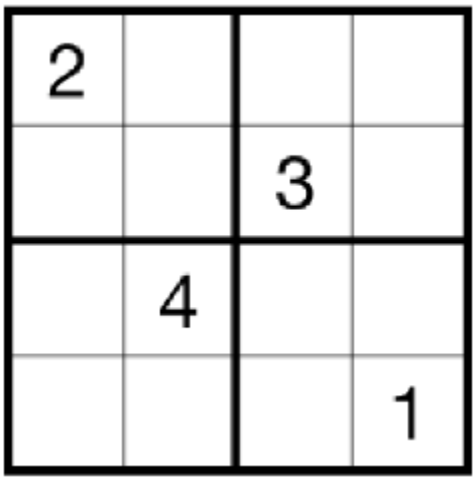
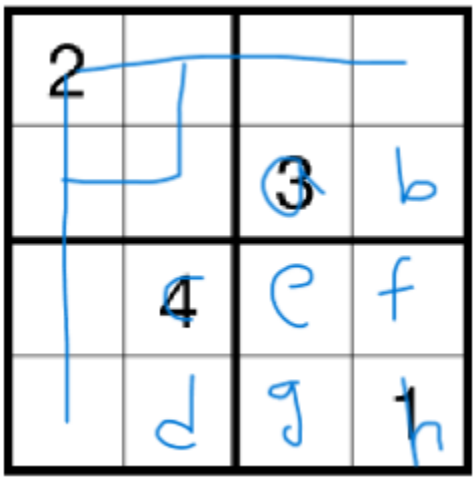
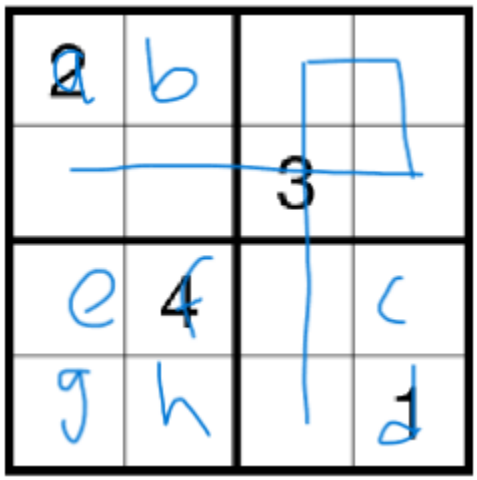






\No matter the chosen element we can have the leftover elements of form ([a,b] - row , [c,d] - column and [e,f,g,h] as box)

We iterate (grover) the algorithm thrice to find the positions of a type of element, say 1.
Now no of solutions for this if all 8 are empty are four so we run grovers algo pi/4*sqrt(2**8/4) == 6 times and it changes with the number of filled squares in leftover 8.

Input [a,b,c….h] -> 8 bit string with ones representing the positions of that value

Ex : Image 1 - find 2
We give the conditions and for every filled box we give that value as 0 → a=0 and c=0 is added to condition

(a^b) and (c^d) and (c^e^f) and (d^g^h) and (a^e^g) and (b^f^h) and (e+f+g+h==1)

We run this thrice (say get for 1,2,3) to obtain all the values ….

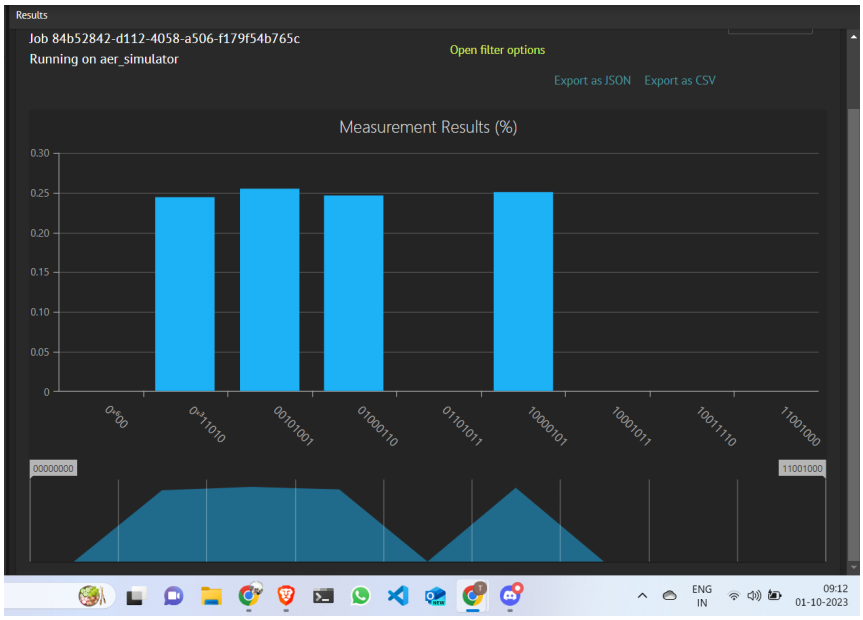
We have included model and files in the repo as well

Stats after Execution :

Depth: 4679
Width: 21

Gate count
U : 3926
CX : 3786

IBM Quantum, aer_simulator, simulator



All the four results are valid.