LOVELY PROFESSIONAL UNIVERSITY

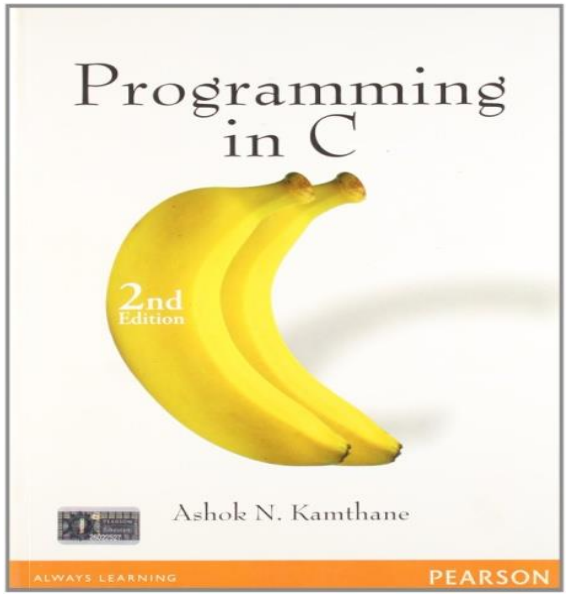
CSE101
Computer Programing

Lecture #0

Let's explore about

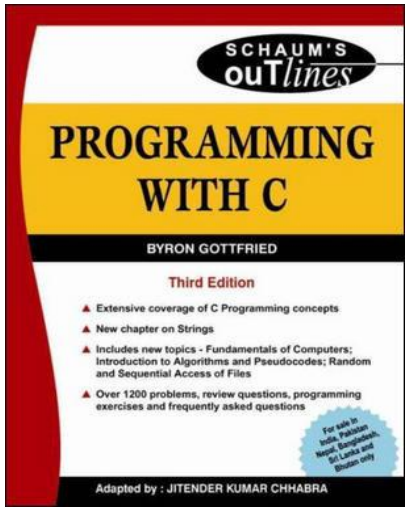
Course details

- LTP – 3 0 0 [Three lectures/week]
- **Course communication mode**
  - cse101@lpu.co.in
- **Text Book**
  - "PROGRAMMING IN C" by ASHOK N. KAMTHANE , PEARSON, 2nd Edition.

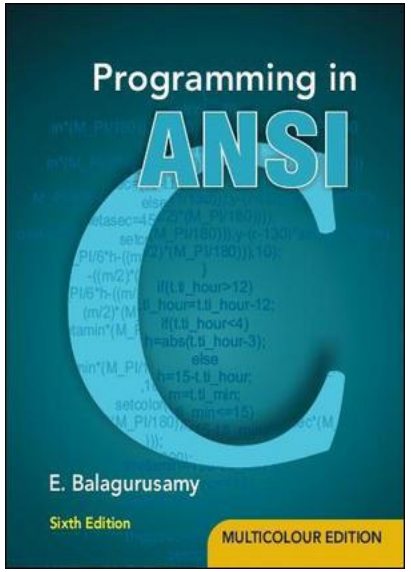


Reference Books

1.“PROGRAMMING WITH C” by
BYRON GOTTFRIED,
MCGRAW HILL EDUCATION,
3rd Edition,
(2011)



2. “PROGRAMMING IN ANSI C” by E. BALAGURUSAMY ,
MCGRAW HILL EDUCATION,
6th Edition,
(2012)



Course Assessment Model

- **Marks break up**
- Attendance 5
- Academic Task(Quiz/Test) 20
- MTE 25
- ETE 50
- **Total**

  100

Academic Task

Component	Week
1. Situation based problem solving	*1/6th*
2. Project	*3rd/12th*
3. Code based 1	*2nd /3rd*
4. Code based 2	*8th /10th*

Total Weeks: 14(7 Before MTE and 7 After MTE)

Acknowledgements

- The Khan Academy
- EdX
- Coursera
- tutorialspoint.com/cprogramming
- programmingsimplified.com
- cprogramming.com
- learn-c.org
- Above all…

COMMON SENSE

History of C

C was originally developed by Dennis Ritchie between 1969 and 1973 at AT&T Bell Labs.

