ADVANCED PROBLEMS IN LINKED LISTS, FINAL REVIEW

Problem Solving with Computers-I

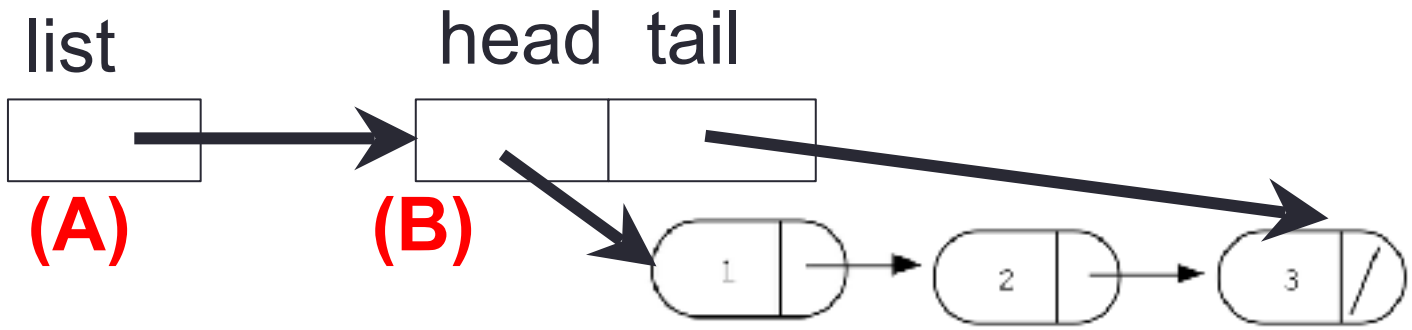
Final Exam!

- Thursday (03/22) 4pm to 7pm, BUCHN 1920
- Assigned seating will be posted on Piazza
- Everything we have covered so far is on the exam
- Duration: **3 hours**
- Only 1 sheet (***double***-sided is ok) of written notes
  - Must be no bigger than 8.5” x 11”
  - You have to turn it in with the exam
- Closed book: no calculators, no phones, no computers
- Check out https://ucsb-cs16-w18.github.io/exam/e02/ for more information
- Diba’s office hours Wed noon to 2p
- No open labs as tutors will be studying for their finals

Deleting the list

```
int deleteList(LinkedList * list){
   delete list;
}
```

Which data objects are deleted when the above function is called on the linked list shown below:



(C) All nodes of the linked list

(D) B and C

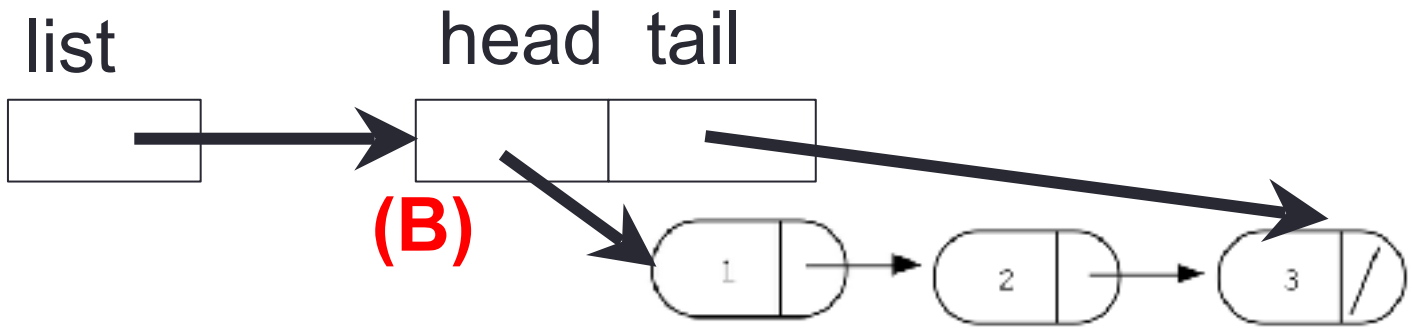
(E) All of the above

Does this result in a memory leak?

