4.24. Summary

- Linear data structures maintain their data in an ordered fashion.
- Stacks are simple data structures that maintain a LIFO, last-in first-out, ordering.
- The fundamental operations for a stack are `push`, `pop`, and `isEmpty`.
- Queues are simple data structures that maintain a FIFO, first-in first-out, ordering.
- The fundamental operations for a queue are `enqueue`, `dequeue`, and `isEmpty`.
- Prefix, infix, and postfix are all ways to write expressions.
- Stacks are very useful for designing algorithms to evaluate and translate expressions.
- Stacks can provide a reversal characteristic.
- Queues can assist in the construction of timing simulations.
- Simulations use random number generators to create a real-life situation and allow us to answer "what if" types of questions.
- Deques are data structures that allow hybrid behavior like that of stacks and queues.
- The fundamental operations for a deque are `addFront`, `addRear`, `removeFront`, `removeRear`, and `isEmpty`.
- Lists are collections of items where each item holds a relative position.
- A linked list implementation maintains logical order without requiring physical storage requirements.
- Modification to the head of the linked list is a special case.

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