Languages which are depending on C(directly or indirectly)

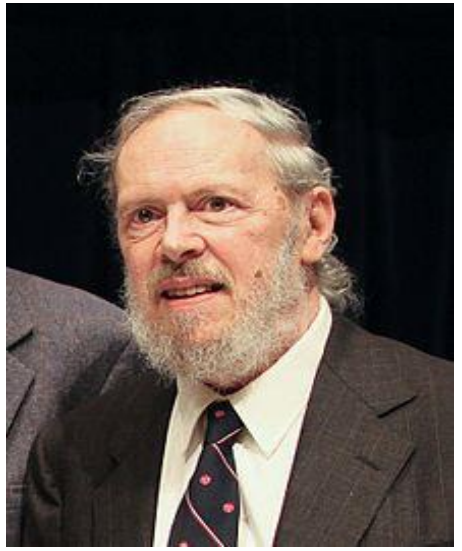
C++, D, Go, Rust, Java, JavaScript, Limbo, LPC, C#, Objective-C, Perl, PHP, Python, Verilog (hardware description language),and Unix's C shell.

First appeared1972;

About Dennis Ritchie

In 1967, Ritchie began working at the Bell Labs Computing Sciences Research Center, and in 1968, he defended his PhD thesis on "Program Structure and Computational Complexity" at Harvard under the supervision of Patrick C. Fischer.

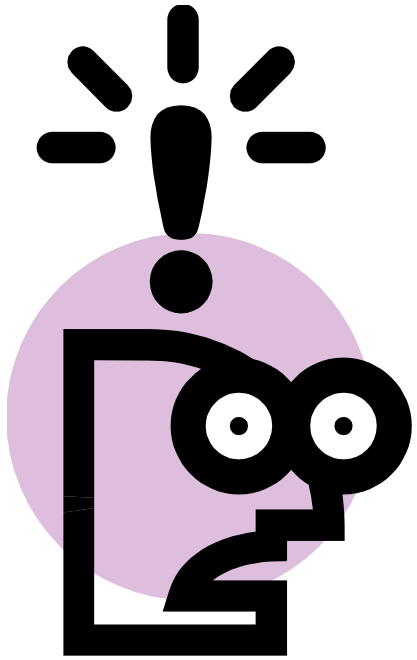
However, Ritchie never officially received his PhD degree.



The course contents

- Introduction to computer organization
- Evolution of Operating Systems
- Data Types & Operators
- Control Structures
- User defined functions
- Storage classes
- Arrays

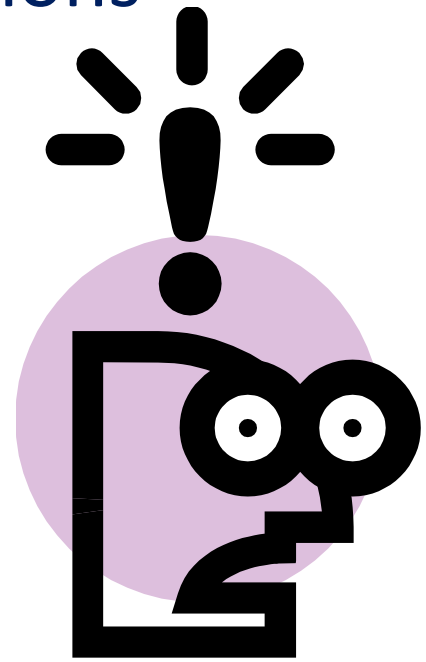
Before MTE



The course contents

- Strings
- Pointers
- Dynamic memory allocation
- Derived data types – Structures & Unions
- File handling

After MTE



The hitch…

The three BURNING questions in mind…

- **Why are we learning C language?**
- **What would we do with it, we are engineers?**
- **What will be the course outcome?**

