

wk 1+2 strings (UTF-8, char\*, ASCII)  
arrays printing  
bitwise ops datatypes byte-by-byte

wk 3+4 Memory, processes, command-line args

how a program runs on a computer  
"system calls" - asking the OS to do things  
(printf is actually a system call)

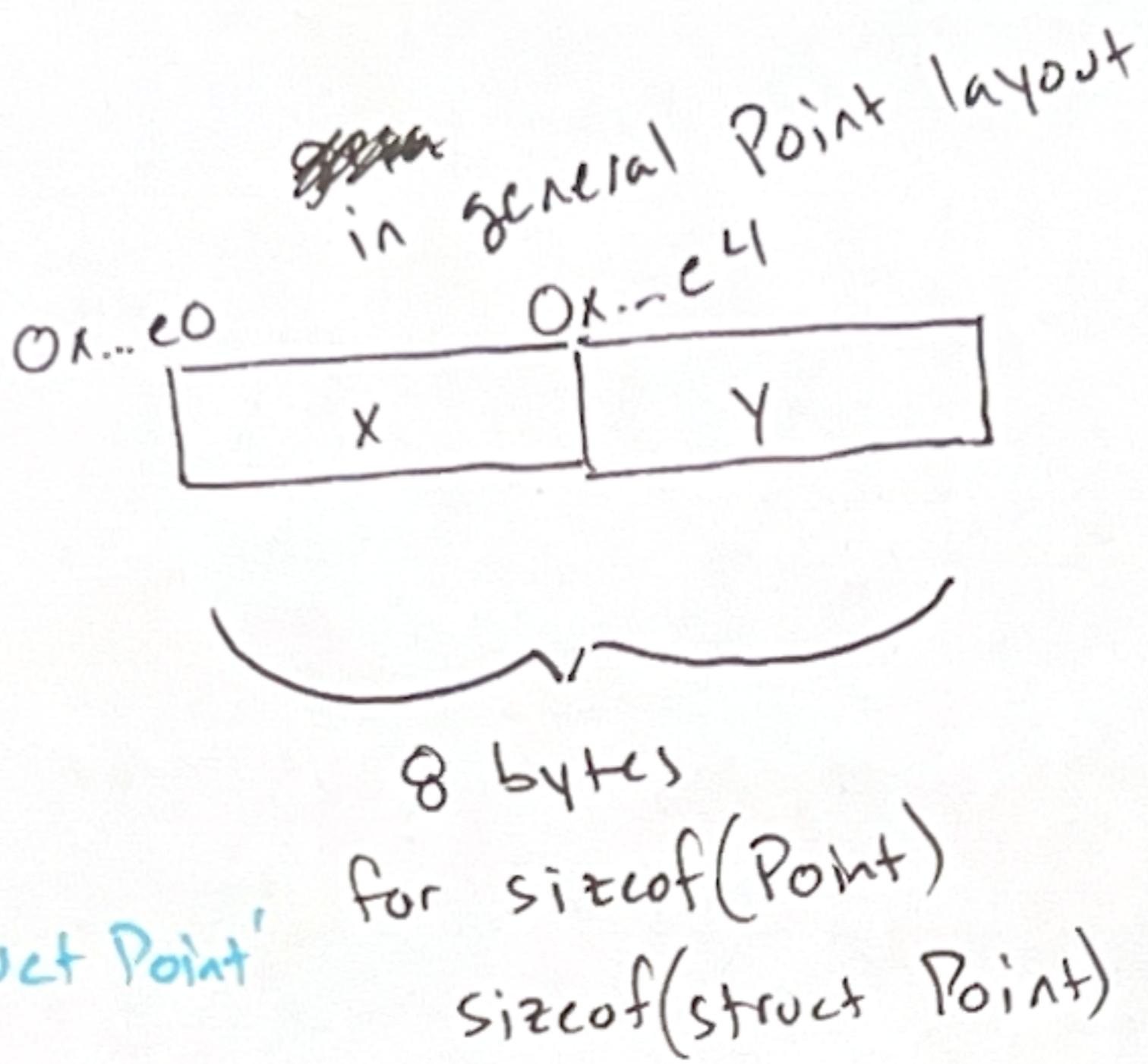
wk 5+6 Memory management, "objects" in C  
Behind the scenes of objects Python, Java

~~Q&A~~ Questions before we move on?

structs in C

```
typedef struct Point {  
    int x;  
    int y;  
} Point;
```

typedef makes it so I can  
write 'Point' instead of 'struct Point'



```
int main() {
```

```
    Point p = {3, 4};
```

```
    Point p2 = {7, 8};
```

