LINKED LISTS

Problem Solving with Computers-I

https://ucsb-cs24-sp17.github.io/

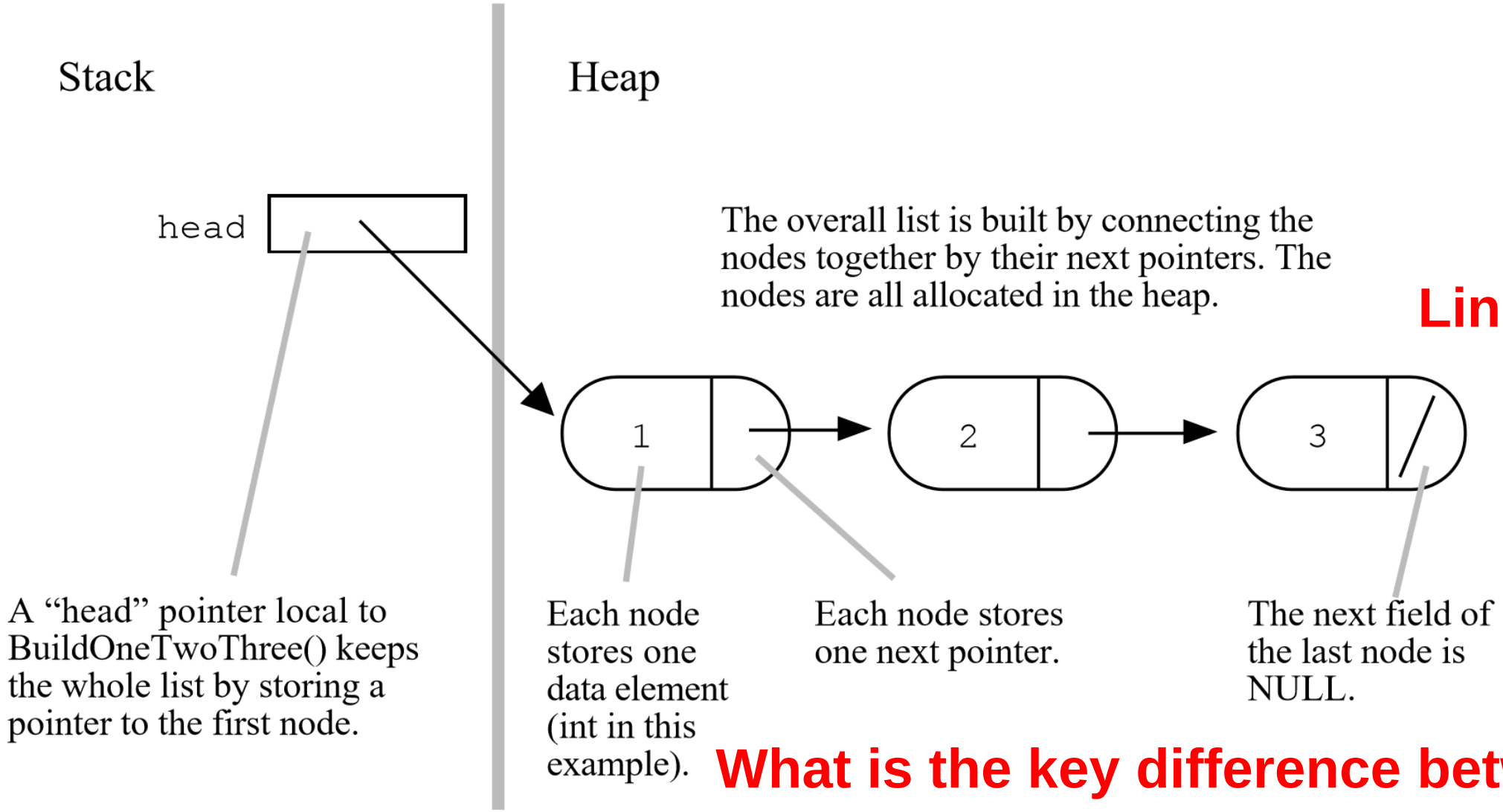
Announcements

- PA3 and PA4 released
- PA3 is due on 5/8
- PA4 is due on 5/15 (a week after that)

Linked Lists

The Drawing Of List {1, 2, 3}

Array List



Linked List

What is the key difference between these?