Course Objectives

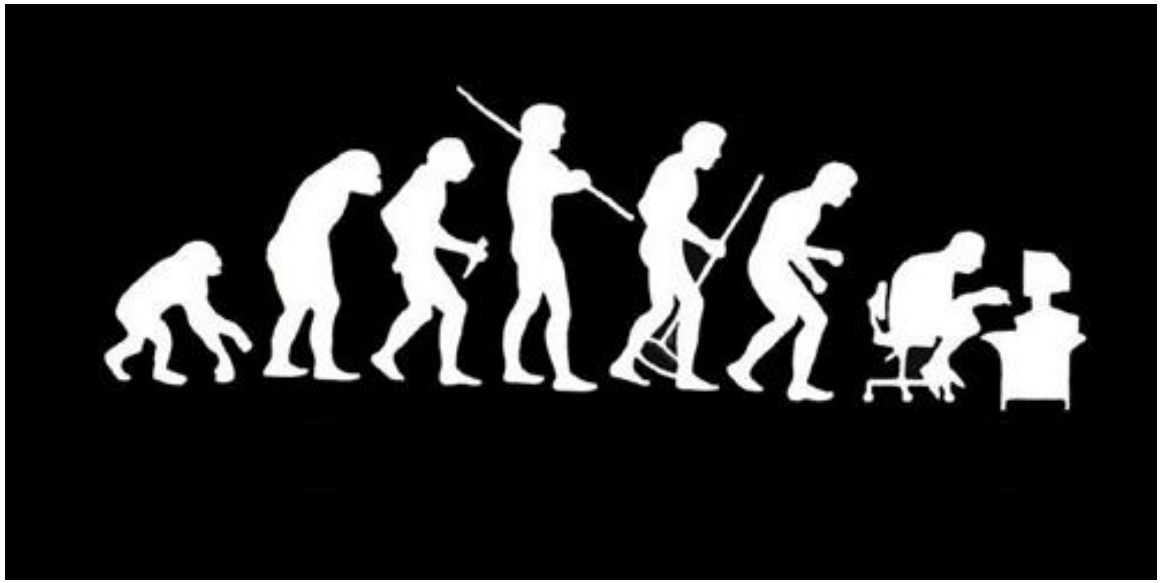
- *To gain experience about structured programming and to utilize the modular features of the C language.*
- *To enhance the debugging skills of the students so as to develop reliable applications.*
- *To use problem solving and program design techniques effectively to generate applications*

Let us re-invent ourselves

To begin with basics…

Let us go to basics.

Let us begin from toddling to learn to walk



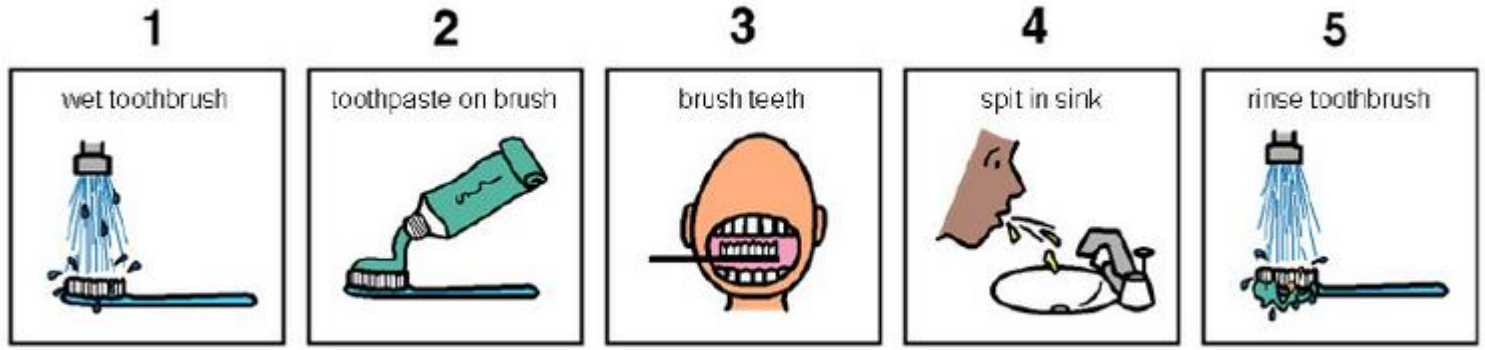
Get ready to be childish….

