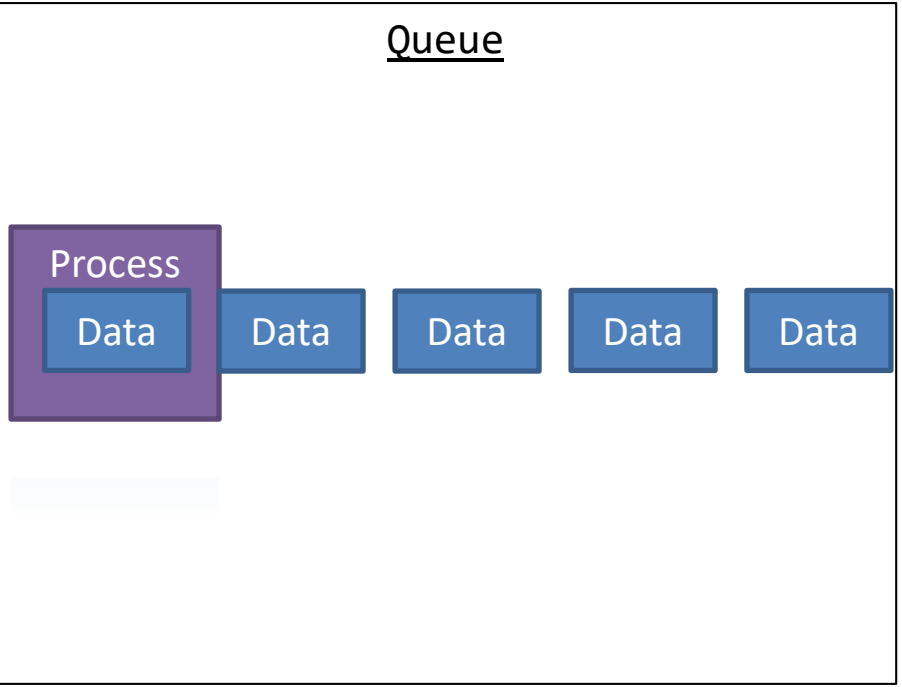
File Edit View Help

File Edit View Help

Queues

Queues

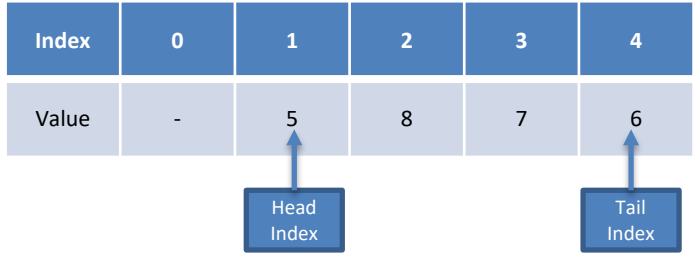
- First in First Out (FIFO)
  - Processing Data in Order
  - Time
  - “Waiting in a Line”
- Queue Operations
  - Enqueue: Add new element to the end of the queue
  - Dequeue: Remove the first element from the queue
  - Peek: Observe but not remove the first element in a queue
  - Print: Print all elements in a Queue



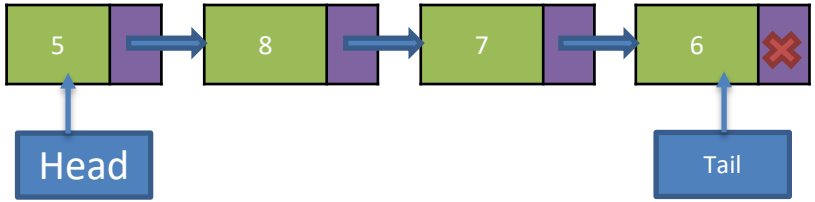
Queues

- Queue Implementations
  - Array
  - Linked List
- Two Major References
  - Head
  - Tail

