

# C Language

## Tokens



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# Agenda

- ① What are tokens?
- ② Constants
- ③ variables
- ④ keywords
- ⑤ comments

## Tokens

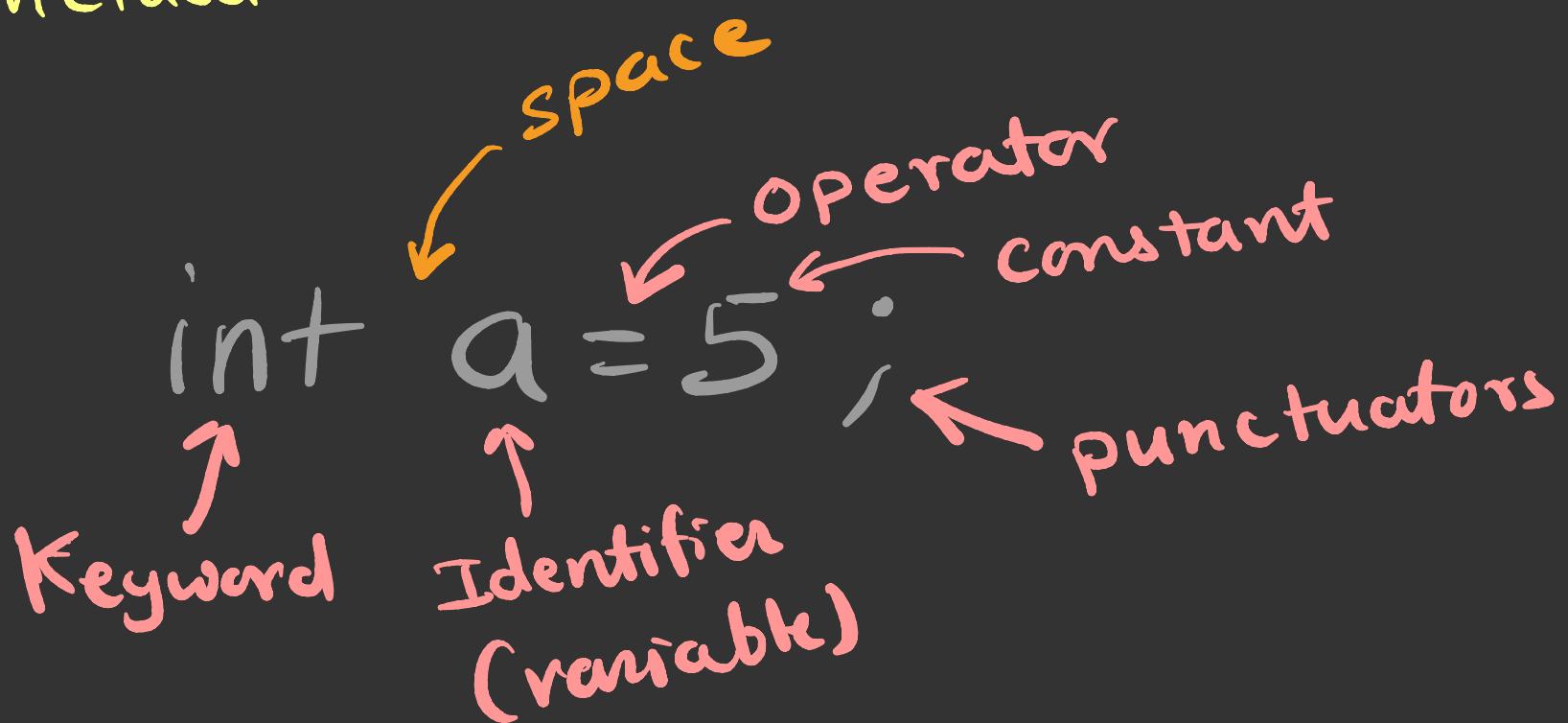
- Tokens are also known as lexical elements
- The text of C/C++ program consists of tokens and white space.
- The token is the smallest element of a C/C++ program that is meaningful to the compiler.
- Parser is a program whose job is to separate these tokens.

→ Definition

## Tokens

Parser recognizes these kinds of tokens:

- Constants (Literals)
- Identifiers (variables, functions ...)
- Keywords
- Operators
- Punctuators



## White Space

- Tokens are usually separated by white space , which can be one or more
  - Blanks
  - Tabs
  - New lines
  - Form feed
  - Comments

## Comments

- Comments are text ignored by compiler
- Comments are useful for documentation of your code and useful for programmers.

