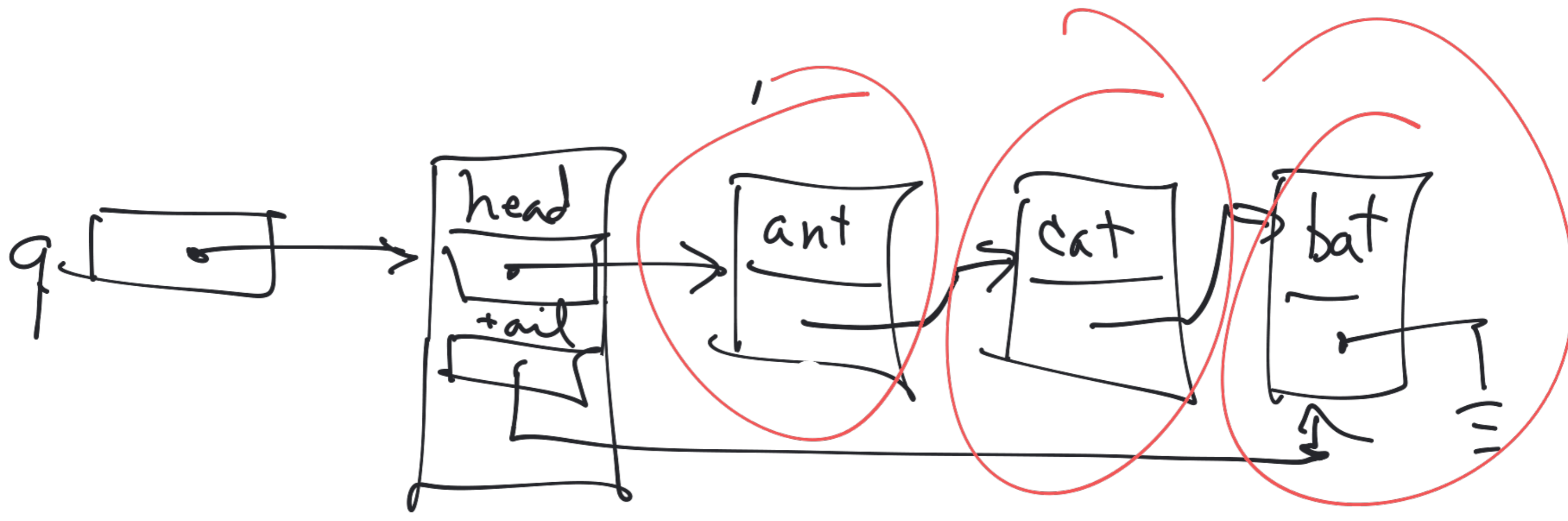


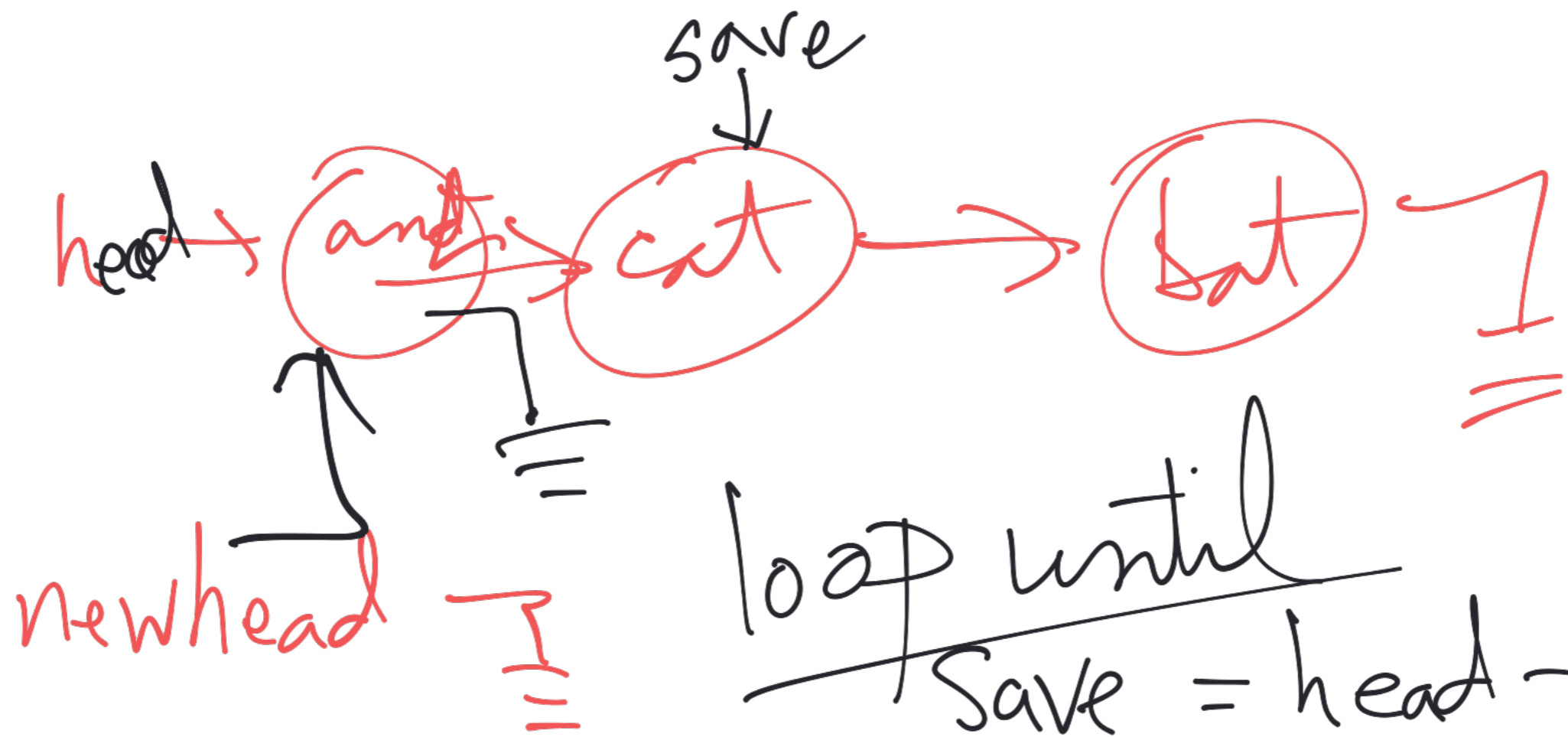
CS 20A

Monday

Jan 17, 2022



for each node :
 insert that
 node into "newhead"
 LL
 $g \rightarrow head = newhead$



loop until

save = head -> next

head -> next = newhead

newhead = head

head = save

```
char buffer[10];  
char *p = buffer;
```

```
buffer[0] = 'A';
```

```
buffer[10] = 'B';
```

```
p[1] = 'C';
```

```
p[10] = 'D';
```

```
char str[20];
```

BAD
IDEA

SYNTAX ERROR

```
buffer = str;
```

¹⁰ sizeof(buffer);

⁸ sizeof(p)

```
p = str;
```

OK

strcpy — Copies chars until
it hits a \emptyset or crashes

`p = malloc(strlen(s) + 1)`

`if (p != NULL)`

`strcpy(p, s);`

OK because
you allocated
enough space.

strcpy

char buffer[6]