Array Queue



Linked List Queue



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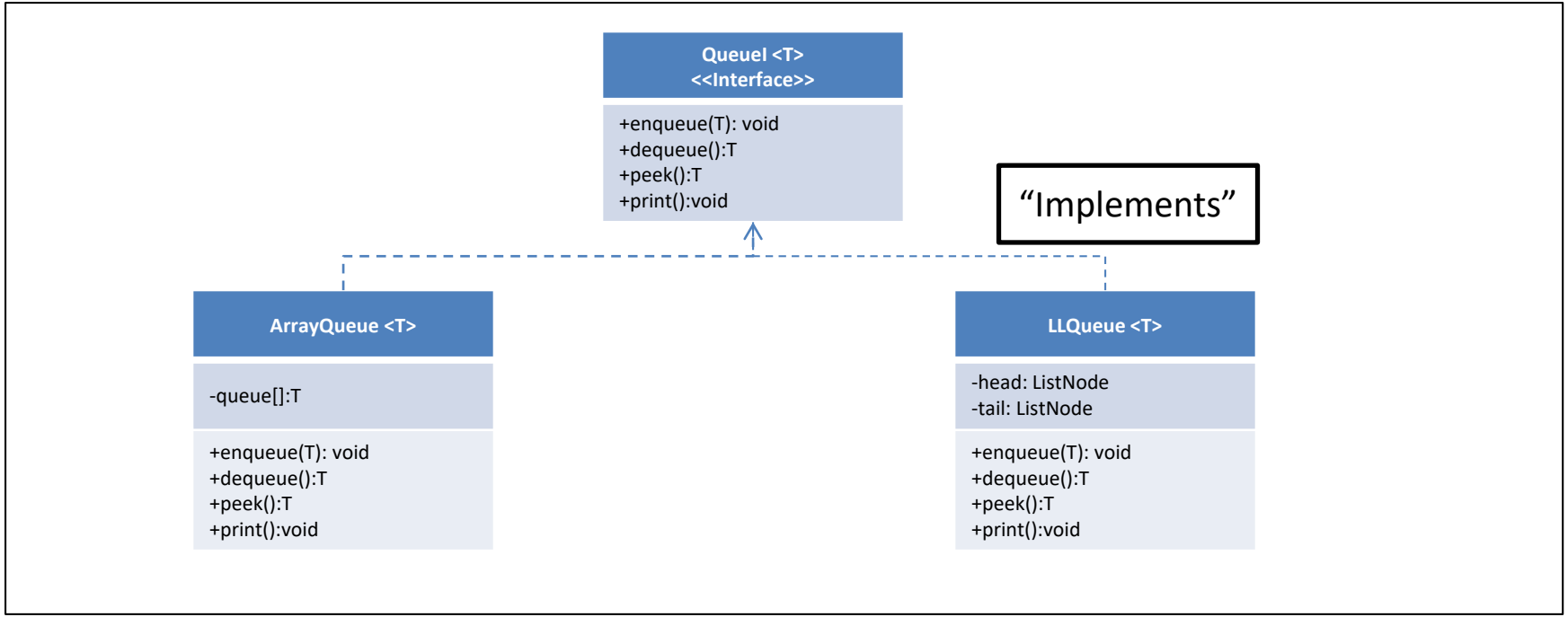
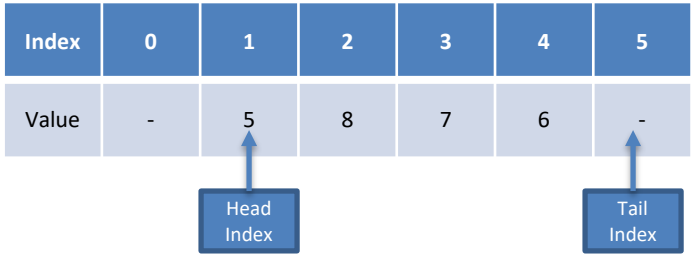
Queues



Array Queue

- References
  - Head Index (First Element)
  - Tail Index (First NULL Element)
  - Items in the Queue start from the Head Index and end Tail Index - 1
- Moves forward in a Circular Way
  - "Next Index = (Index + 1)%Array.Length"
  - Avoids "Shifting"