There are two types of comments

① Single line comment      // text here

② Multiline comment      /\*  
                              text line 1  
                              text line 2  
                              ...

\*/

## Sample Program in C

int main( )

{

    int a,b,c; //variables

    printf("Enter two numbers");

    scanf("%d %d", &a, &b);

    c=a+b;

    printf("Sum is %d", c);

}

/\* main function

body ends here \*/

Operators

Punctuators

Constants

Identifiers

Keywords

Comments

Information = Constants = Data

primary

Integer 25, 0, -57, 253

3.5, -0.06 2.0

Real

Character

'a' 'A' '+' ' '

'2'

'-3' '4.3' 'ab'

'25' 'mysrg'

'\n' '\t'

Secondary

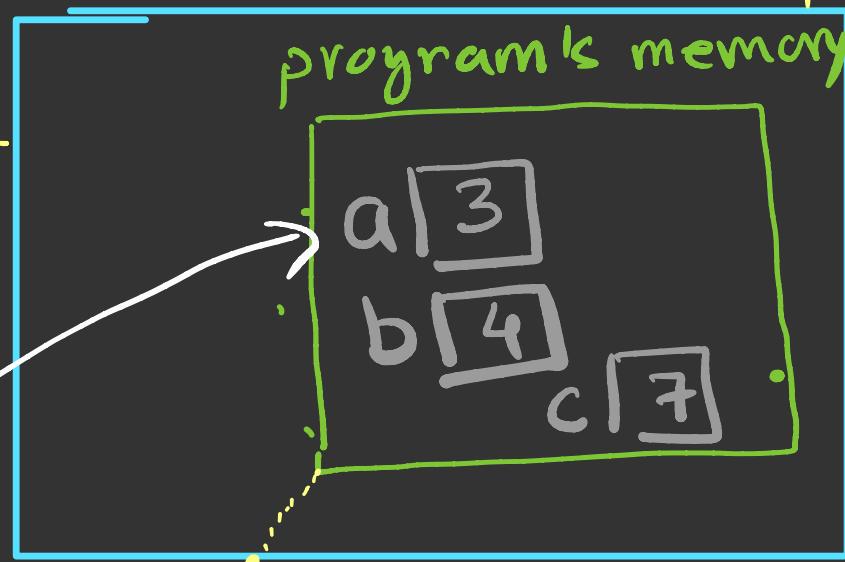
- . Pointers
- . array
- . string "Bhopal"
- . structure
- . union
- . enumerator

# Variables

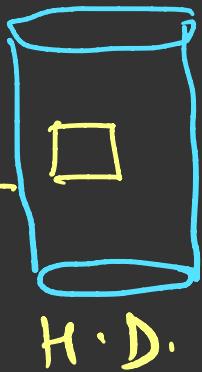
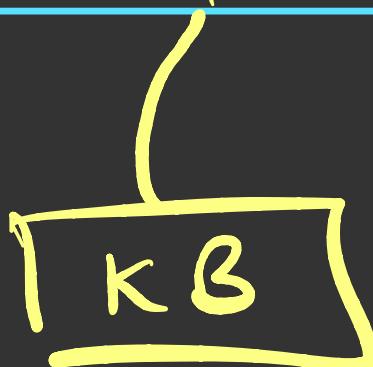


CPU or  
processor

RAM



a, b, c  
are variables



## Variables

- Variable is a name of memory location where we store program's data during execution of program.
- Variable name is any combination of alphabets (a to z or A to Z), digits (0 to 9) and underscore (\_)
- No other symbol is allowed.
- valid variable name cannot start from a digit.
- variable name cannot be a keyword.

a\_2 ✓

x-1 ✗

s.i ✗

x y ✗

\_A ✓

2x ✗

a-b-2-3 ✓

b\$ ✗

52 ✗

if ✗ ( Keyword )

IF ✓

c language is a case sensitive  
language

C is a case sensitive language

## Keywords in C

### predefined words / Reserved words

auto  
break  
case  
char  
const  
continue  
default  
do

double  
else  
enum  
extern  
float  
for  
goto  
if

int  
long  
register  
return  
short  
signed  
sizeof  
static

struct  
switch  
typedef  
union  
unsigned  
void  
volatile  
while

-Bool  
-Complex  
-Imaginary  
inline  
restrict

-Alignas  
-Alignof  
\_Atomic  
\_Generic  
\_Noreturn

\_Static\_assert  
\_Thread\_local

C89  
32 keywords

C99  
+5

C11  
+7