

CS 631-02 C and Scanning

C Programming

.c .h (C preprocessor)

gcc -o hello hello.c

C preproc



C compiler



obj

hello.o

+ libc → hello executable

Data

Functions

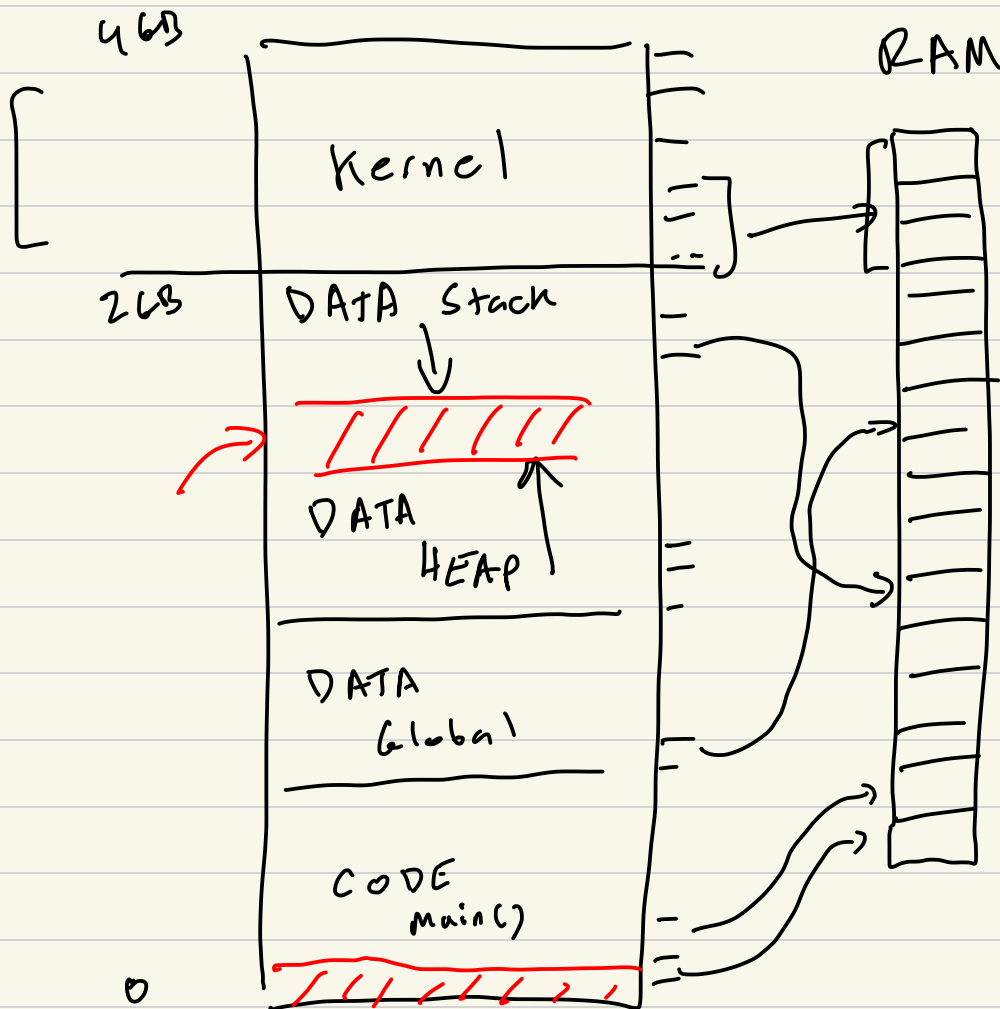
Statements & expression

Data in C

Global

Stack (local vars)

Heap (malloc) / free()



C Data

Native types

int, char, float, double

unsigned

```
uint32_t x;
```

```
uint64_t y;
```

composite types

arrays int arr[10];

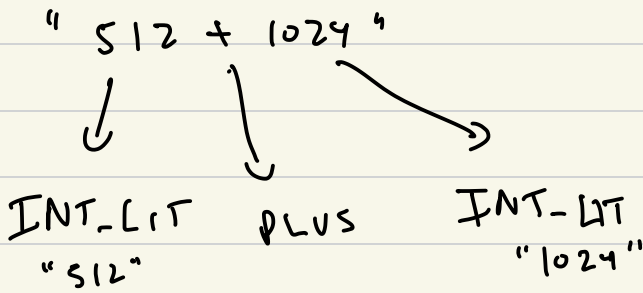
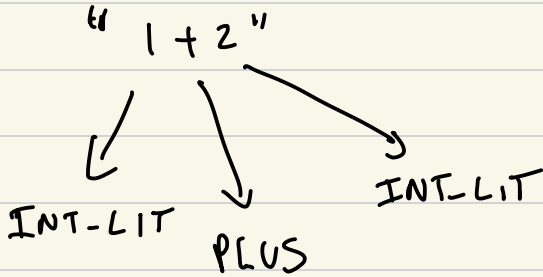
struct

```
struct mystruct_st {  
    int id;  
    char name[16];  
}
```

union {
 int x;
 float y;
}

Scanning / Lexing / Lexical analysis

n+lang



" == "

EBNF - Extended Backus-Naur Form

tokens ::= (symbol)*

symbol ::= '+' | '-' | '/' | '*'

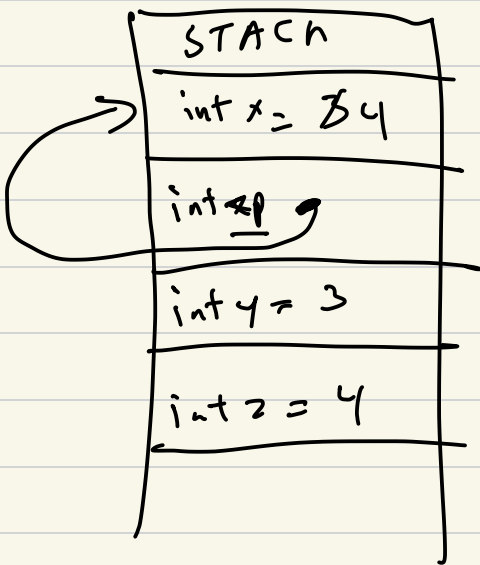
+
++
++*

foo() {

```

int x = 3;
(int *)p;
p = &x;
int y = *p;
x = 4;
int z = *p;

```



Main() {

foo();

}

```

char *s;

```

```

int *p;

```

```

s = 'a'

```

```

p = 223

```

