COP 3502 10/10/25

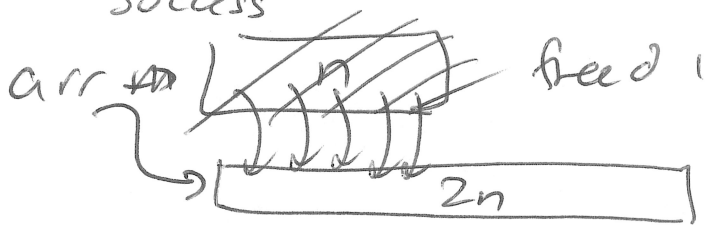
Looked @ Exam Review Info on typed up Notes

What if realloc fails?

Usually (pretend arr is int array size n)

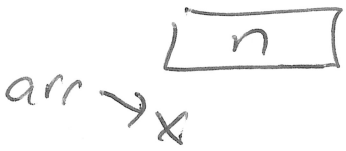
```
arr = realloc(arr, 2*n*sizeof(int));
```

success



freed in realloc

if fails



has nothing pointing to it
memory leak

```
int* tmp = realloc(arr, 2*n* sizeof(int));
```

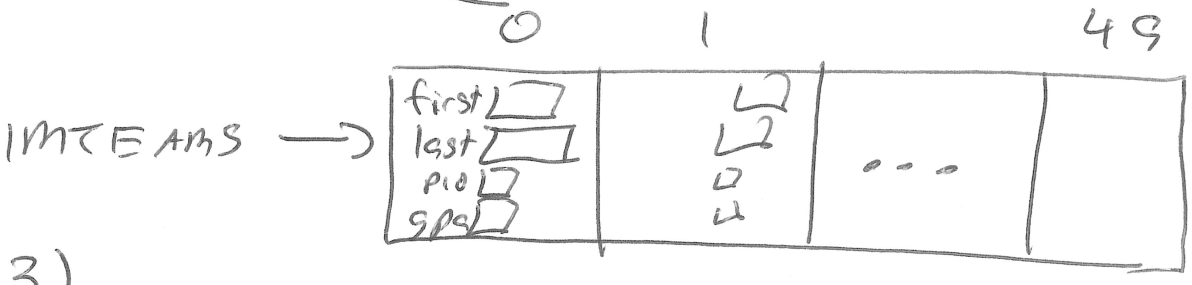
tmp → X

```
if (tmp == NULL) {
    free(arr);
    arr = NULL;
}
```

avoid memory leak

```
int * arr = malloc(...)
if (arr == NULL) {
    //malloc failed
}
```

F13 E1 Q1



3)

```
int studentcmp(const studentT* ptrA, const studentT* ptrB){

    if ( ptrA->gpa < ptrB->gpa) return -1;
    if (ptrB->gpa < ptrA->gpa) return 1;
    int tmp = strcmp(ptrA->last, ptrB->last);
    if (tmp != 0) return tmp;
    tmp = strcmp(ptrA->first, ptrA->last);
    if (tmp != 0) return tmp;
    return ptrA->PID - ptrB->PID;
}
```

F13 E1 Q4

f(3,5)

a b

$\frac{5f(2,4)}{3} = \frac{5 \times 6}{3} = 10$

$f(2,4) = \frac{4f(1,3)}{2} = \frac{(4 \times 3)}{2} = 6$

$f(1,3) = \frac{3f(0,2)}{1} = 3$

```
f(a,b)
    if (a==0) return 1;
    return b * f(a-1, b-1) / a
```

$\frac{5*4*3}{3*2*1}$ $2*1$

as long as int div doesn't screw things up

$\binom{b}{a} = \frac{b!}{a!(b-a)!}$