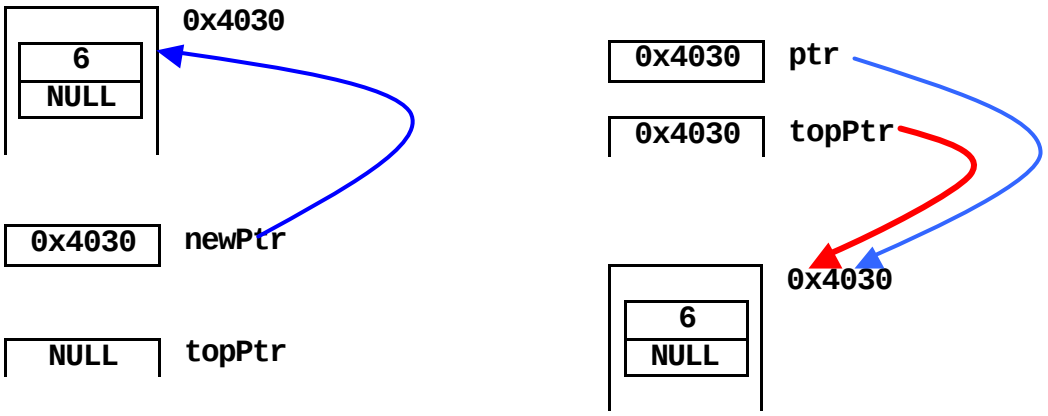
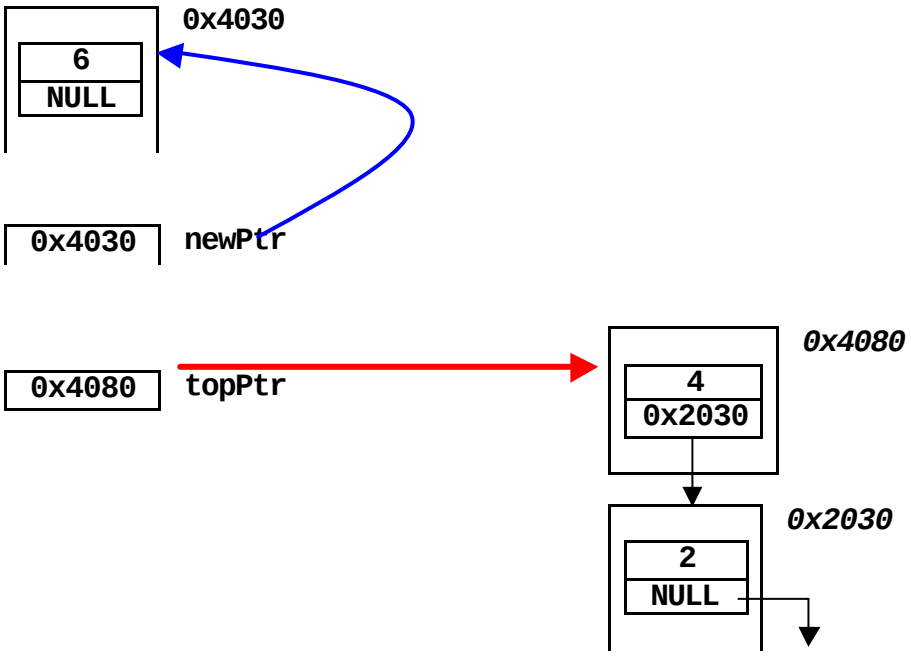
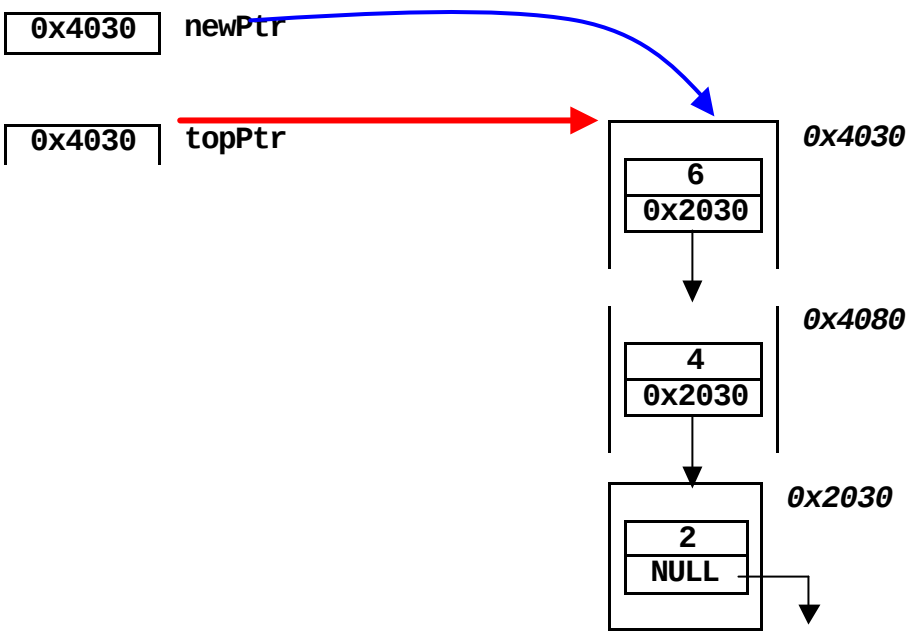
Additional Explanations – Lecture 8 – Linked Stacks and Queues