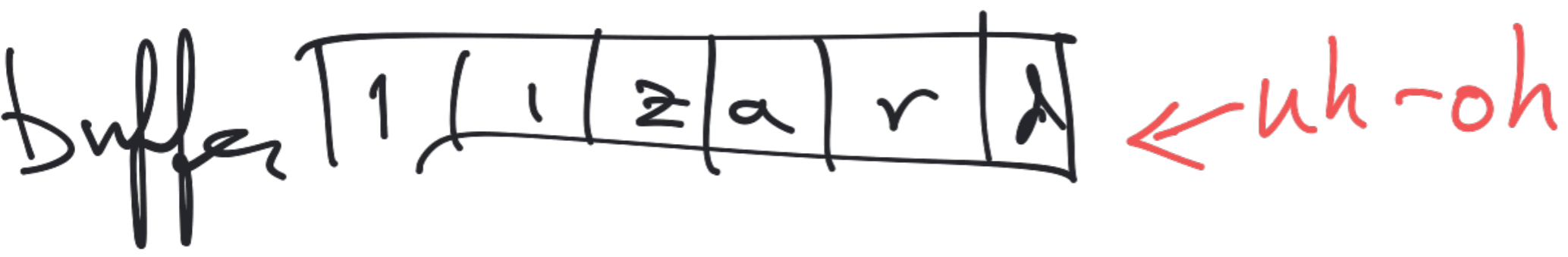
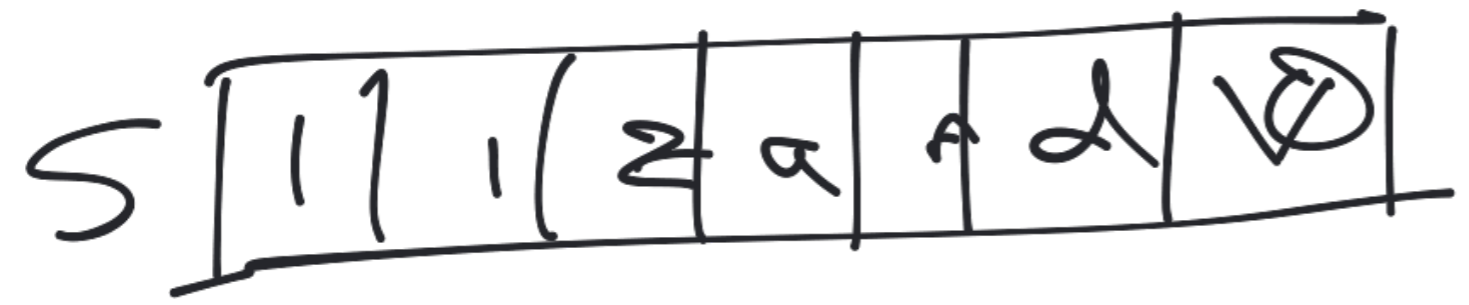
strcpy(buffer, "cat")

buffer[5] = '\0';

"cat" OK

"moose" OK

"lizard"



Strlcopy

Characters

{
to

0 1 9

()

& ;

+ -

III

4

A-Z

a-z

α-ω

A, Ω

ANSI - American National Standards

NIST - Nation Inst. of Standards Institute

IETF

ISO

IEEE

⋮

EBCDIC — punch cards

ASCII — American Standard
Code for Inf. Interchange

Unicode Consortium

Character \longleftrightarrow Integer
"Codepoint"

I want to store a character
in a file (or transmit it across
a network or...)

Systems for storing ints
"encodings"

