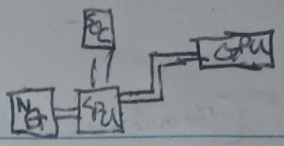
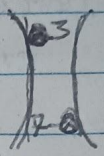


? tensor product

$|1\rangle \otimes$
$|0\rangle \otimes$
$\equiv 111 \equiv 011$



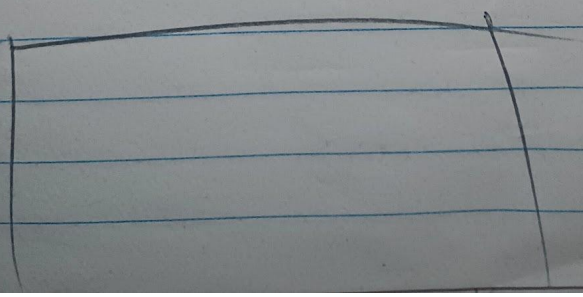
$a_i \in \{0, 1\}$

A quantum register (collection of qbits) of size 3 storing 3, and 7

$$|0\rangle \otimes |1\rangle \otimes |1\rangle \equiv |011\rangle \equiv |3\rangle,$$

$$|1\rangle \otimes |1\rangle \otimes |1\rangle \equiv |111\rangle \equiv |7\rangle,$$

- a quantum network is a device consisting of quantum logic gates whose computational steps are synchronised in time
  - the size of the network is the num of gates it contains



[
- qbit type is set to
  2-level quantum state (sys)

qpit compiler phases to quantum register

- spinning up entanglements
  - virtual qbits vs
    physical qbit hardware

- register = static array
  - qbits
  - cannot be resized

$|0\rangle = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$ $|1\rangle = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$
- abstract notation qbit

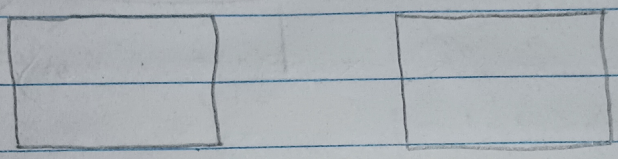
- Planck's constant: $h : \Delta E = hf$

- quantum nature of energy

- castome model tensorflow
  quantum register set

{QaaS & Qiskit}

- 2 qbit quantum register



- need classical register to make measurements from quantum register

* Draw Out Circuit
  % matplotlib inline

- To create entanglement must create hadamar gate

- 2 qbit op called control(X)
  logical if type

circuit.cx(qr[0], qr[1])

control , target

Py Refresher

- CamelCase

Py gen -

- import libs
  - access objs via dot op
    - eg. circuit.draw
      draw class