
IBM Q practice 3 : March 21, 2019
Hmw Quantum Computation

You are asked to start exploring the Qiskit tutorials and start using this software to simulate quantum circuits as well as run real experiments on the public ibm devices.

Go to <https://quantumexperience.ng.bluemix.net/qx/editor> and under "learn" read the Qiskit tutorial. You will also find a guide for installation and setup as well as notebooks on <https://github.com/Qiskit> and <https://github.com/Qiskit/qiskit-tutorials>

Exercise 1 *Deutsch-Josza or Bernstein-Vazirani algorithm*

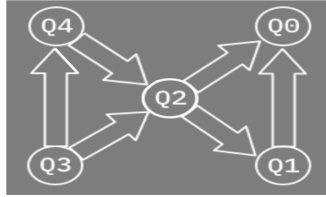
Implement a notebook for [exercise 2 hmw 4] or [exercise 1 ibm-practice-2] and on a public device of your choice. The geometry of the devices is provided in the figures below.

Exercise 2 *Entangling distant qbits*

Implement a notebook corresponding to the operations in [exercise 2 ibm-practice 1] on a public device of your choice. See how distant can you make qbits while maintaining some entanglement.

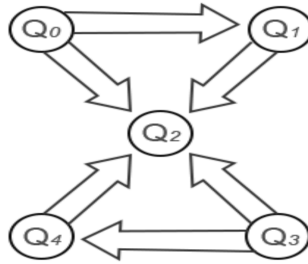
Two-Qubit Gates

The gate directions are given by the following diagram.



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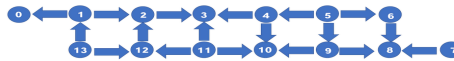


FIGURE 1 – Top : ibmqx4; Middle : ibmqx2; Bottom : melbourne