Push a new node onto an empty stack:



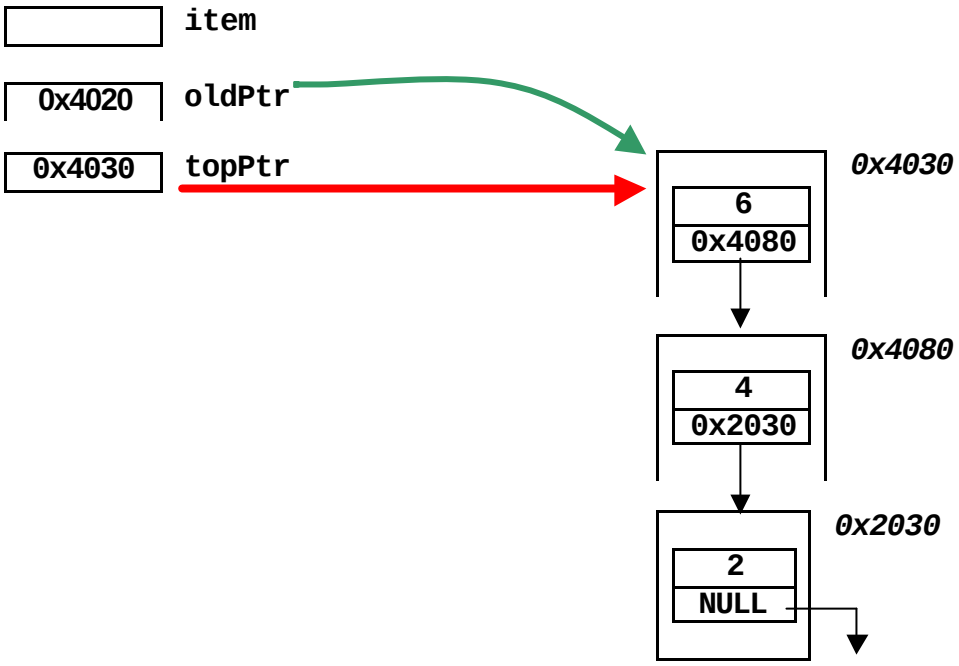
Normal push:



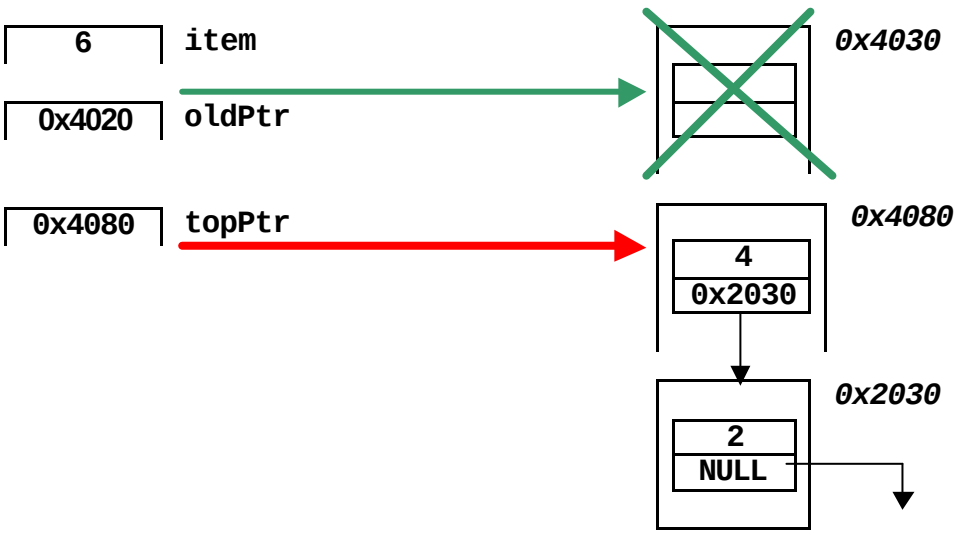


NOTE: you need to change the **`next`** member of the new node, **before** you change the **`topPtr`** to point to that new node!

Pop an item off the list:

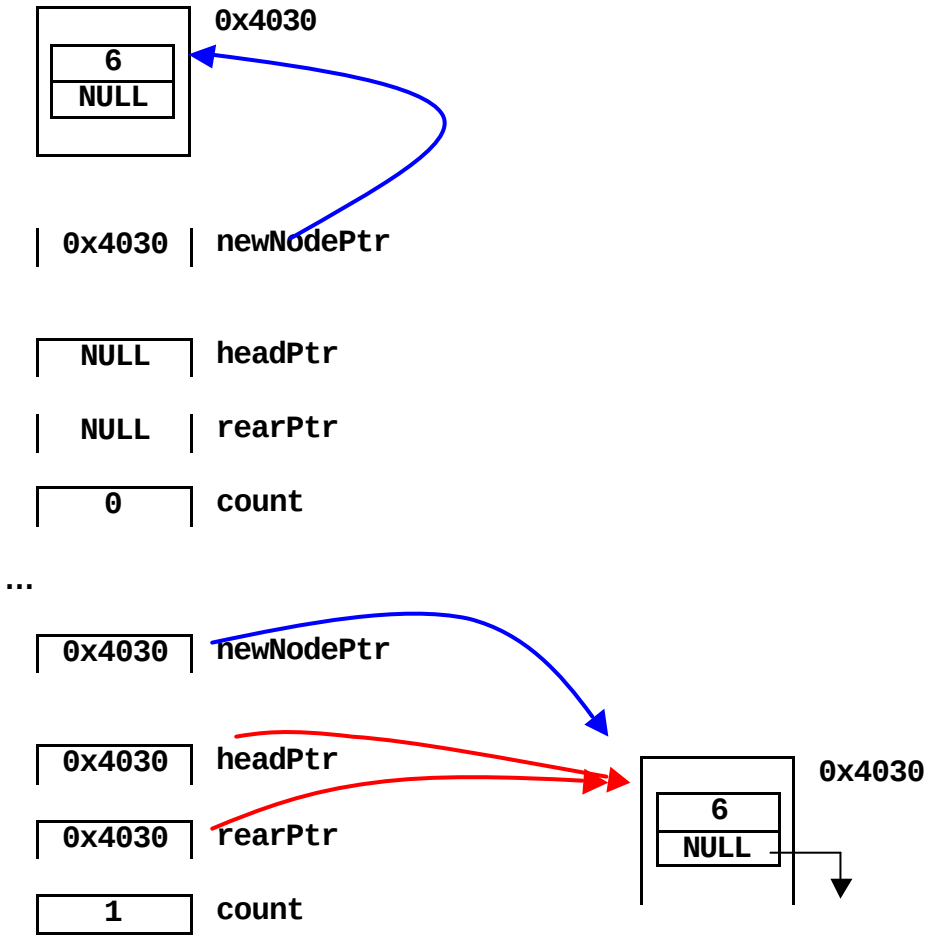


…



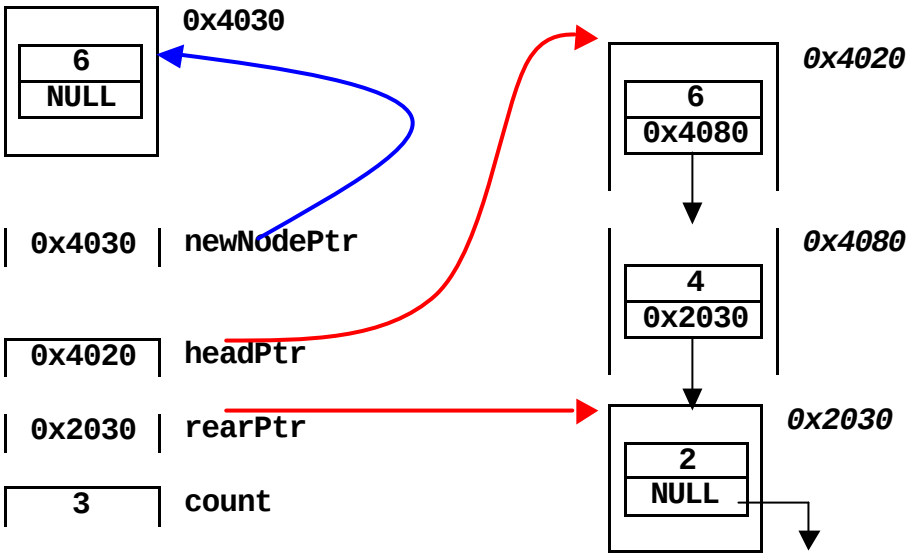
Note: you need to remember where the top node was, so you can free that memory. You need to move the `topPtr` **before** you free the memory.

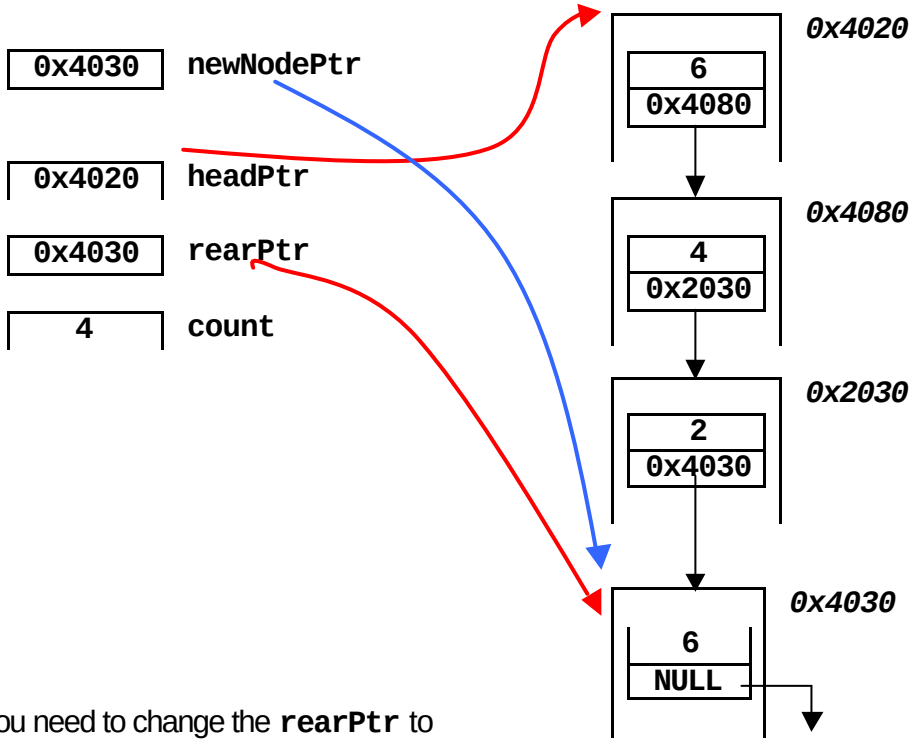
Append a new node to the empty Queue:



Note: you have to set both **`headPtr`** and **`rearPtr`** to the new node.