Array Queue



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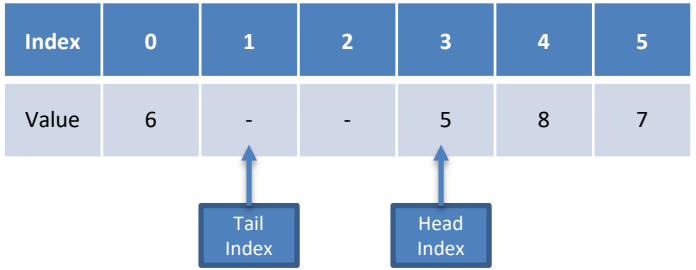
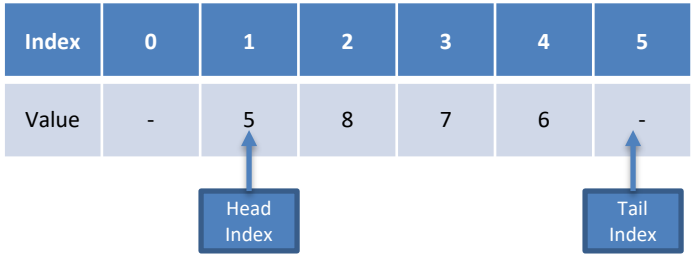


File Edit View Help

Array Queue

- Enqueue
  - Add new element at the Tail Index
  - Advance Tail Index Circularly

Array Queue



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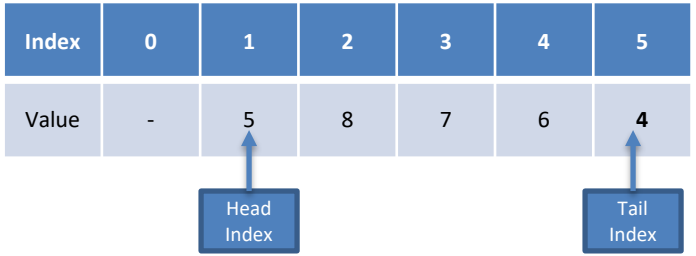

File Edit View Help

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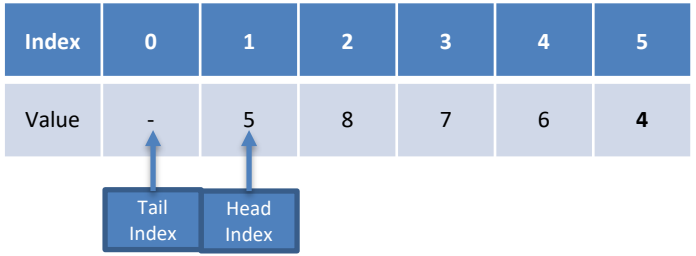
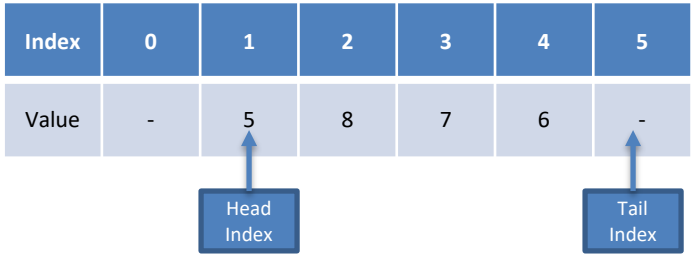


Array Queue

- Dequeue
  - Save Reference to item at the Head Index
  - Advance Head Index Circularly
  - Return Saved Reference

Array Queue



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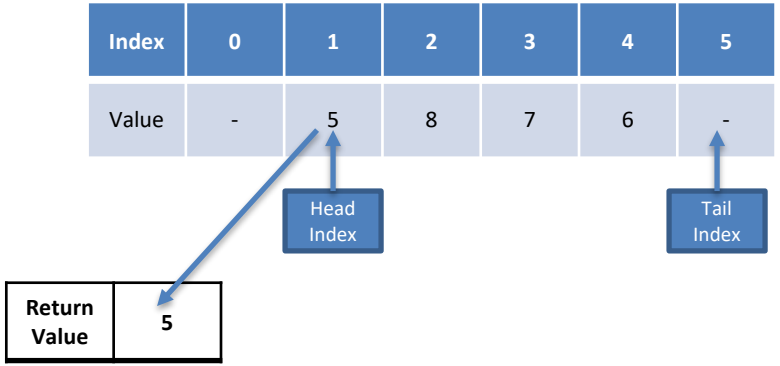