Deleting the list

```
int deleteList(LinkedList * list){
   delete list;
}
```

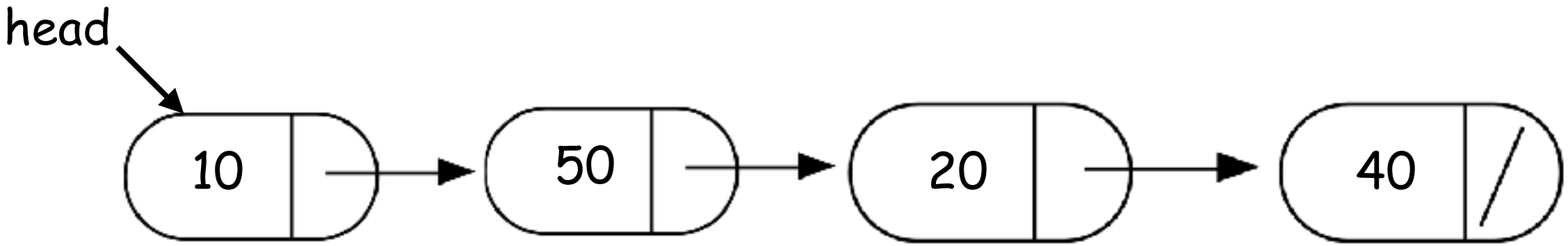
- In general delete p; deletes what p is pointing to (must be a heap object)
- Above code deletes the LinkedList object that `list` points to
- All the nodes will remain on the heap
- Pointer to the first node is lost which results in a memory leak



All nodes of the linked list

Does this result in a memory leak?

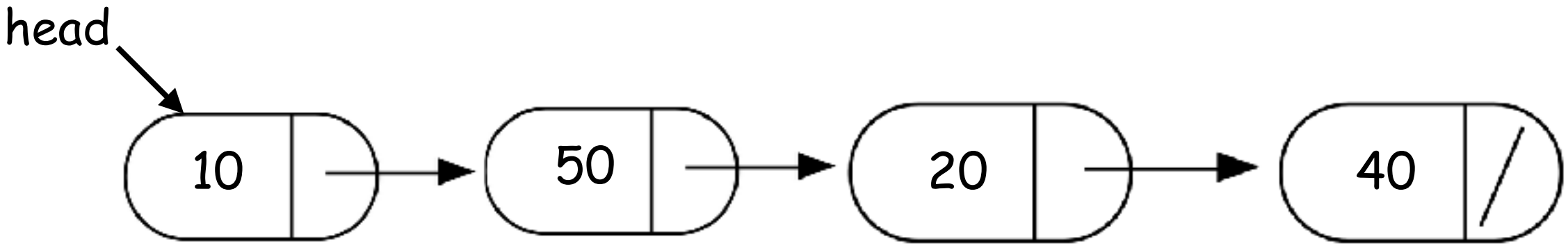
Delete a node in a linked list



Given : pointer: `head` , integer: `value`

Write code to delete the node with value 50
Generalize to delete all nodes with the given value

