

CS 20A

Notes

2022-01-10

typedef oldtype newtype;



typedef int jeffnumber;

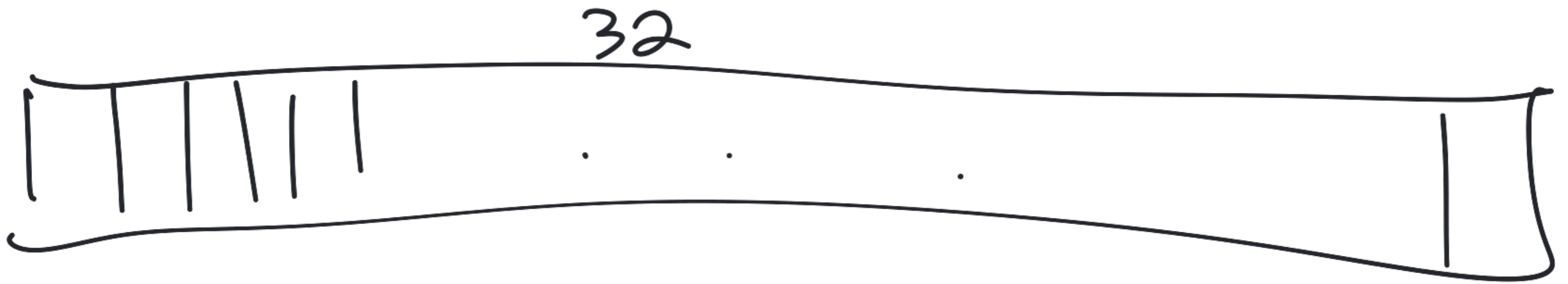
jeffnumber j = 6;

```
struct animal {  
    char *name;  
    int leg_count;  
};  
myanimal;
```

```
myanimal.leg_count = 4;
```

```
myanimal.name = "eland";
```

$\text{sizeof}(\text{int}) = 4$ (bytes, 32 bits)



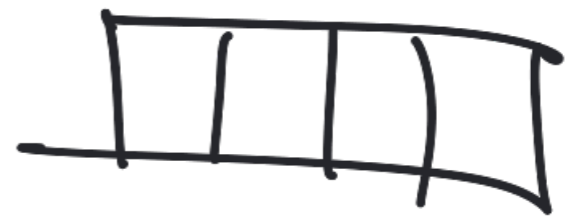
2^{32} bit patterns

~ 4 billion $\sim 10^9$

Pretend

int

4 bits



0000

0

0001

1

0010

2

0011

3

0100

4

0101

5

0110

.

0111

.

1000

.

1001

.

1010

1011

1100

1101

1111

15

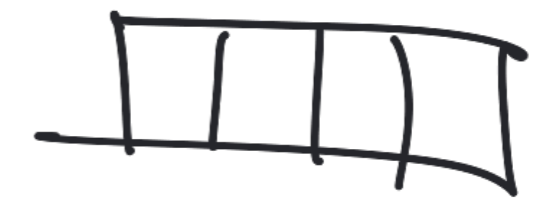


"unsigned"
4-bit integers

Pretend int 4 bits

0000	0	0
0001	1	1
0010	2	2
0011	3	3
0100	4	4
0101	5	5
0110	.	6
0111	.	7

1000	.	8
1001	.	9
1010	.	10
1011	.	11
1100	.	12
1101	.	13
1110	.	14
1111	.	15

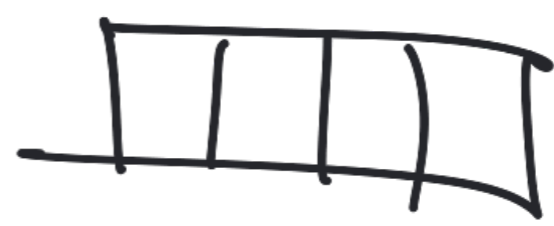


4-bit
"Two's
Complement"
integers



~~15~~

Pretend int 4 bits



+

0000
0001
0010
0011
0100
0101
0110
0111

← +0
← +1

← +7

-

1000
1001
1010
1011
1100
1101
1110
1111

← -0
← -1

← -7

4-bit
"Signed
magnitude"
integers