The circular movement of the Queue

If an array has space at the first index of the disk only but the rest of it is filled, then the rear pointer will circle around it back to the index position 1 allowing for the data to be stored over there. The rear pointer constantly circles around it so that storing data in every empty slot is possible.

Question

Describe: The program checks for space after the end of queue pointer by incrementing it by 1, if there is space the data “Orange” is inserted. Orange ends up getting stored in index 9, the same happens for Yellow but since there is no space left, it gets looped over and the End of Queue pointer and Yellow are both are at index 0.

Diagram:

|  |  |
| --- | --- |
| 0 | Yellow 🡨 End of Queue pointer |
| 1 |  |
| 2 |  |
| 3 |  |
| 4 |  |
| 5 | Red 🡨 Front of Queue pointer |
| 6 | Green |
| 7 | Blue |
| 8 | Pink |
| 9 | Orange |

4a) The type of data that it will store.

b) i)

Operation

* Enqueue and Dequeue

Check

* Make sure there is empty space in the queue to add more data in
* Make sure it’s not empty

3 a)

1. A check is performed to make sure there is empty space, if there is then the end of queue pointer is incremented by 1 and the data “Octopus” is added from there.
2. End of queue pointer is incremented by 1 and the data from that index position is read and loaded into memory, from there it is transferred to be stored into AnimalName \*\*\*
3. If both of them are the same then it means that there is only one item in the queue