Lab 01

When the problem is small there is very small differences in the run time between the two implementations, but when compared to higher problem sizes the run time in the small problems can be considered as same.

In java and python there is a difference in run time. Run time for java is smaller than python. Because python is more user-friendly language, it takes a considerably large time to run the program.

In both languages the run time changes in increasing order. Specially in recursions we can see that pattern clearly. But in iteration function there is a very small increase in the values.

If the problem is small both algorithms are useful. According to the graph in small problems the run time is approximately similar. When problem size is 5 java recursion takes 1.03 microseconds and java iteration takes 0.88 microseconds, in python recursion takes 1.91 microseconds and python iteration takes 0.95 microseconds. Therefore for small size problems both algorithms are useful.

If problem size is large fib_r is not useful. Because in higher steps it takes a lot of time to run the program. When the problem size is 40 java recursion function takes 390990 microseconds, but java iteration function only takes 1.86 microseconds. The case is same as java in python. When problem size is 40 python recursion function takes 23 seconds (23204006 microseconds) and python iteration function only takes 6 microseconds. So fib_r is not useful for large problems.

Variation of the Run Time