**Index Number – 210098R**

**Name – De Silva APC**

**Chart –**

Chart, line chart

Description automatically generated

**Terminal outputs –**

**Graphical user interface, text, application

Description automatically generated**

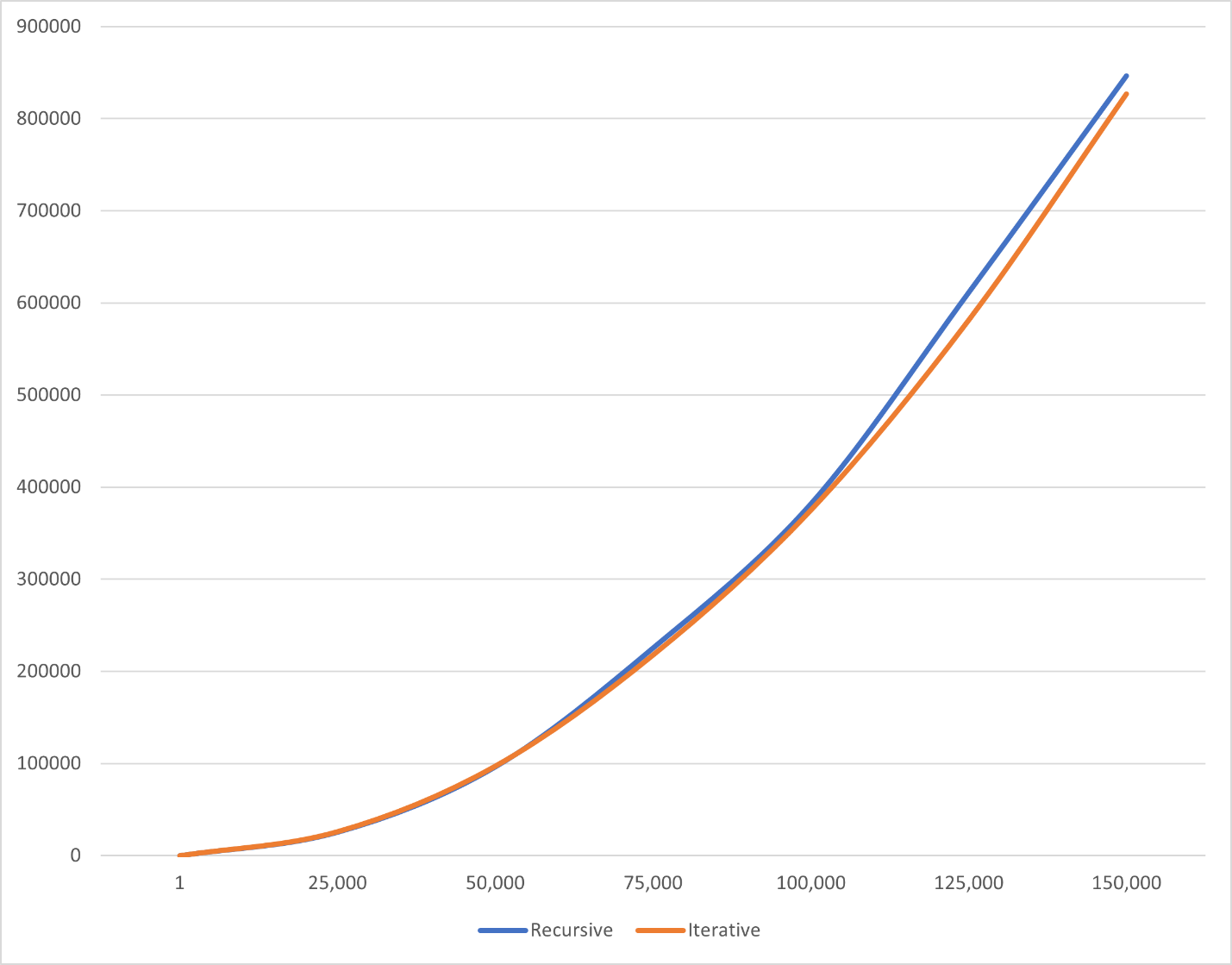
**Discussion –**

By repeated execution the time varies for each length but the above plot is done by the random values it produced for the first execution for each array length without retrying and taking a biased result. So it turns out that almost all the time the recursive algorithm is faster than the iterative implementation when it comes to quick sort algorithm. But its noticeable that the margin is not a huge one anyway.

Probably this is happening because of the fact that recursive algorithm has the advantage of the call stack to reduce the overhead of maintaining an explicit stack. But with much larger arrays, iterative option should be faster. So I increased the scale and redid the process and it confirmed that is what exactly happens here.

**Chart and Outputs after rescaling –** Graphical user interface, text, application

Description automatically generated



Q2 – Console output when the input is 10.