$\&p$   $0x\ldots 40$

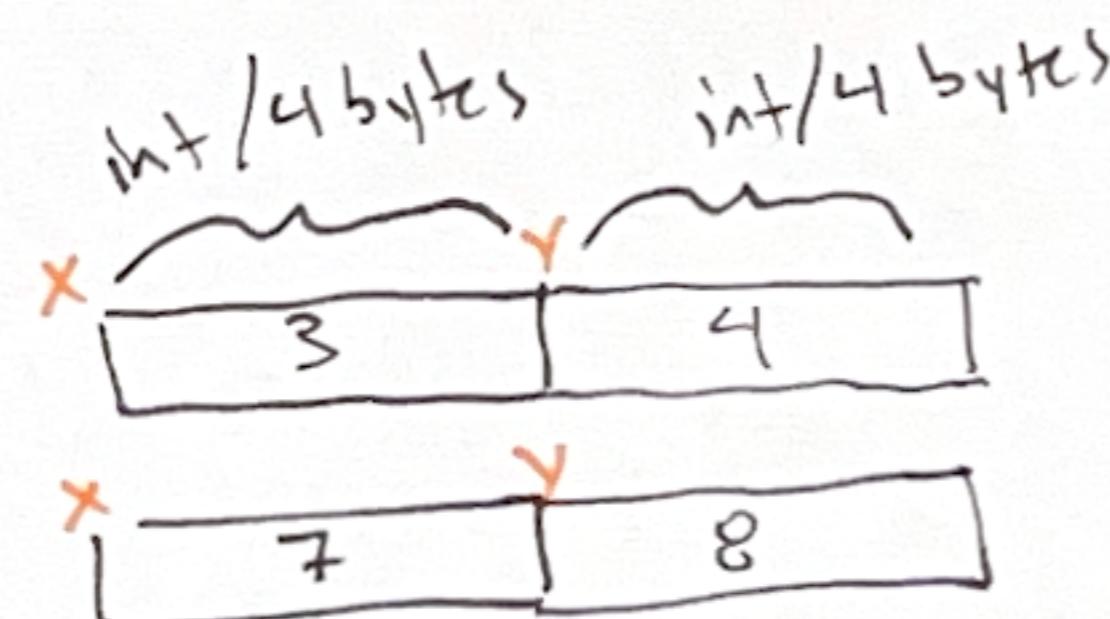
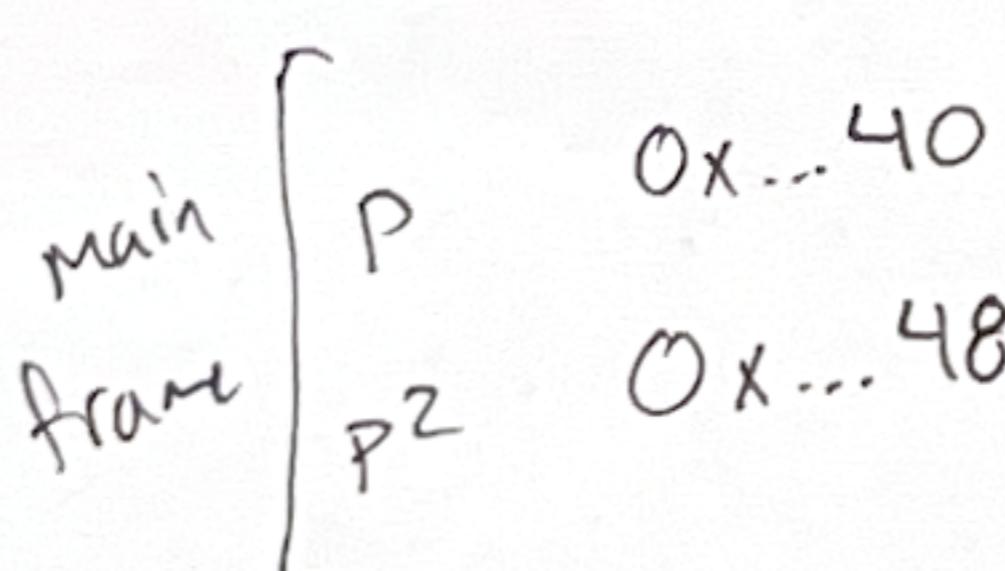
$\&p.x$   $0x\ldots 40$

$\&p.y$   $0x\ldots 44$

$\&p2$   $0x\ldots 48$

$\&p2.x$   $0x\ldots 48$

$\&p2.y$   $0x\ldots 4C$



}

```

Point add(Point a, Point b) {
    int x = a.x + b.x;
    int y = a.y + b.y;
    Point added = {x, y};
    return added;
}

```

```

int main() {
    Point p1 = {3, 4};
    Point p2 = {7, 8};
    Point result = add(p1, p2);
    updateX(p1, 30);
    printf("%d", p1.x); // prints 3
}

```

```

void updateX(Point p)
void updateX(Point p, int newX) {
    p.x = newX;
}

```

What about an array as a field of a struct? To be cont...