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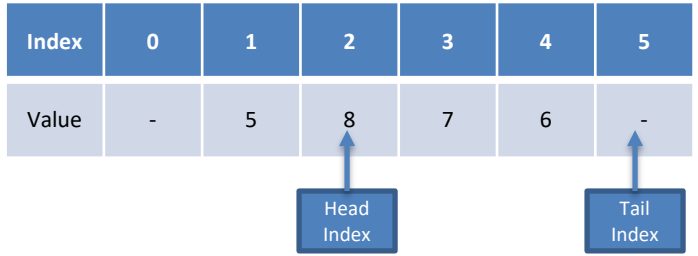
Array Queue

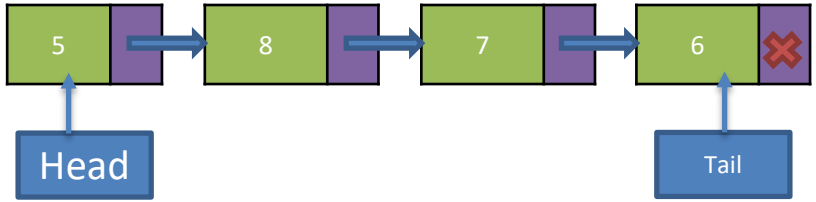


Return Value	5

Linked List Queue

- Enqueue
  - Create a new List Node with the Data
  - Add new element after the Tail Reference

Linked List Queue



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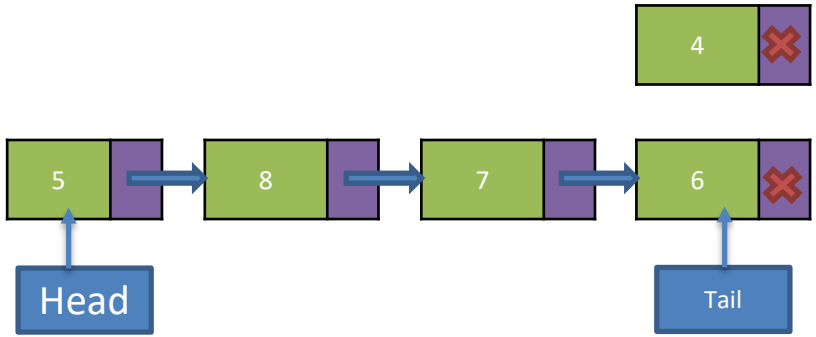

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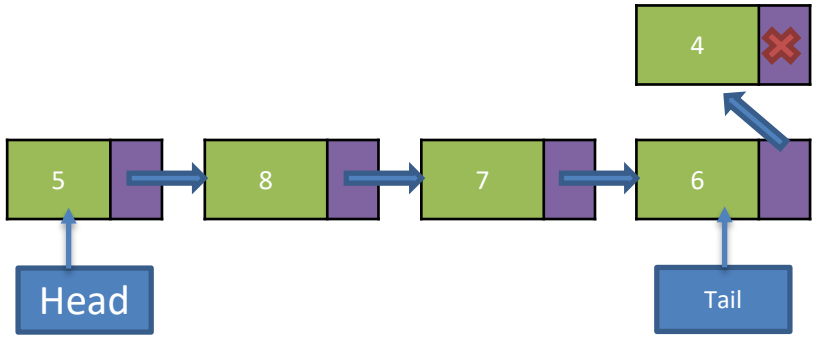