Daily routine

Let us look around our daily routine…

- **Let us see where all we do programming everyday**
- **Simple things we do to start the day**

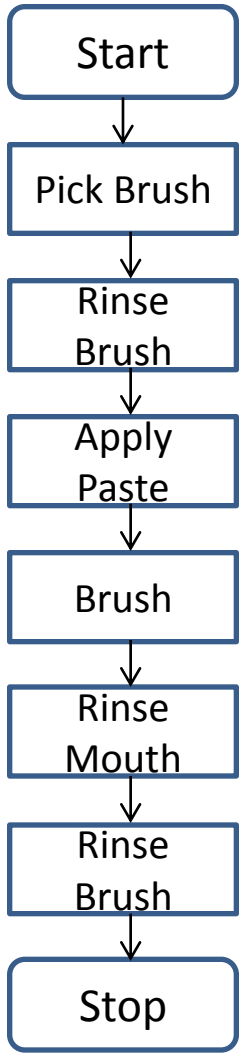
This too has a set procedure. One follows particular steps to accomplish the task.



So there is ONE program you know which is there in you…

Daily routine

- There is a set procedure
- Each step is defined
- The occurrence is ordered
- Jump is NOT permitted
- A step cannot be skipped



Daily routine

- **Let us explore more as the day goes by…**

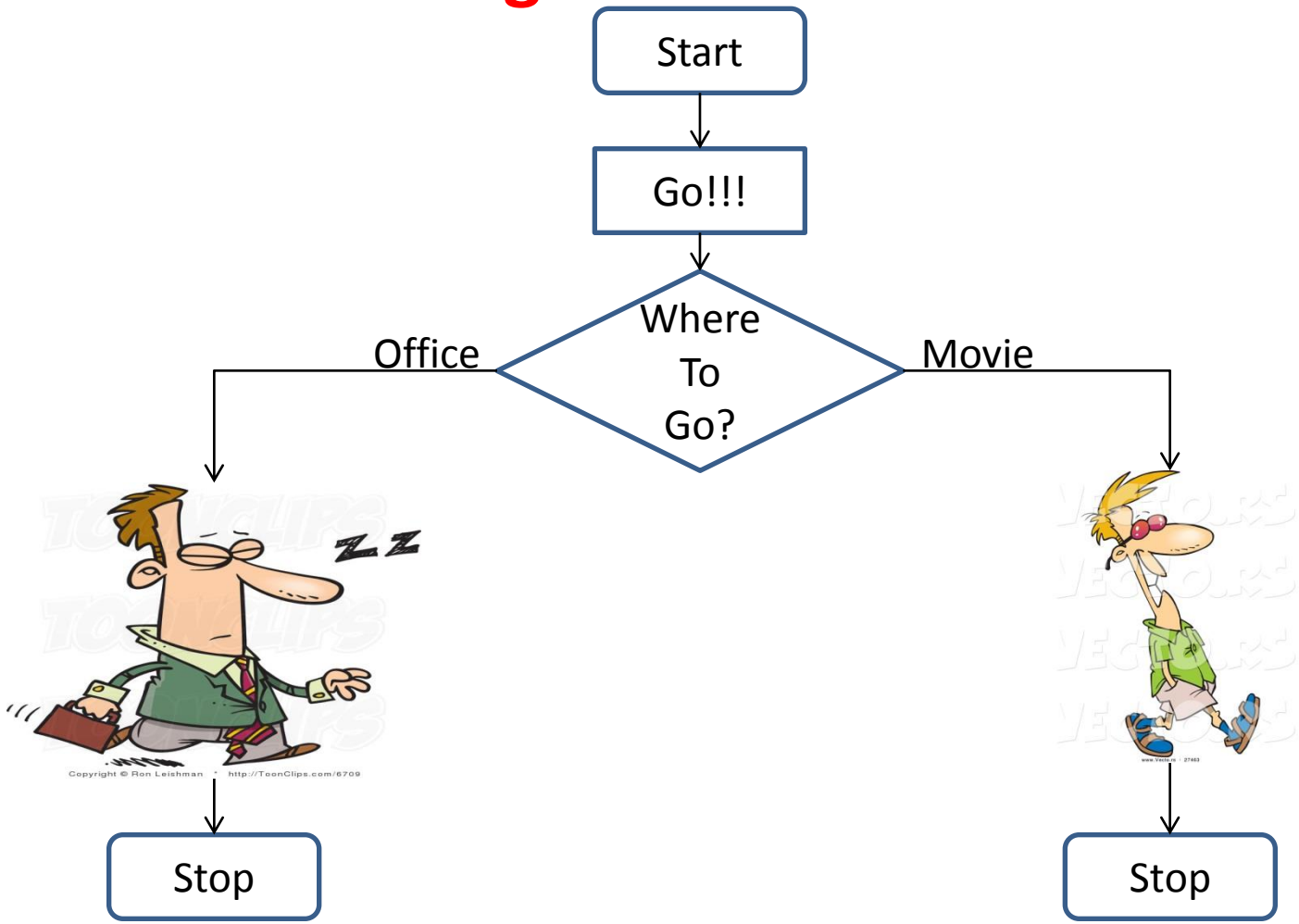
Going for office at morning 0900 AM

Going for a movie at 0900 AM

It is all about <u>WHICH</u> program is loaded <u>WHEN</u>

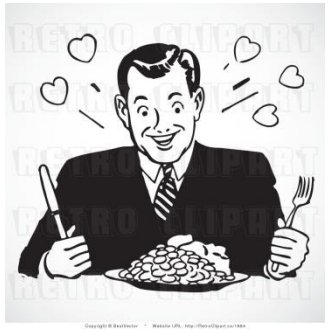
Daily routine

- **The flow changes**



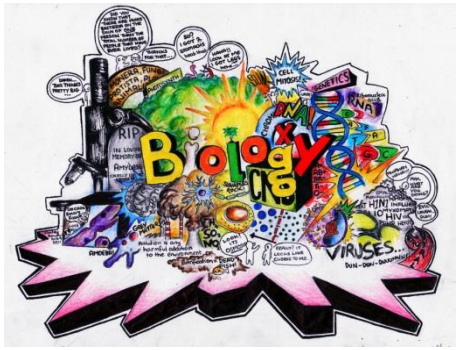
So what does this mean?

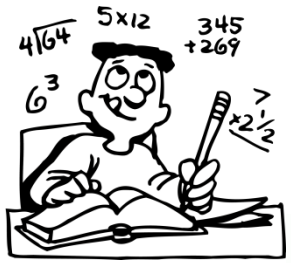
- **Take ANY activity of the day…**
- **It will have a set procedure**
- **It has to be done in a designate way**
- **If not done the specified way will yield wrong results**
- **Success in doing it depends on how closer one is to the prescribed method**



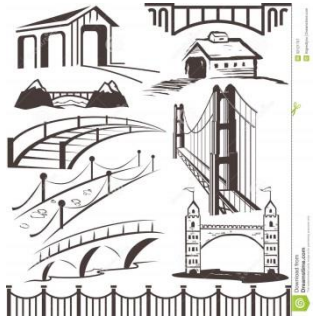
- **This clearly shows that everything has a**

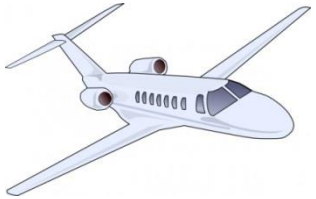
Logic, logic and logic





Logic





What next?

