

Tokens



Mohammad Tasin

Agenda

- **What are tokens ?**
- **Comments**
- **Constants**
- **Variables**
- **Keywords**

What are tokens ?

शब्दिक

- **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 tokens.**

Tokens

Parser recognizes there kinds of tokens :-

- **Constants (Literals)**
- **Identifiers (variables, function)**
- **Keywords**
- **Operators**
- **Punctuators**

```
int main()    {  
  
int a, b, c; // variables  
  
cout<<"Enter two values : ";  
  
cin>>a>>b;  
  
c = a + b;  
  
cout<<"Sum is : "<<c;  
  
return 0;  
  
} /*  
  
main function body  
  
end here  
  
*/
```


1. Constants
2. Identifiers
3. Keywords
4. Operators
5. Punctuators
6. Comment

White Space

Tokens are usually separated by white space, which can be one or more

- **Blanks**
- **Tabs**
- **New lines**
- **Form feel**
- **Comments**

Comments

- Comments are text ignore by compiler.
- Comments are useful for documentation of your code and useful for programmers.
- There are two types of comments 
 1. Single line comment. `// comment`
 2. Multi line comment. `/*
comment
*/`

Constants



Information == Constant == Data

1. Primary

- **Integer constant.**
- **Real constant.**
- **Character constant.**

2. Secondary

- Array**
- String**
- Pointer**
- Structure**
- Class**

Primary

- **Integer constant.**

0, 5, 10, -521, 095

- **Real constant.**

25.25, 5.0, 0.50, -548.02

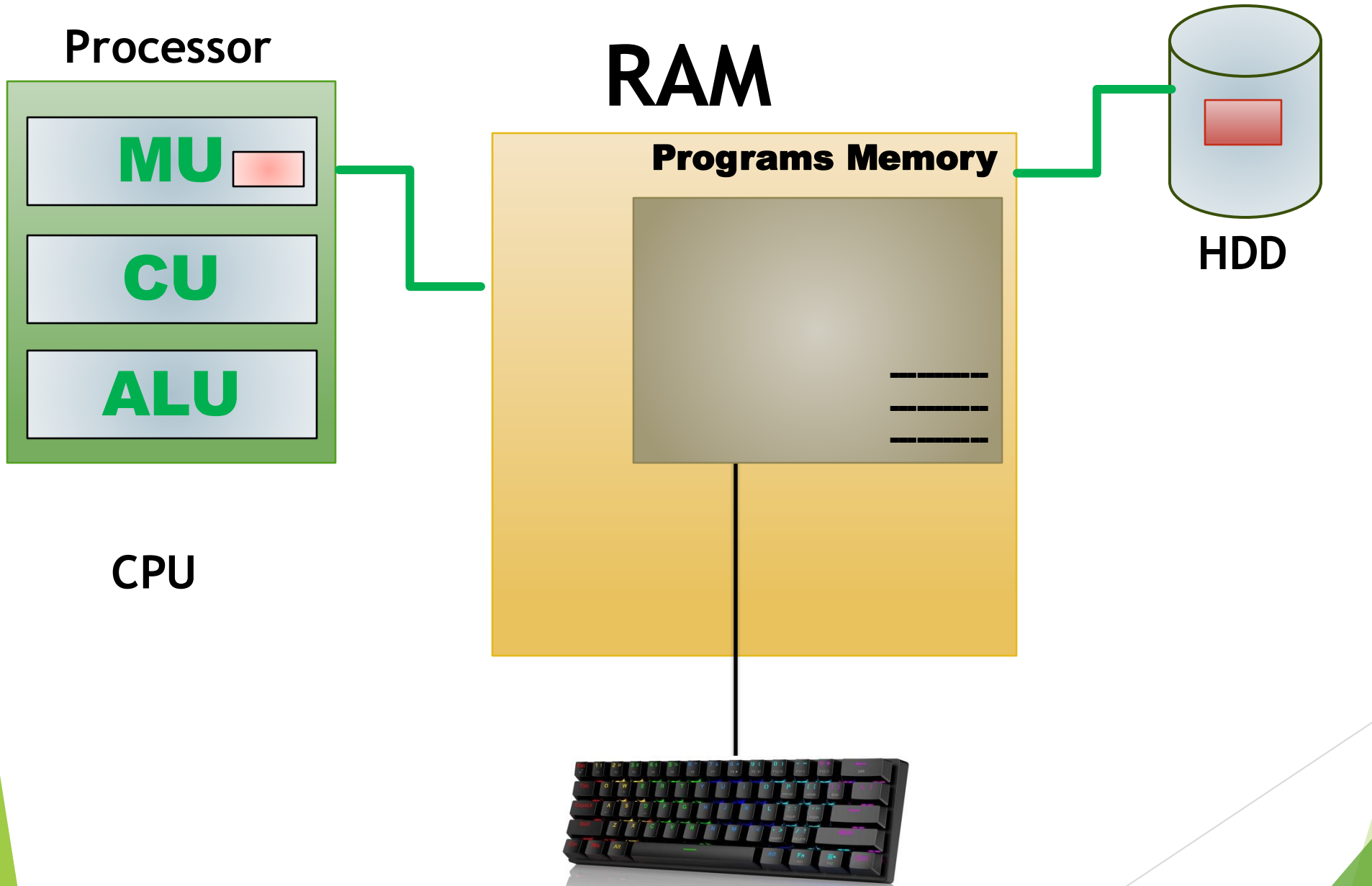
- **Character constant**

'A', 'a', '1', '@', '+'

Error

'as', '-5'

Variables



- **Variables are the names of memory locations where we store Data.**
- **Variables name is any combination of Alphabet (a to z or A to Z), Underscore(_) and Digit(0 to 9).**
- **No other symbol is allowed**
- **A valid variable name cannot start with a Digit.**
- **Variable name cannot be a keyword.**

Valid variable Name	Invalid variable Name
A, a, AA, aa, A2, a2, x145, xyzzy, q_56, as25_, _assd45,	A-8, x@, m k, 82, 59ad, a.b, Keywords Name

Keywords

C89 32

reserved words or predefined 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

Keywords

asm	dynamic_cast	namespace	reinterpret_cast	bool
explicit	new	static_cast	false	catch
operator	template	friend	private	class
this	inline	public	throw	const_cast
delete	mutable	protected	true	try
typeid	typename	using	virtual	wchar_t