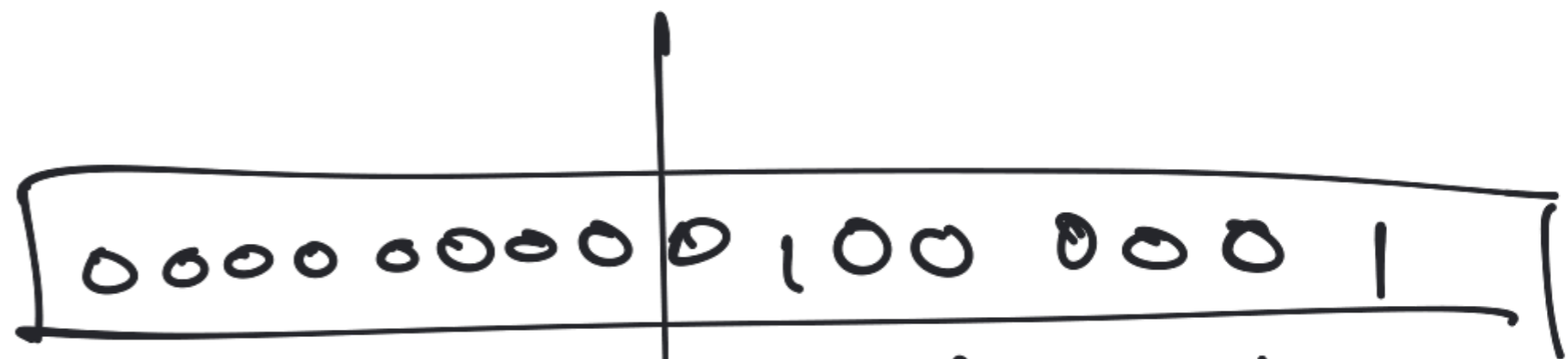
Encoding Attempt #1

16-bit integers

2^{16} possible characters

U+0041

'A'