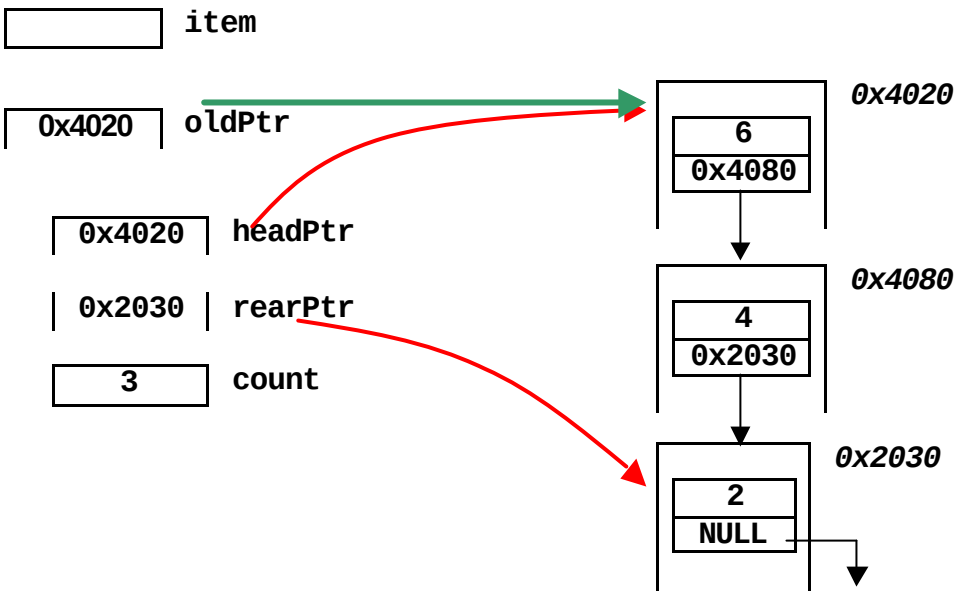
Append a new node to the queue



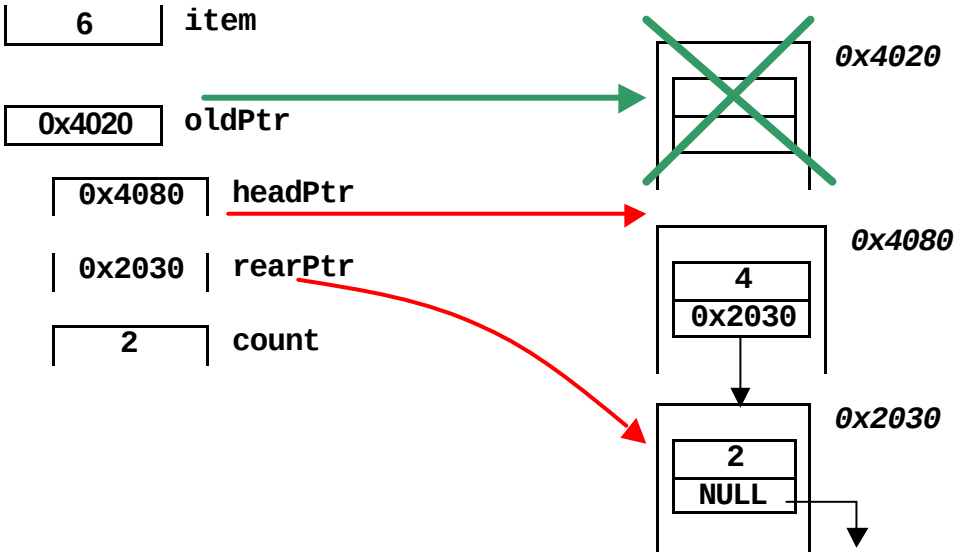


You need to change the **rearPtr** to point to the new node.

Serve an item:



…



You need to read out the item, then move the **headPtr before** freeing the old head node.

Note:
Serving an item which will empty the queue needs to be dealt with specially: