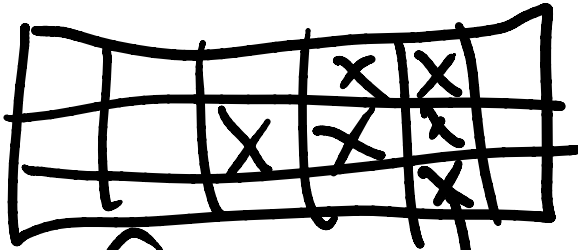


5/18/20 CS1 Class

Monday, May 18, 2020 4:06 PM

1. Grid Game (introduce DX/DY arrays)
2. function calloc (frequency array example)
3. function realloc (dynamically growing list)
4. Example with three levels of dynamic memory allocation.

Grid Game



DX (-1) 0 0 1
DY 0 -1 1 0

r [2] 2 i r [2]

c [3] 3

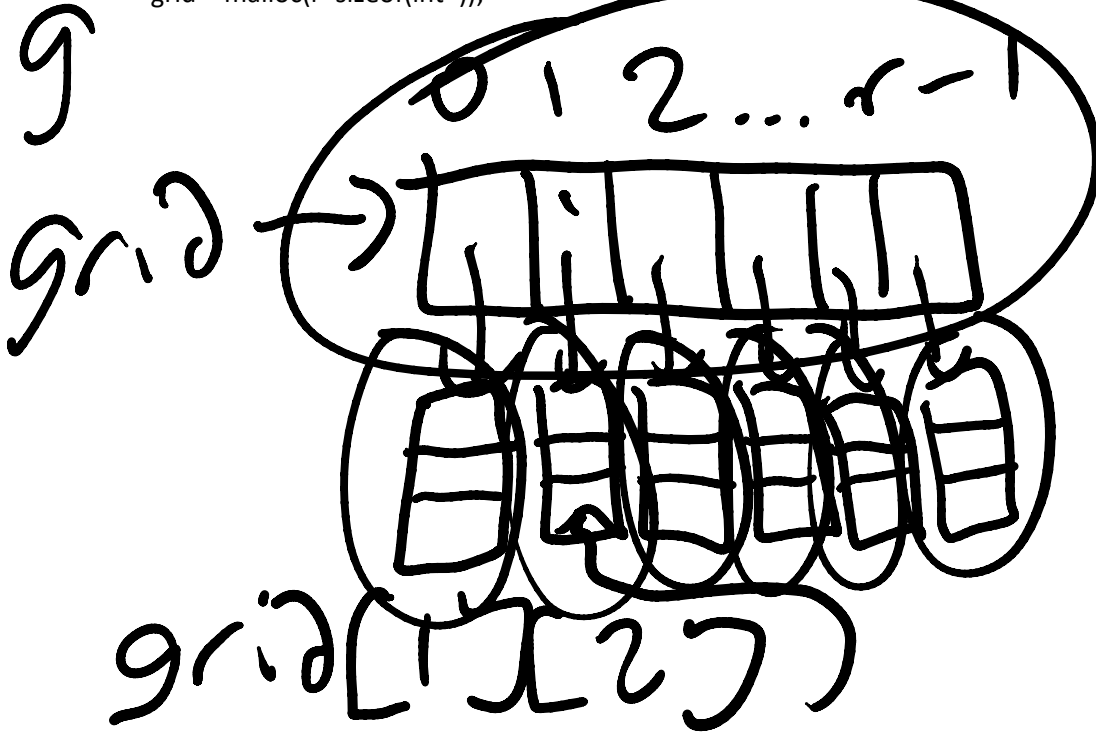
$r + = DX[0]$

$c + = DY[0]$

$(2, 3) \rightarrow (1, 3)$
1 0

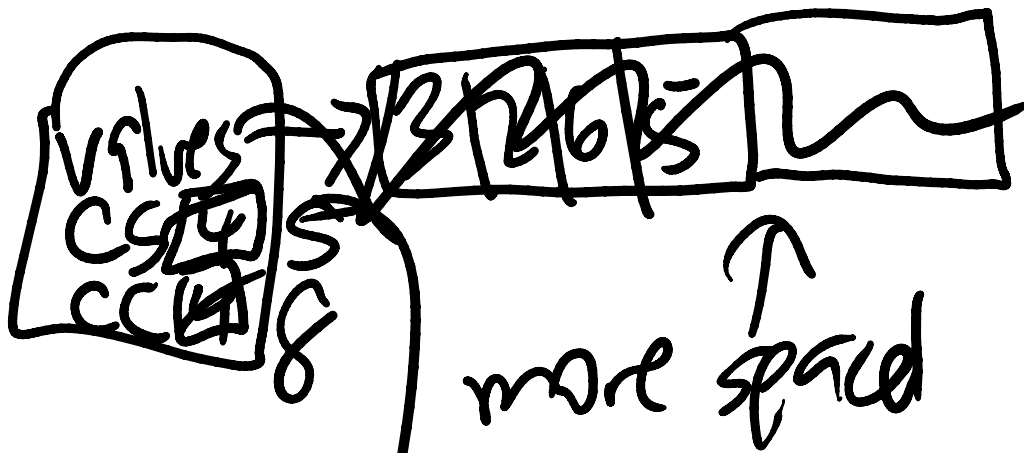
U P

```
grid = malloc(r*sizeof(int*));
```



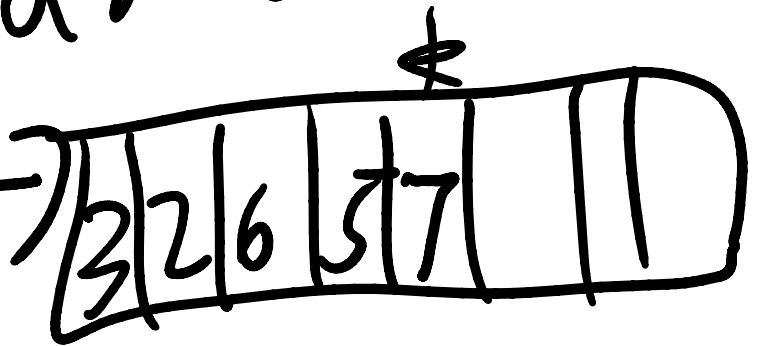
Go to realloc
first

In many languages, there is support for a dynamically growing list.
We will write a very simple dynamically growing list in C.
Allow to add to end
Delete from the front
Add to front or end, delete from front or end
Note: Will not be the most efficient implementation....
Just do ints for now.



realloc does exactly this!!!

Realloc find new
amt of memory
AND copies all
stuff over



AND frees old mem

mylist

mylist

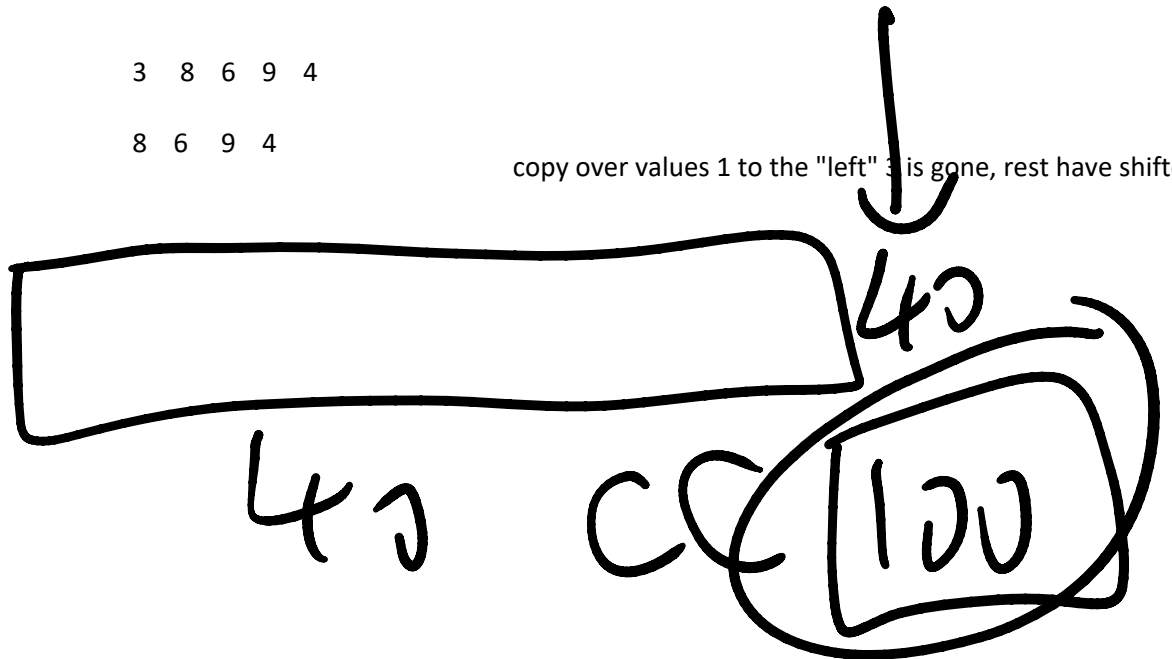


MemArr : &mylist

3 8 6 9 4

8 6 9 4

copy over values 1 to the "left" 3 is gone, rest have shifted over.



mylistptr →



Need to Add

1. Free all mem.

1. Free with version.
2. Splitting into.

1. #1 includes
2. constant
3. func. proto
4. main
5. other function