Quantum Computing for Computer Scientist

Quantum Lab

Lab-6

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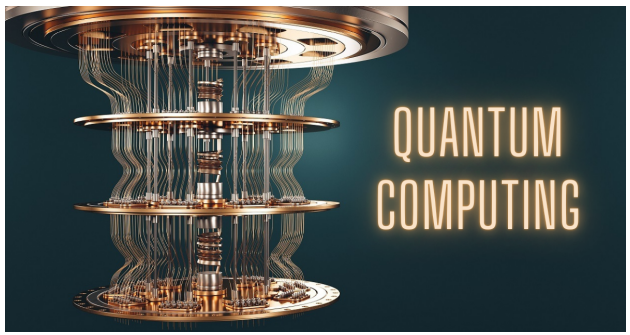


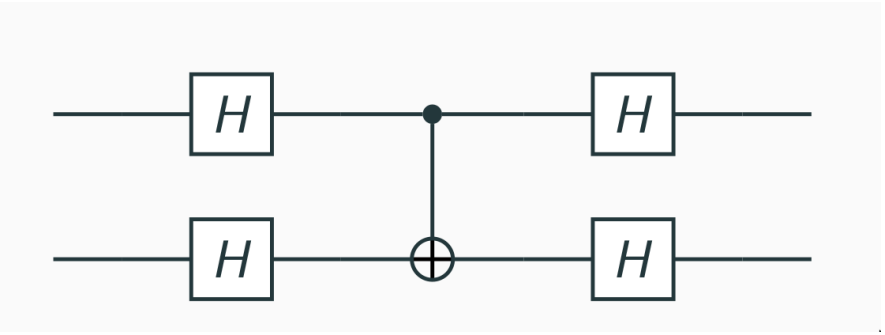
InClass Assignement-1

Write code to generate Entanglement state given below

$$\frac{1}{\sqrt{2}}(|00\rangle + |11\rangle)$$

InClass Assignement-2

(i) Write Qiskit Python code to generate the given circuit



InClass Assignment-2

(ii) Prove that above circuit is equivalent to cNOT where control bit and target bit are swapped.

Hints : Use two function A() and B() and implement both using all possible inputs like {00, 01, 10, 11} and compare their outputs.

InClass Assignment-3

Implement Superdence Coding to pass two classical bit information using single qubit

Hints : Use two function Alice() and Bob() for communication.

Thank You!