- If there is logic in anything and everything
- **There has to be ways to represent logic**
- **There has to be modes to modify and re-represent logic**
- **There should be methodology to implement and re-design logic**
- **And for all this…**

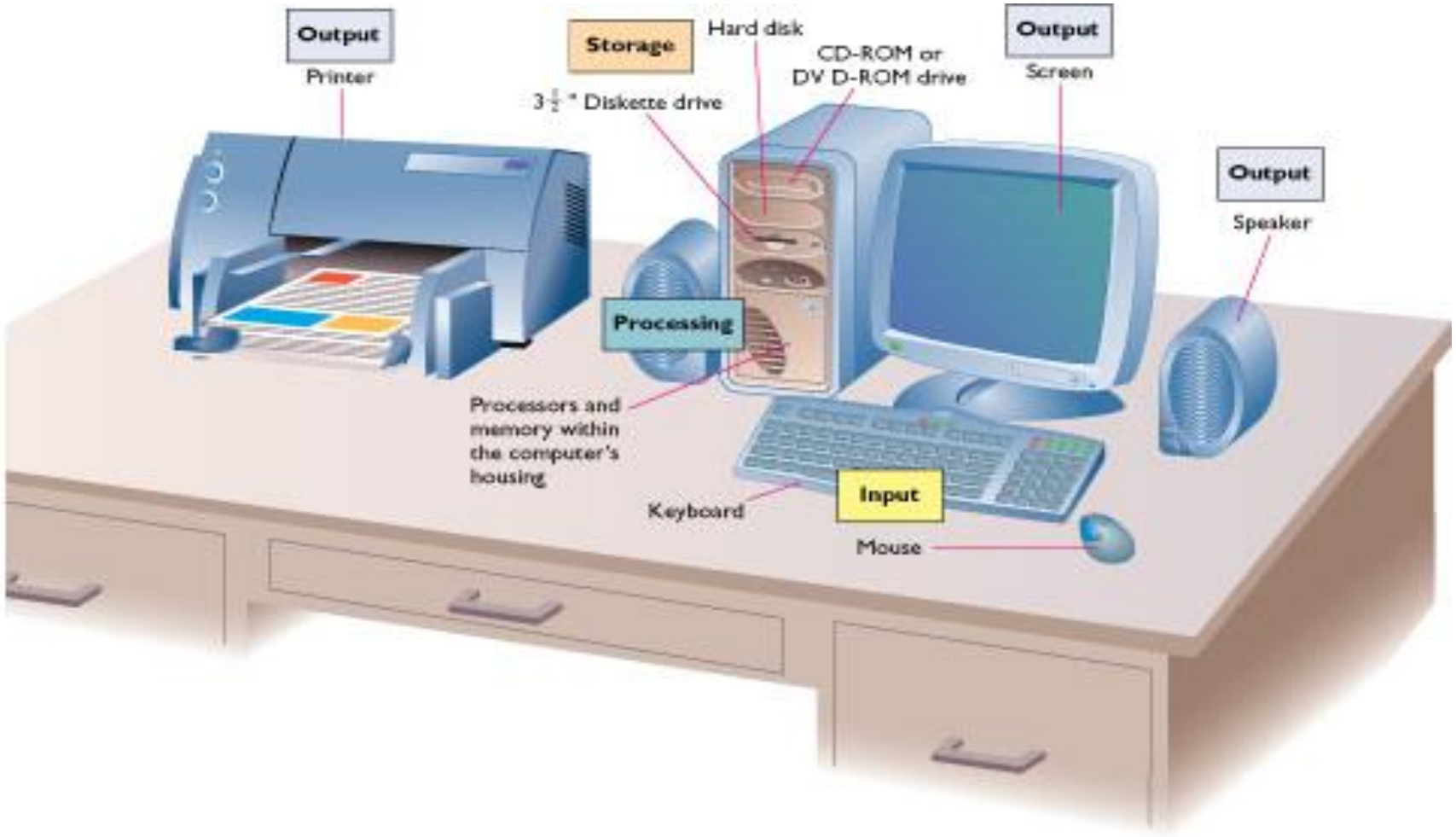
What next?