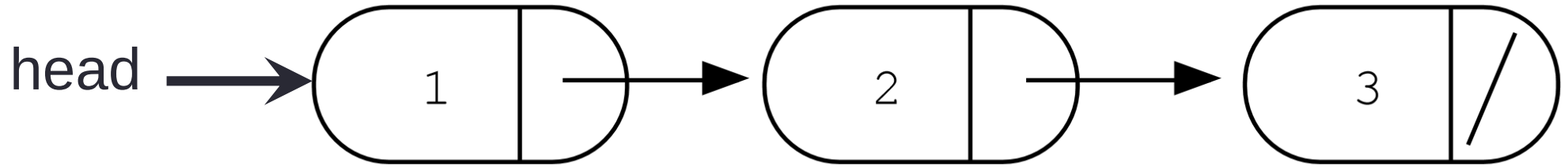
Create a two node list

- Define an empty list
- Add a node to the list with data = 10

```
struct Node {
      int data;
      Node *next;
};
```

Accessing elements of a list

```
struct Node {
      int data;
      Node *next;
};
```



Assume the linked list has already been created, what do the following expressions evaluate to?

1. head->data
2. head->next->data
3. head->next->next->data
4. head->next->next->next->data

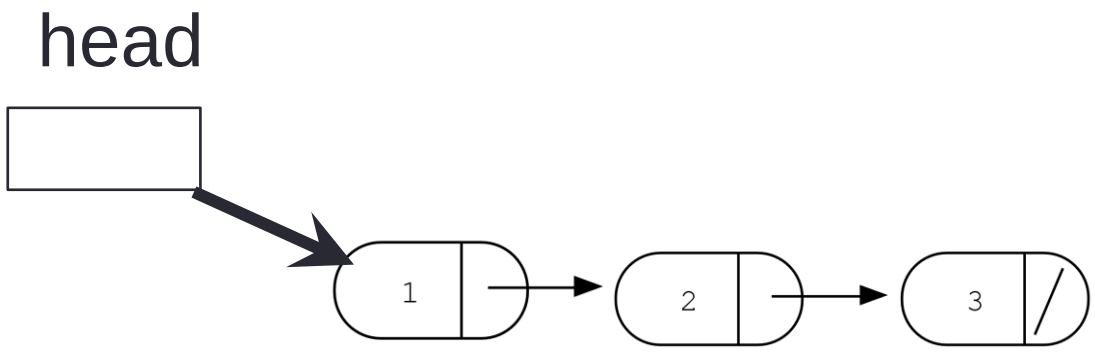
A. 1
B. 2
C. 3
D. NULL
E. Run time error

Iterating through the list

```
int lengthOfList(Node * head) {
   /* Find the number of elements in the list */




}
```



Linked-list with classes

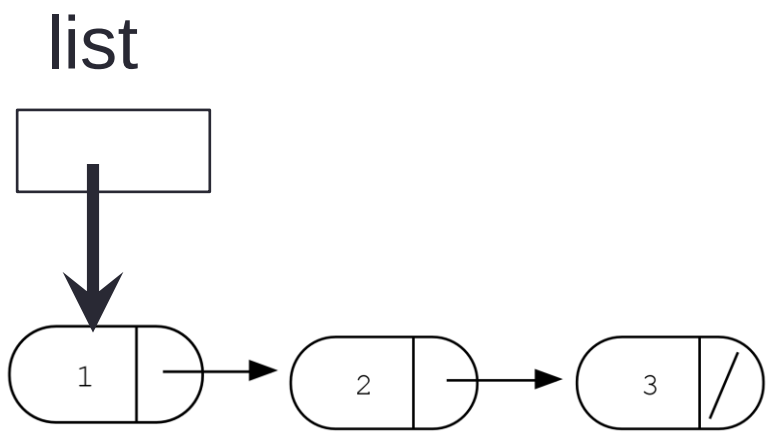
```
class IntList {
public:
    IntList();              // constructor
    ~IntList();              // destructor
    // other methods
private:
    // definition of Node structure
    struct Node {
        int info;
        Node *next;
    };
    Node *first; // pointer to first node
};
```

Deleting the list

```
Node* freeLinkedList(Node * list) {
   /* Free all the memory that was created on the heap*/




}
```



Next time

- More linked list with classes