

A job ready bootcamp in C++, DSA and IOT

Tokens



Saurabh Shukla (MySirG)

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.

→ 2nd question

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 35 0 -2 -421

Real 3.5 -0.05 2.0

Character 'A' 'a' '+' '3'
, ' ' '@'

'3.4' '-5'

'\n'

Secondary

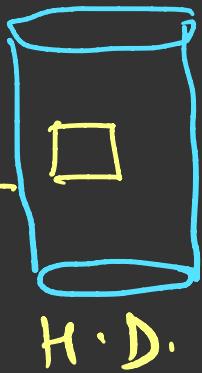
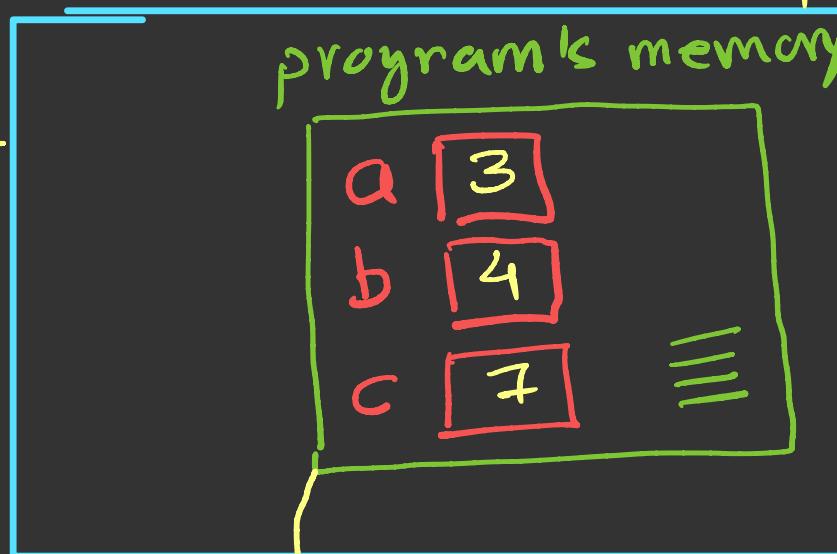
- . Pointers
- . array
- . string → "Bhopal"
- . structure
- . union
- . enumerator

Variables



CPU or
processor

RAM



$$C = a + b;$$

$T < B$

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 ✓

a-b-2-3 ✓

x-1 ✗

s.i ✗

x y ✗

-A ✓

2x ✗

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

Keywords in C++20

alignas
alignof
asm
auto
bool
break
case
catch
char
char8_t
char16_t
char32_t
class
concept
const
constexpr
constexpr
constinit
const_cast
continue
co_await
co_return
co_yield
decltype
default
delete
do
double
dynamic_cast
else
enum
explicit
export
extern
false
float
for
friend
goto
if
inline
int
long
mutable
namespace
new
noexcept
nullptr
operator
private
protected
public
register
reinterpret_cast
requires
return
short
signed
sizeof
static
static_assert
static_cast
struct
switch
template
this
thread_local
throw
true
try
typedef
typeid
typename
union
unsigned
using
virtual
void
volatile
wchar_t
while