- **There has to be logic machine to assimilate, understand, solve, store, retrieve and represent logic**

- **There has to be a LANGUAGE to communicate with the logic machine**

Otherwise….

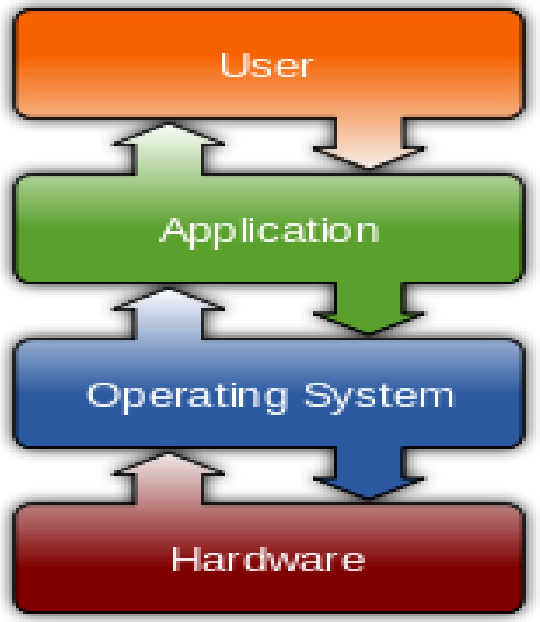
What is Computer?



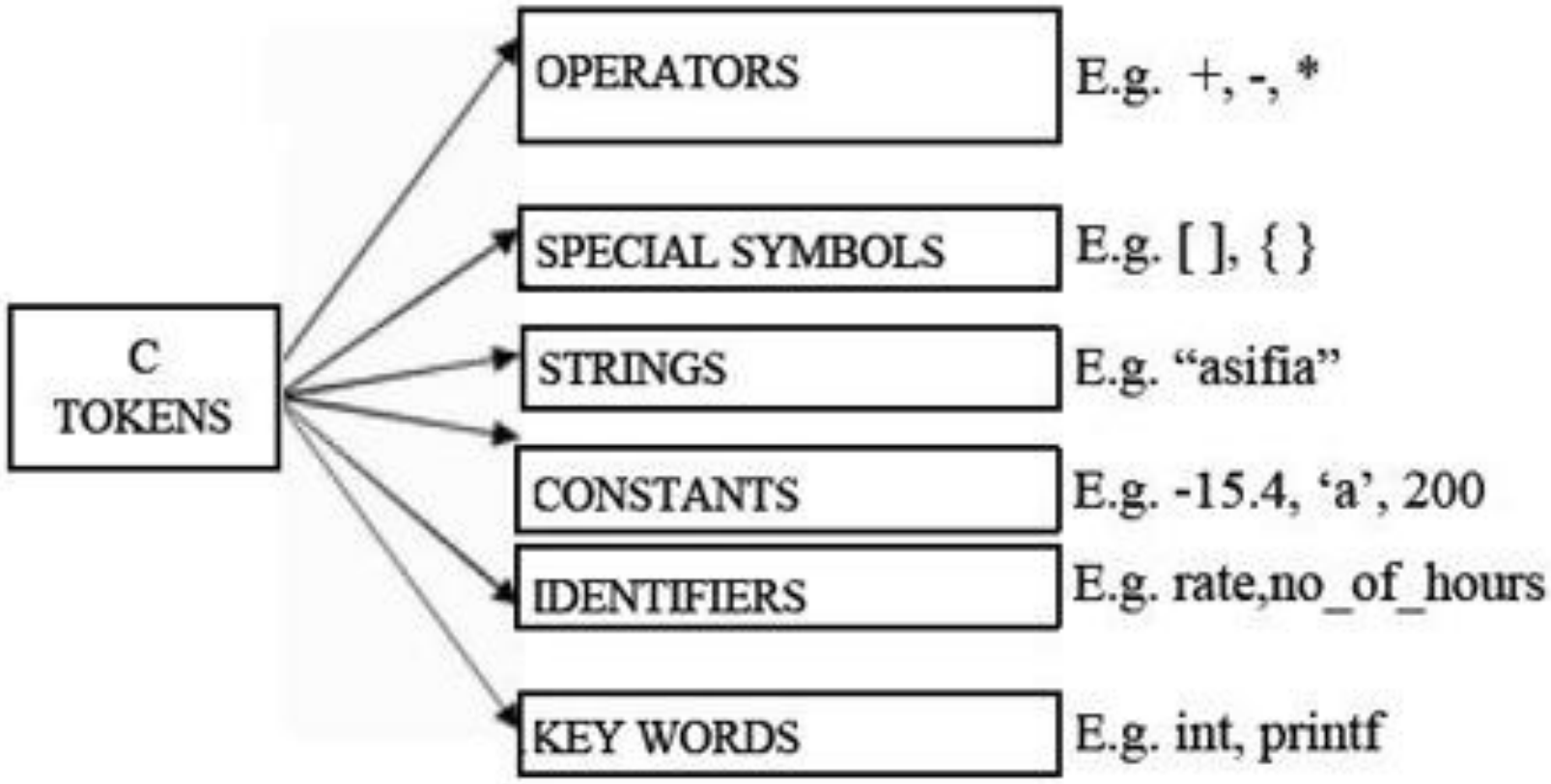
What is Operating System?

