1. Linked list visualized

   [1, 8, 4, 7]

   head
   data: 1
   next:
   data: 8
   next:
   data: 4
   next:
   data: 7
   next: null

2. Adding to the front

   [1, 8, 4, 7]

   head
   data: 1
   next:
   data: 8
   next:
   data: 4
   next:
   data: 7
   next: null

   How can we add a value to the front of the list?

3. Adding to the front: add 9 to front

   [1, 8, 4, 7]

   head
   data: 1
   next:
   data: 8
   next:
   data: 4
   next:
   data: 7
   next: null

   data: 9
   next: null

   create a new Node

4. Adding to the front: add 9 to front

   [1, 8, 4, 7]

   head
   data: 1
   next:
   data: 8
   next:
   data: 4
   next:
   data: 7
   next: null

   data: 9
   next: null

   set the next value of that node to be head
Adding to the front: add 9 to front

[1, 8, 4, 7]

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Adding to the front: add 9 to front

[1, 8, 4, 7]

6

Adding to the front: add 9 to front

[1, 8, 4, 7]

7

Adding to the front: add 9 to front

[1, 8, 4, 7]

8
Adding to the front: add 9 to front

[1, 8, 4, 7]

Adding to the front: add 9 to front

[9, 1, 8, 4, 7]

Adding to the front

Does this work if the linked list is empty?

head: null

Adding to the front

Does this work if the linked list is empty?

head: null

```java
public void addFirst(E value) {
    Node newNode = new Node(value);
    newNode.setNext(head);
    head = newNode;
}
```
Adding to the front

Does this work if the linked list is empty?

head: null

newNode

| data: 9 | next: null |

Adding to the front

Does this work if the linked list is empty?

head: null

newNode

| data: 9 | next: null |

Removing from the front

[1, 8, 4, 7]

head

| data: 1 | next: | data: 8 | next: | data: 4 | next: | data: 7 | next: null |

How can we delete a value to the front of the list? (assuming the list isn’t empty)

Removing from the front

[1, 8, 4, 7]

head

| data: 1 | next: | data: 8 | next: | data: 4 | next: | data: 7 | next: null |

Simply move head down the list!
Removing from the front

[1, 8, 4, 7]

Simply move head down the list!

How can do this in code?

Removing from the front

[1, 8, 4, 7]

How can do this in code?

Removing from the front

[1, 8, 4, 7]

Removing from the front

[1, 8, 4, 7]

How to code the process?
Iterating through a linked list

```java
Node finger = head;
while (finger != null) {
    // do something with the current node, finger
    finger = finger.next;
}
```

Use a variable starting at the head and move it down the list

How will we know when we're at the end?
Iterating through a linked list: printing it

```
Node finger = head;
while (finger != null) {
    System.out.println(finger.data);
    finger = finger.next;
}
```

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Iterating through a linked list: printing it

head

data: 1
next:

finger

data: 8
next:

data: 4
next:

data: 7
next: null

Node finger = head;
while (finger != null) {
    System.out.println(finger.value);
    finger = finger.next;
}
Iterating through a linked list: printing it

Node finger = head;
while (finger != null) {
    System.out.println(finger.value());
    finger = finger.next();
}
Iterating through a linked list: printing it

```java
Node finger = head;
while (finger != null) {
    System.out.println(finger.data);
    finger = finger.next;
}
```