

# Queues

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# What Is a Queue?

“A queue is an ordered line or sequence”



Chaotic mess of people



4th

3rd

2nd

1st



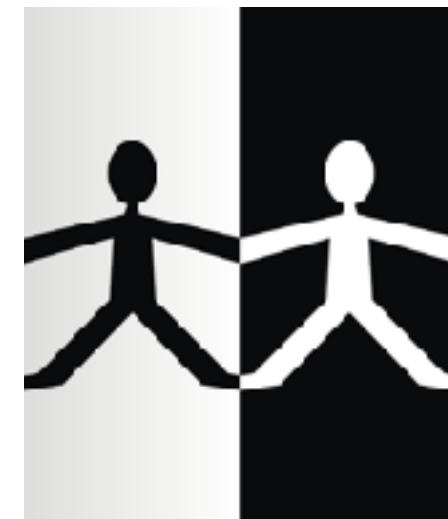
# Queue Characteristics



“I’m first off to the powder, FIFO’s rule”

	Big O ?
enQueue	$O(1)$
deQueue	$O(1)$
Search	$O(n)$
Access	$O(n)$

Queues



Stacks

# Demo

**Create queue class**

**Underlying queue structure**

# Demo

**Create size method**

**Create insert/delete methods (enqueue/  
dequeue)**

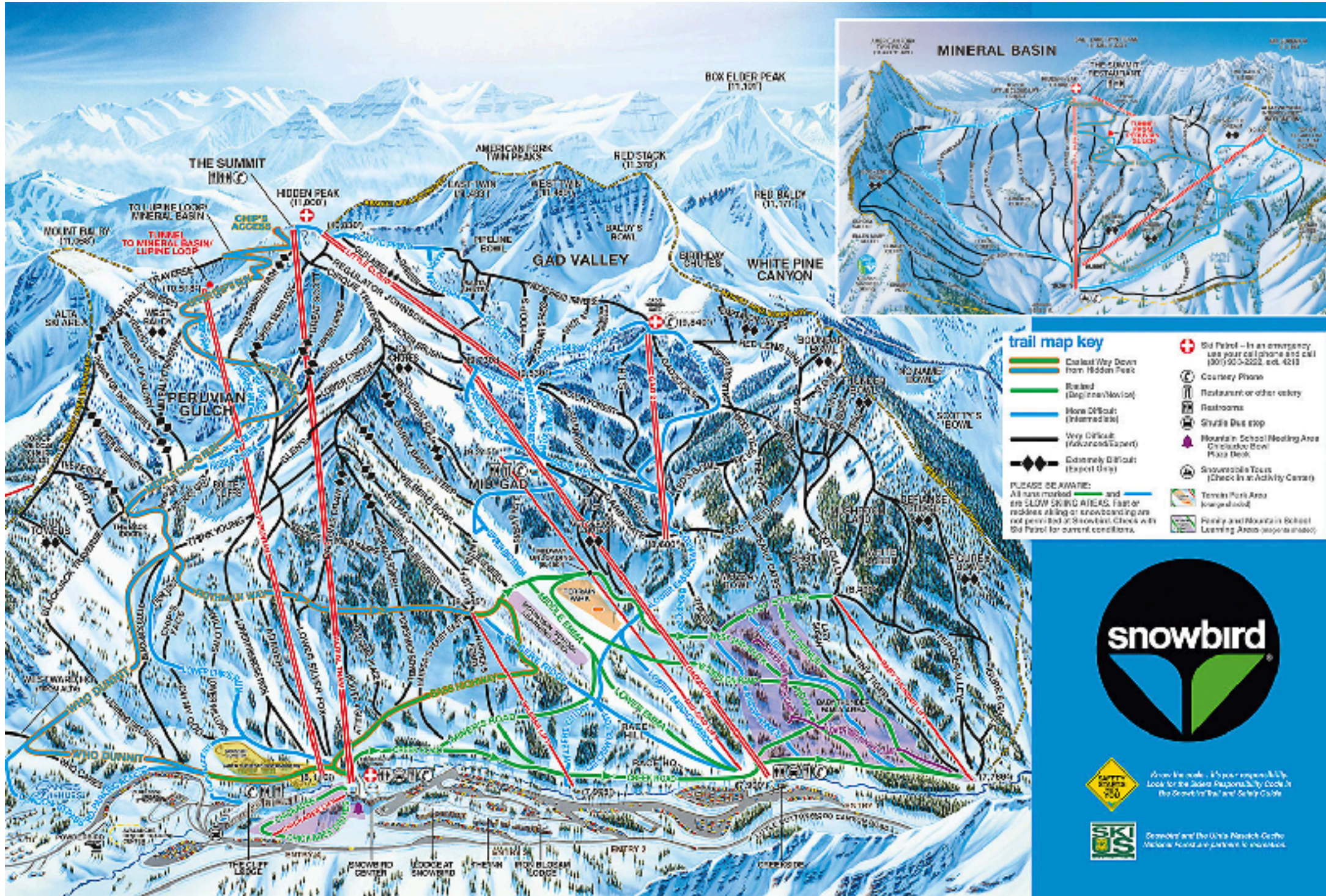
# Demo

**Create contains method**

**Create access method**

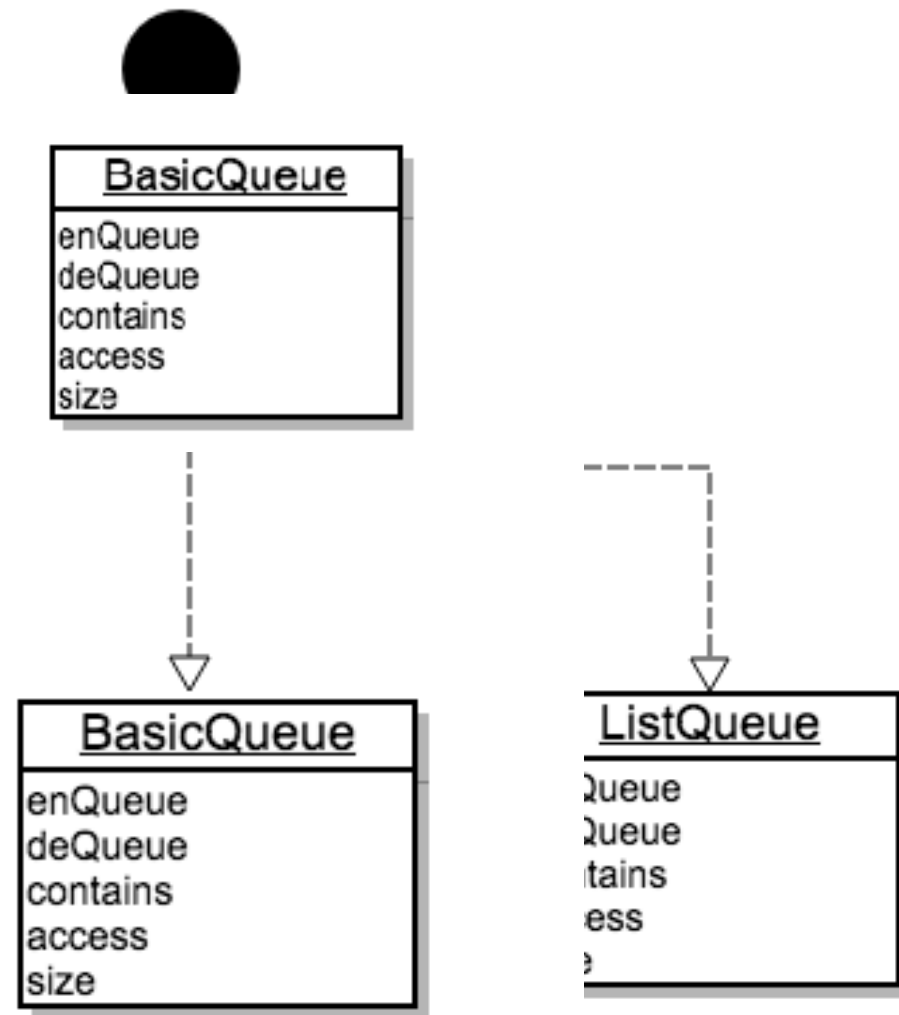


# Snowbird Lift Queue Test





# Queue Extra Credit



```
Queue queue = new BasicQueue();
queue.enqueue("In Line");
Object item = queue.dequeue();
```

## Homework

- Create a Queue interface
- Make the BasicQueue implement it
- Change the Snowbird lift app code to use the Queue interface
- Create a new ListQueue using ArrayList as the underlying structure
- Change the Snowbird lift app code to use the ListQueue



# Core Java Queues

## Queue<E>

- <https://docs.oracle.com/javase/8/docs/api/java/util/Queue.html>

ArrayBlockingQueue, ArrayDeque, ConcurrentLinkedDeque, ConcurrentLinkedQueue, DelayQueue, LinkedBlockingDeque, LinkedBlockingQueue, LinkedList, LinkedTransferQueue, PriorityBlockingQueue, PriorityQueue, SynchronousQueue

# Summary

**What is a queue?**

**Built basic queue class and underlying structure**

**Insert, delete and size methods**

**Contains and access methods**

**Improving the basic queue**

**Java Queue**