Data in C.

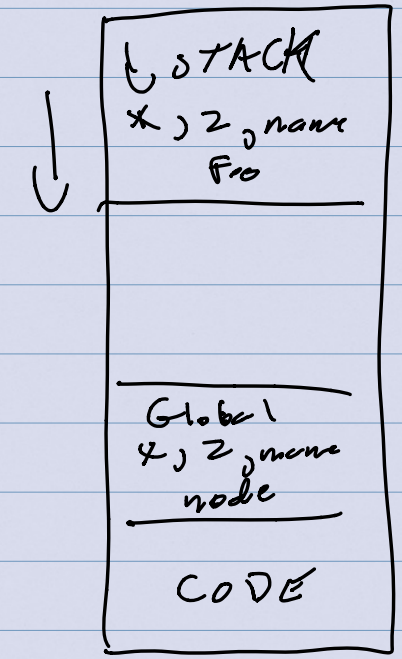
1. Global data (statically allocated)
2. Stack allocated data (dynamically allocated)
3. Heap data (dynamically allocated)
   malloc() / free()

global

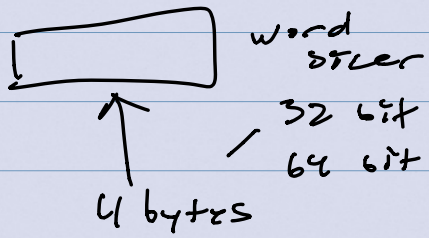
```
int x;
double z;
char name[32];
struct node_st node;
```

```
struct node_st {
    char name[32];
    int id;
};
```

```
int foo(int x) {
    int x;
    double z;
    char name[32];
    struct node_st node;
}
```

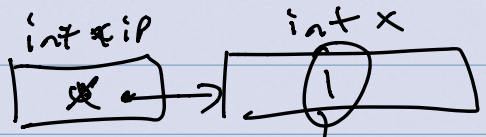



```
int *ip;
(int*)ip
char *cp;
double *dp;
struct node_st *np;
```



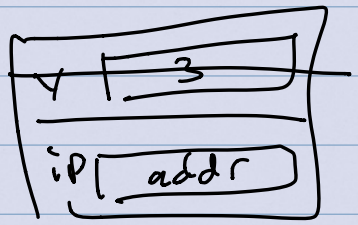
ip = &x;

"address of"



x = *ip + 1

x = 1 + 1 = 2



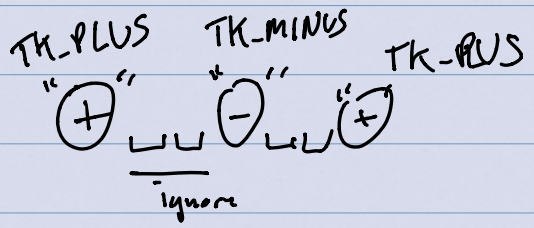

```
int foo(int x) {
    int x;
    int *ip;
```

```
struct node_st node;
struct node_st *np;

np = &node;

np->id = 99;
(*np).id = 99;
```

Scanning

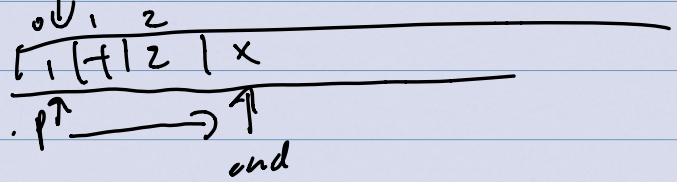
tokens ::= (symbols)*

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



36 x 4096 =

1+2



Two things

ignore white space

integers

+ [0-9]-