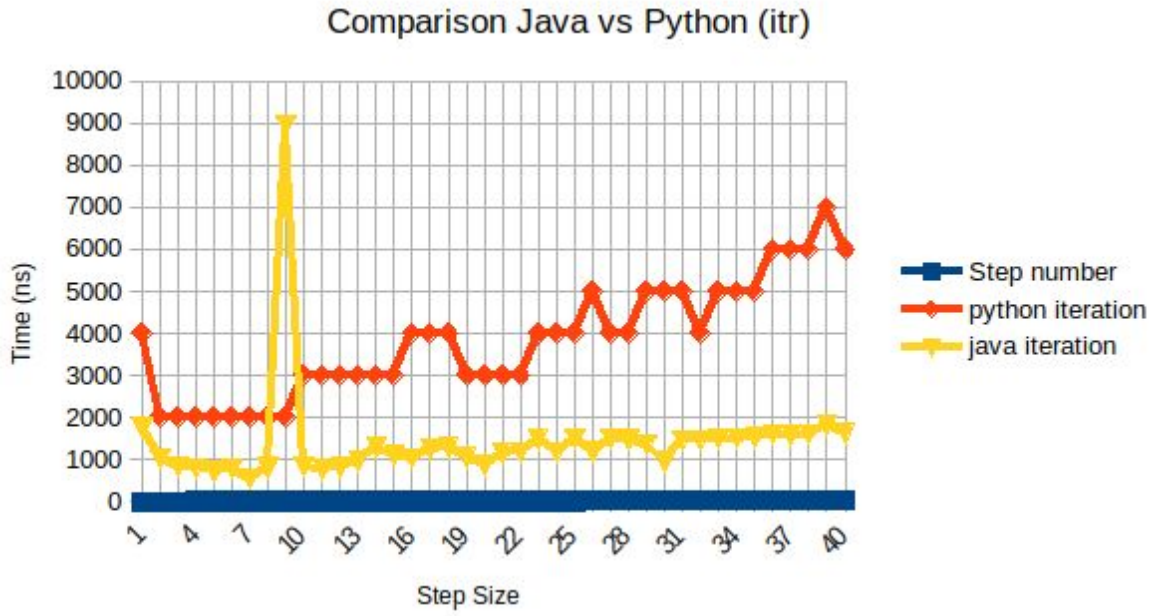
Run-time vs Problem size plot



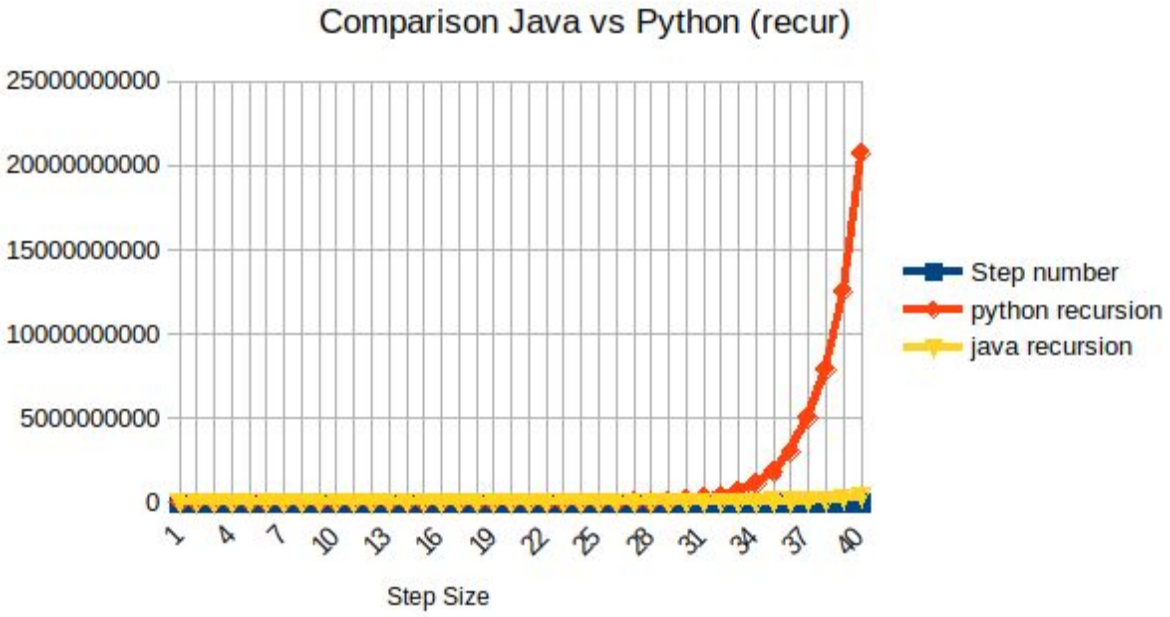
Answer:-



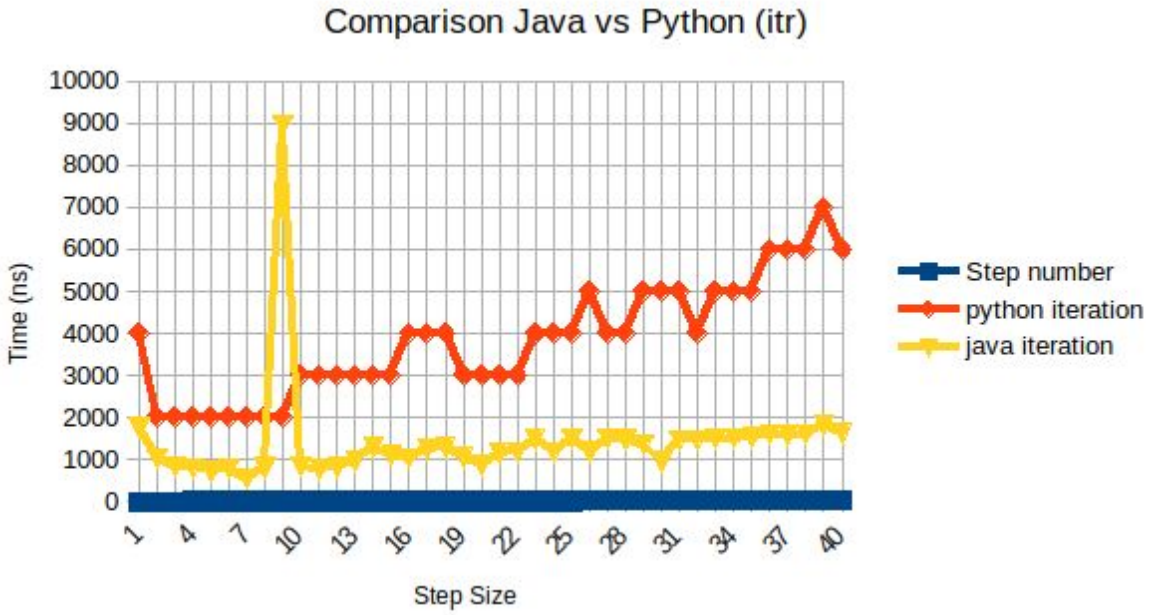
The above graph is the comparison of iterative-run time in java and python. It can be seen that when the problem size is small there is no significant difference in run time between recursive implementation and the iterative implementation.



As in the above graph, python takes higher a runtime than java even for the iterative implementation. For example, when n=1 java took 2000ns and python took 4000ns. Therefore, even for small inputs there is a significant run-time difference between the two languages.



In the recursive implementation, python runtime has varied significantly for larger inputs when comparing to java. For iterative implementation, both python and java runtimes has varied evenly for higher input size also.



Since there is no big variation of the runtime for smaller inputs in both recursive and iterative implementations we can use them both when the input size is small. But recursive approach becomes slow for both the languages when the input size is high.

When comparing recursive vs iterative approaches recursive implementation could be more convenient for some problems. But specifically for the fibonacci implementation for higher input it is not recommend to use recursive approach.