Circular Buffers

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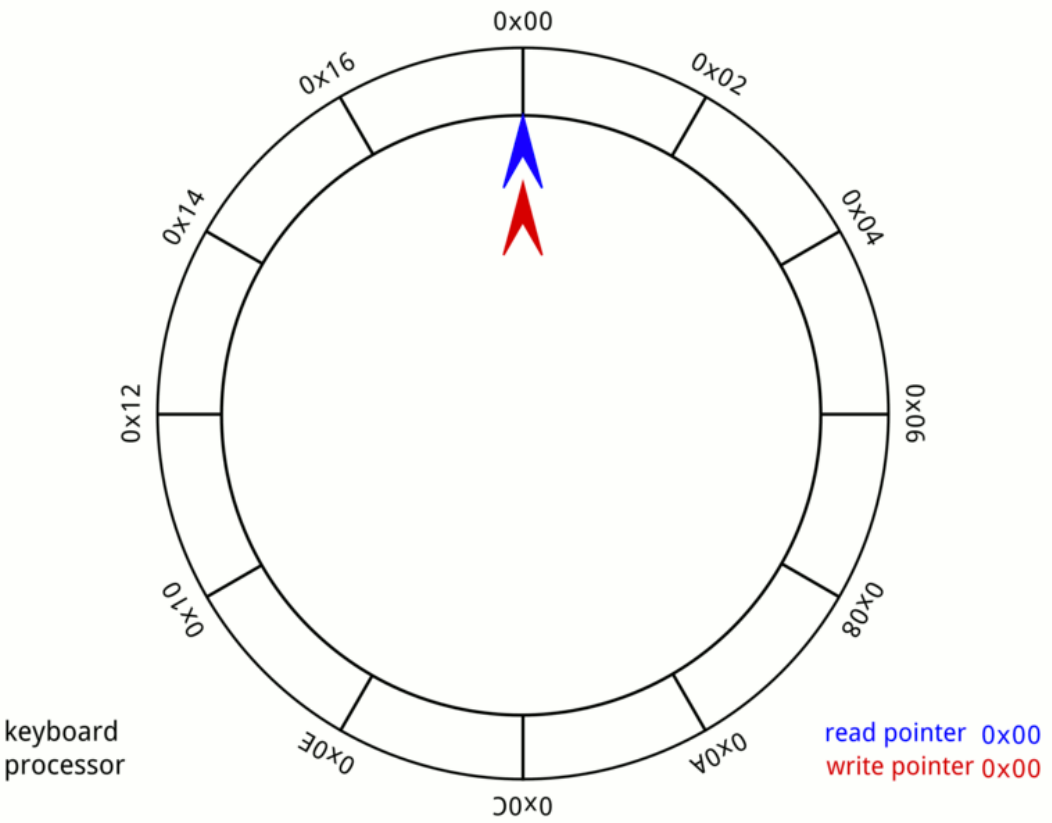
What are they?

- A first in first out (FIFO) data structure
  - Like a line of people queuing up for an event
- Stores the muon data for processing
- Have to be ready for next trigger signal



Credit: MuhannadAjjan on Wikimedia

How do they work?

- Using an array and modular addition

Index	0	1	2	3	4
Value	42	93	62	12	0

- array[index] = value;
- array[writeIndex] = newValue;
- writeIndex = (writeIndex + 1) % BUFFER_SIZE

- if((writeIndex + 1) % BUFFER_SIZE != readIndex) {
  return array[readIndex];

}

How are we using them?

- Storing the voltage reading and time since the Pulse-per-second (PPS) signal
- Pulling from to process during idle time