

COP 3502 9/6/2023

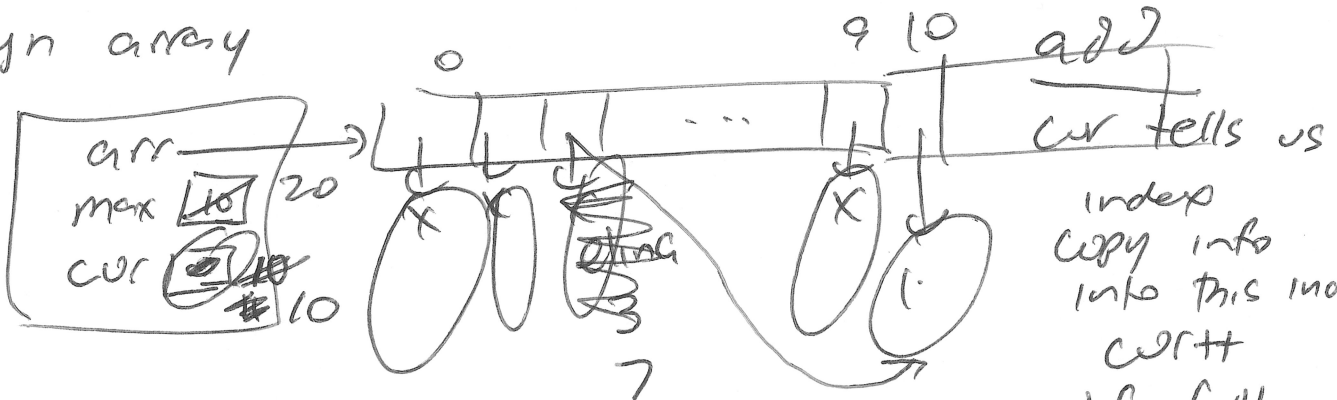
- ① Quiz Sol Posted
- ② W off Hours \Rightarrow R morning
- ③ Linked Lists

Store stuff : ① add
② delete
③ search

for loop through
list
run times $O(n)$
 $n = \#$ items in list

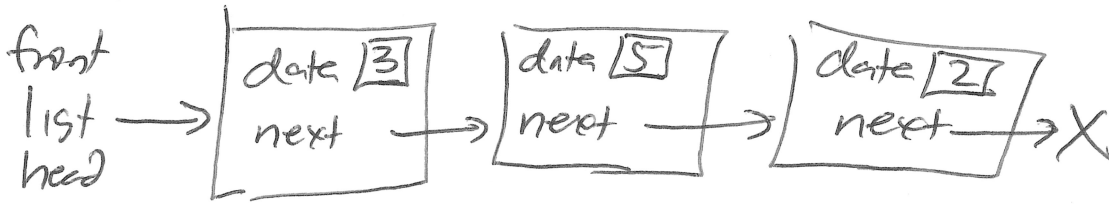
Sol 1

dyn array



- del
1. Find item del
 2. free item
 3. reassign ptr to last item
 4. cur--

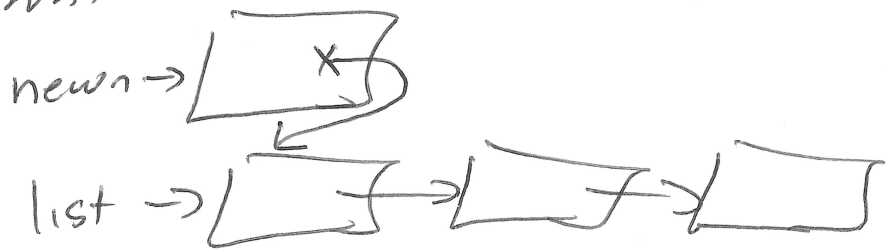
Linked List Ideas



```
typedef struct node {  
    int data;  
    struct node* next;  
} node;
```

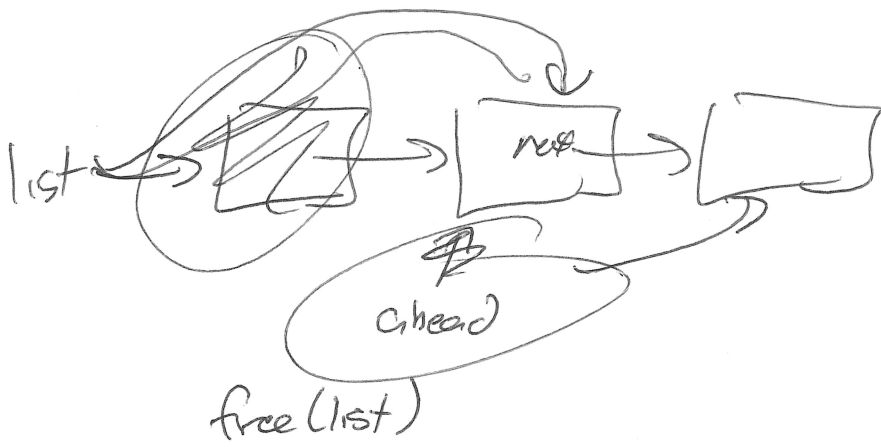
```
node* makenode(int val) {  
    node* tmp = malloc(sizeof(node));  
    tmp->data = val;  
    tmp->next = NULL;  
    return tmp;  
}
```

Insert to front



1. $newn \rightarrow next = list;$
2. return newn as the new front of the list.

```
node* insertfront(node* list, int val) {  
    node* newn = makenode(val);  
    newn->next = list;  
    return newn;  
}
```



```

void freeList(node* list) {
    if (list == NULL) return;
    if (list->next == NULL) {
        free(list);
        return;
    }
    node* ahead = list->next;
    while (ahead != NULL) {
        free(list); → list = ahead;
        ahead = ahead->next;
    }
    free(list);
}

```

main



```

str = insertfront(str, 'e');
str = insertfront(str, 'a');

```

```

insertfront
list
mylet / 'e'
newnode
inf
list
mylet / 'a'
newnode
newnode->next = list

```

```

mylenode
mylet / 'e'
tmp
mylenode
mylet / 'a'
tmp

```



```

print(str)
cat

```

print

list

```

while (list != NULL) {
  pf("012", list->let);
  list = list->next;
}
3

```