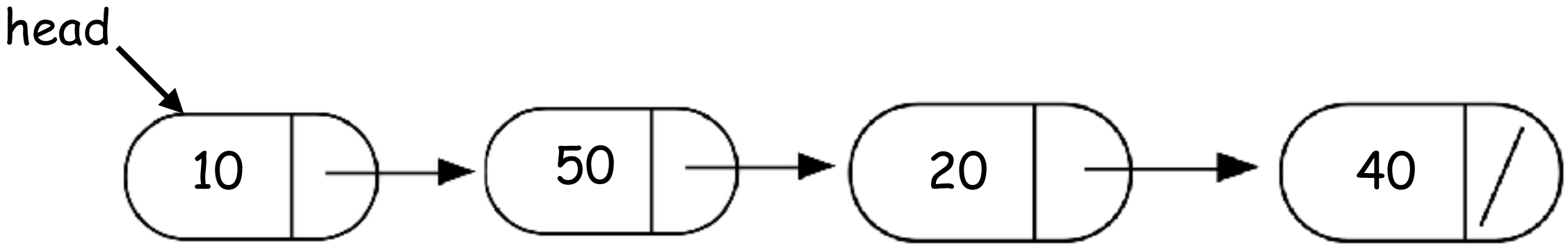
Delete a node recursively



Given: a pointer to the first node
: a value to delete from the list

Delete all occurrences of value recursively

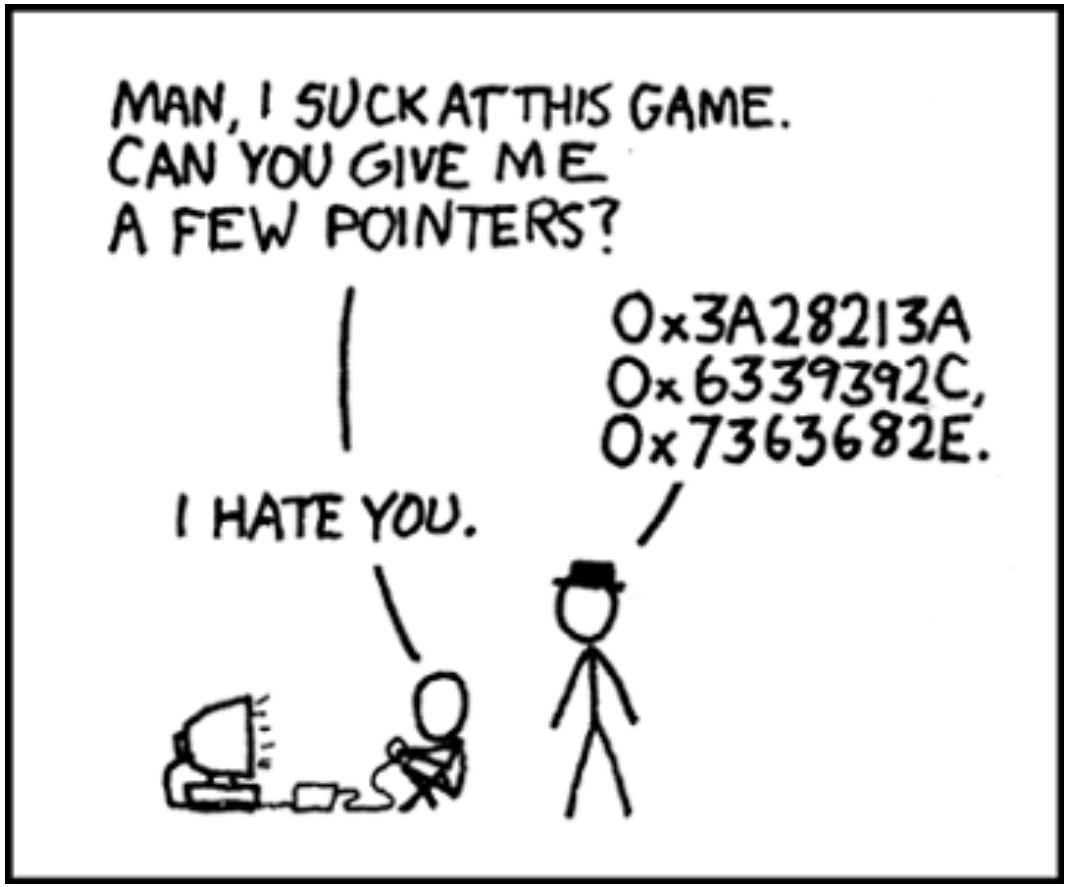
Delete the entire list



Given: a pointer to the first node
: a value to delete from the list

Write code to iteratively delete all nodes with the given value

Some comic relief



HTTP://XKCD.COM/138/

Good luck with the final!