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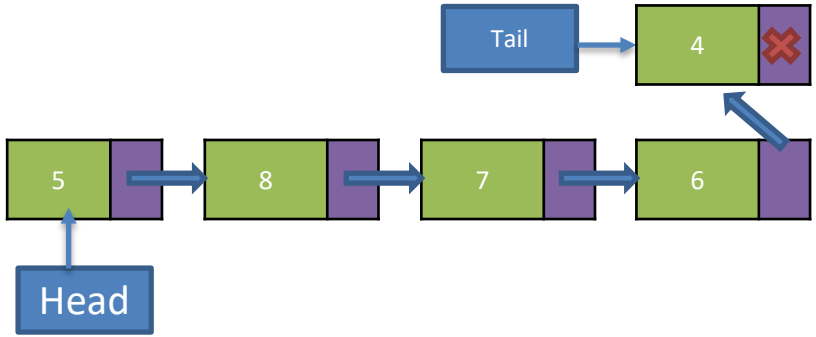
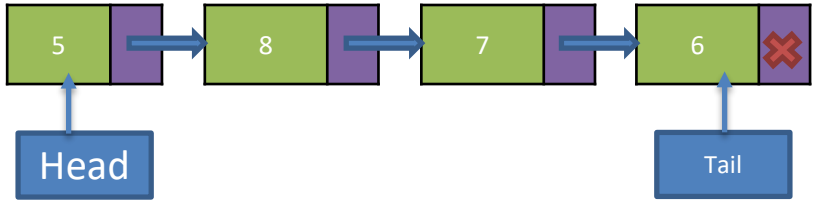


Linked List Queue

- Dequeue
  - Save Reference to the Data in the Head
  - Move the Head forward
  - Return Saved Reference

Linked List Queue



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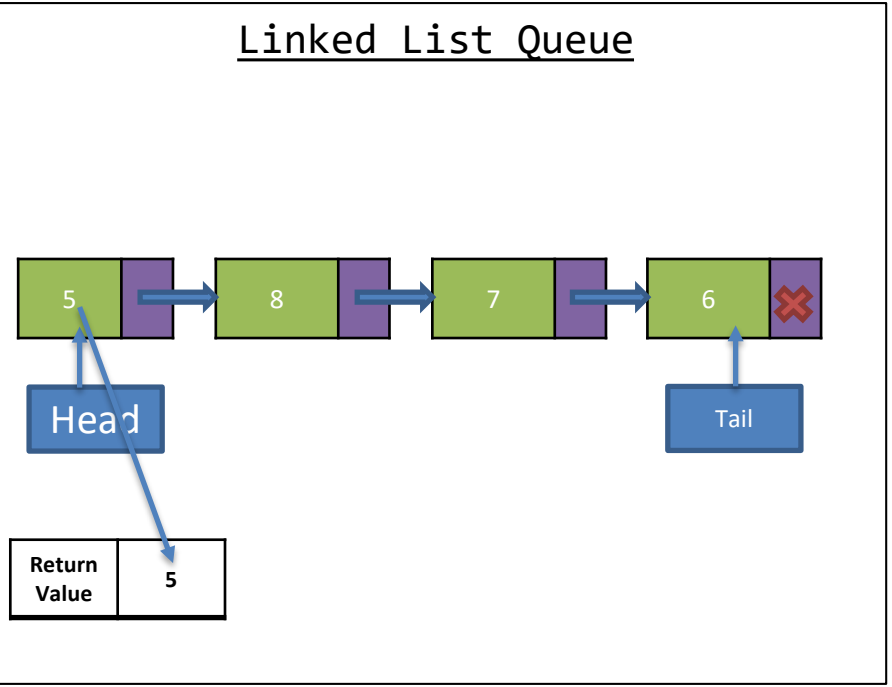

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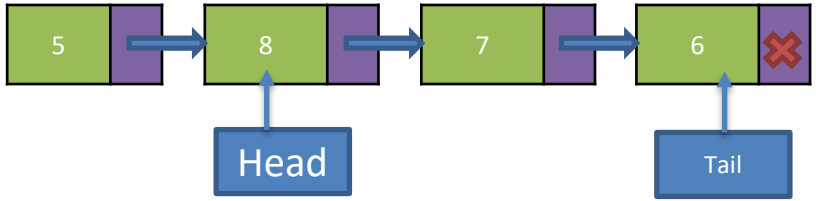

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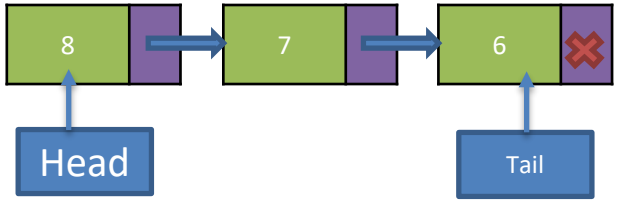

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