APL simulation of Grover's algorithm SAMIR LIPOVACA, None —
Grover's algorithm is a fast quantum search algorithm. Classically, to solve the
search problem for a search space of size N we need approximately N operations.
Grover's algorithm offers a quadratic speedup. Since present quantum computers
are not robust enough for code writing and execution, to experiment with Grover's
algorithm, we will simulate it using the APL programming language. The APL
programming language is especially suited for this task. For example, to compute
Walsh-Hadamard transformation matrix for N quantum states via a tensor product
of N Hadamard matrices we need to iterate N-1 times only one line of the code.
Initial study indicates the quantum mechanical amplitude of the solution is almost
independent of the search space size and rapidly reaches 0.999 values with slight
variations at higher decimal places.

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None

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