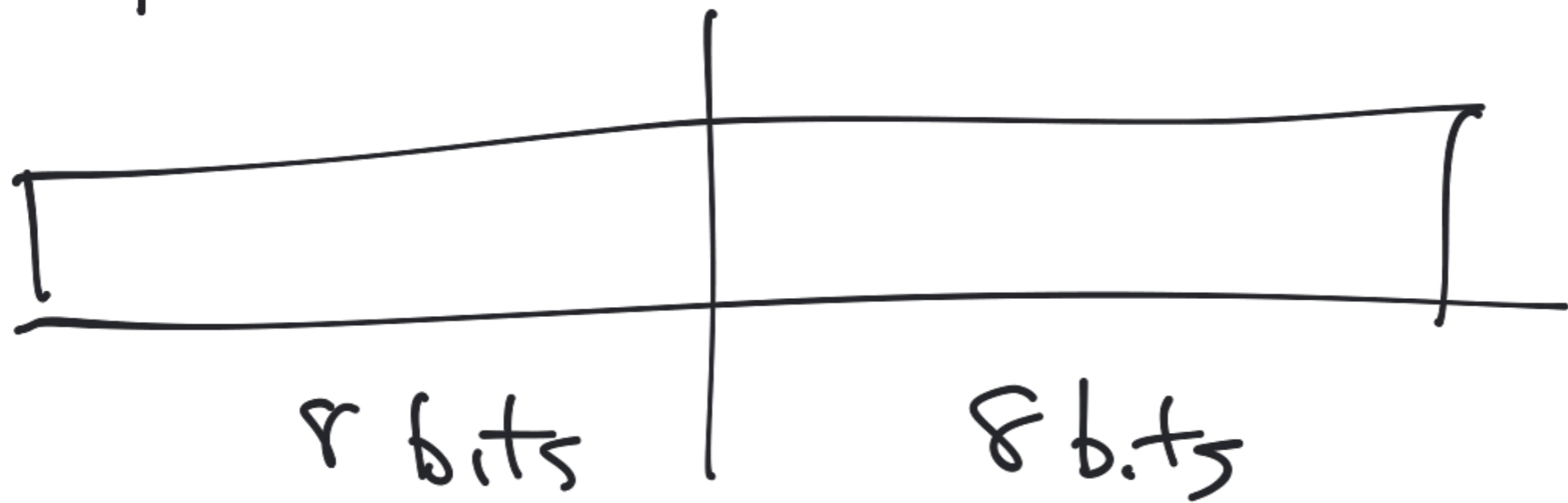


first this
byte

then this
byte

roughly UCS-2 BE

Attempts

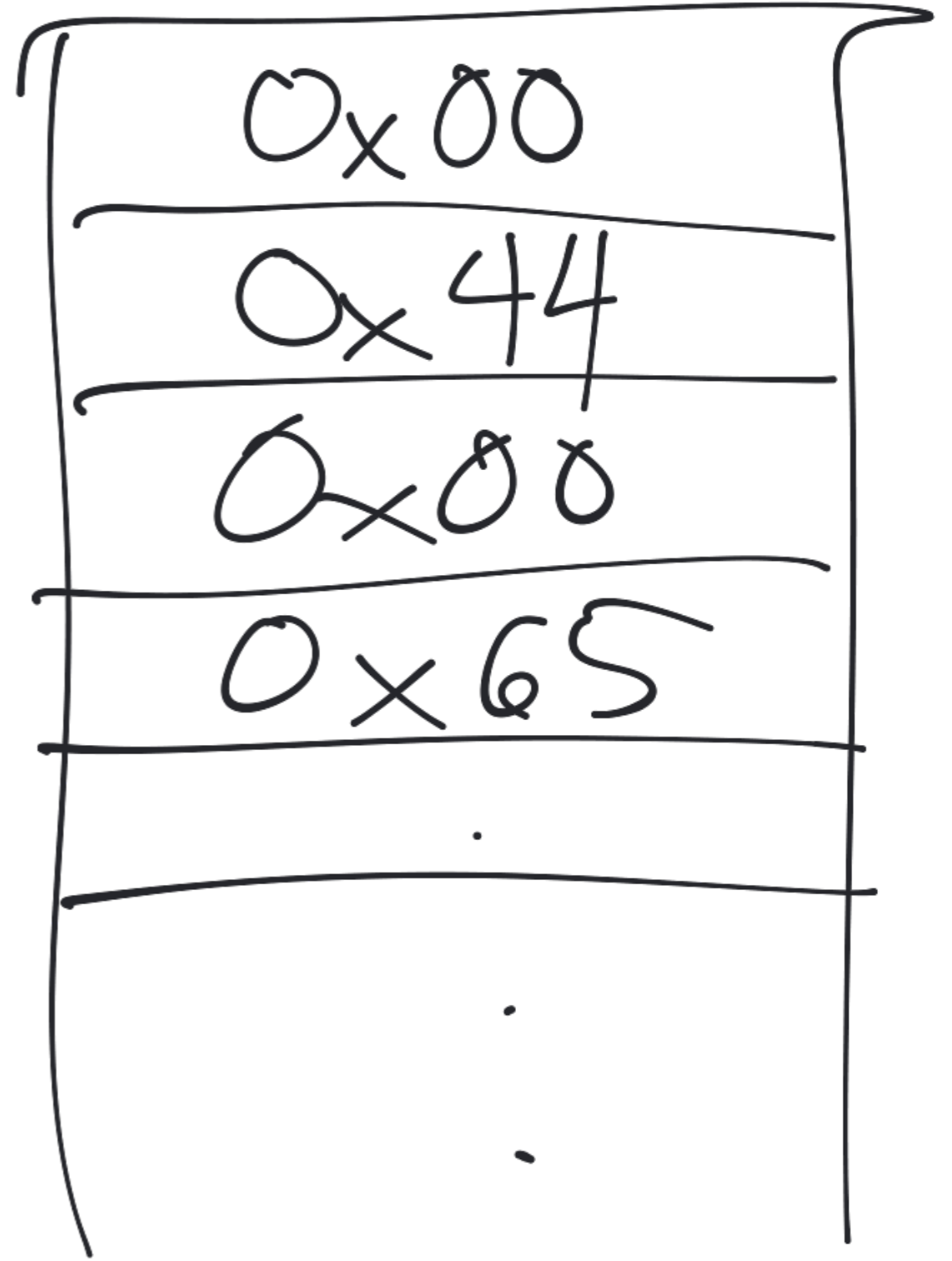
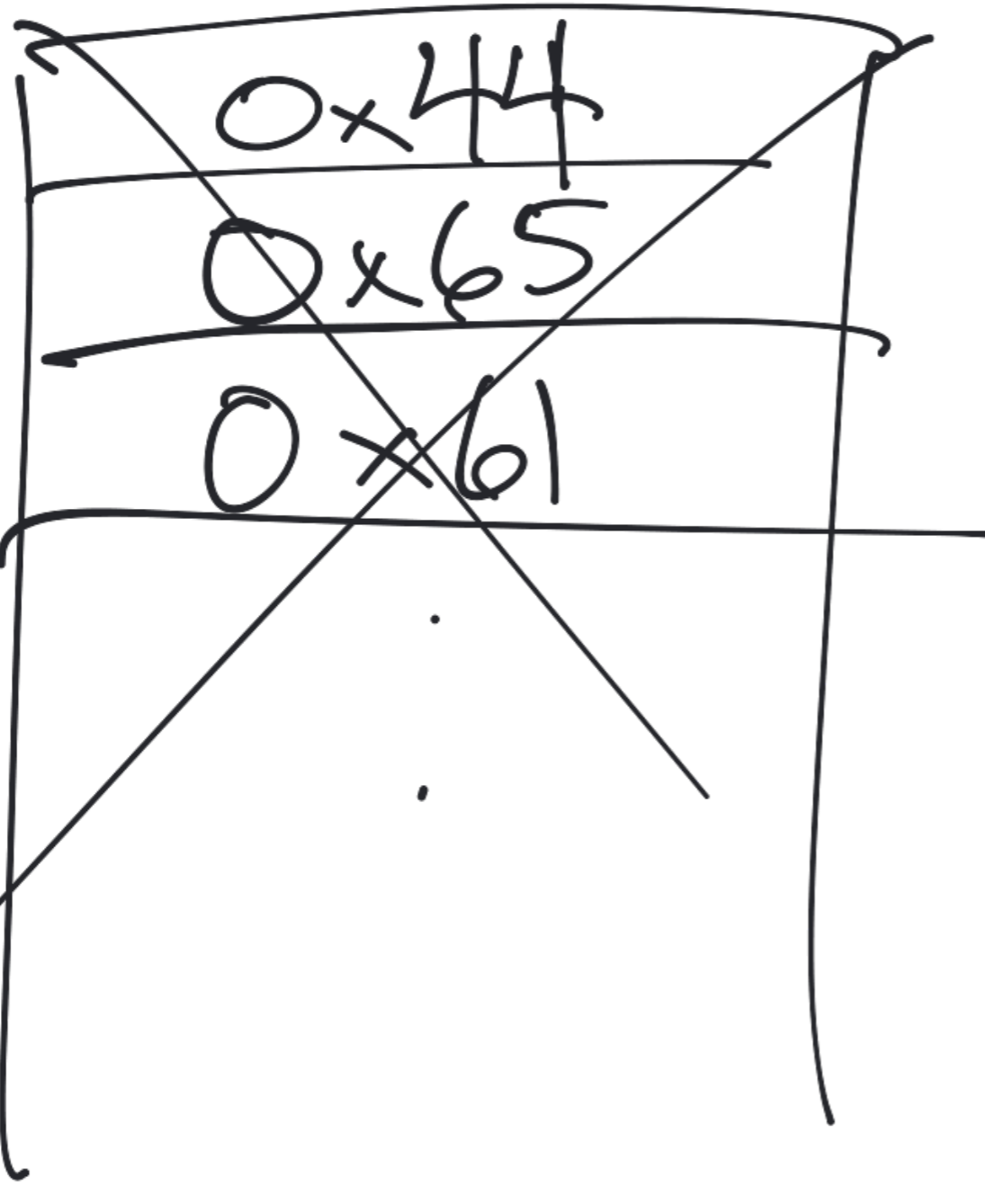


have a marker that says
"we need more bytes"

Roughly UTF-16

English in UCS - 2

Dear mom



Ken Thompson (Unix)

UTF-8

- Throw away fixed memory size for a char
- Get rid of NULL bytes
- Get rid of endian issues