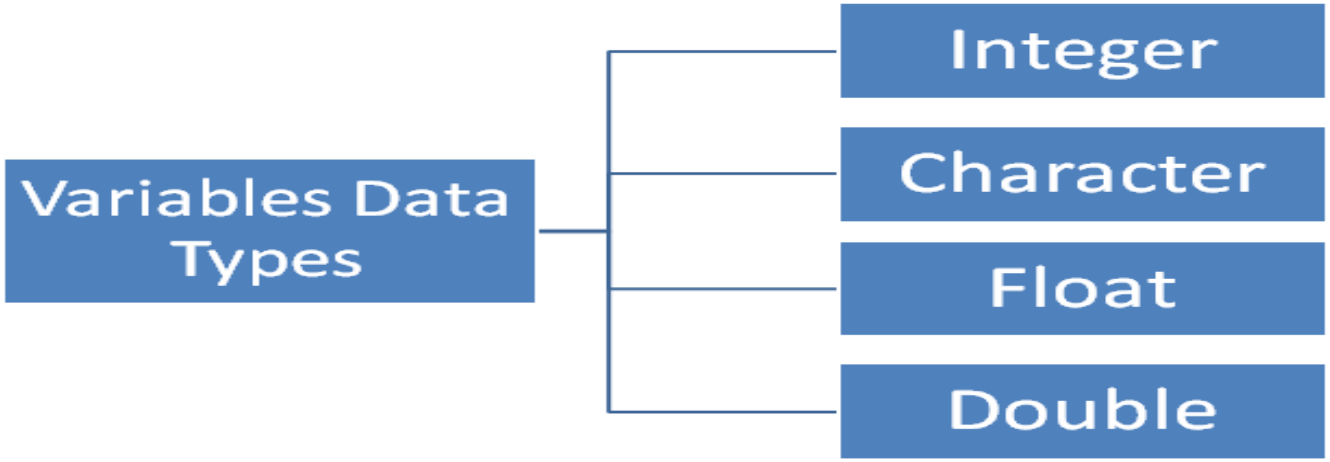
An operating system (OS) is system software that manages computer hardware and software resources and provides common services for computer programs.

Computer operating systems perform basic tasks, such as recognizing input from the keyboard, sending output to the display screen, keeping track of files and directories on the disk, and controlling peripheral devices such as printers.



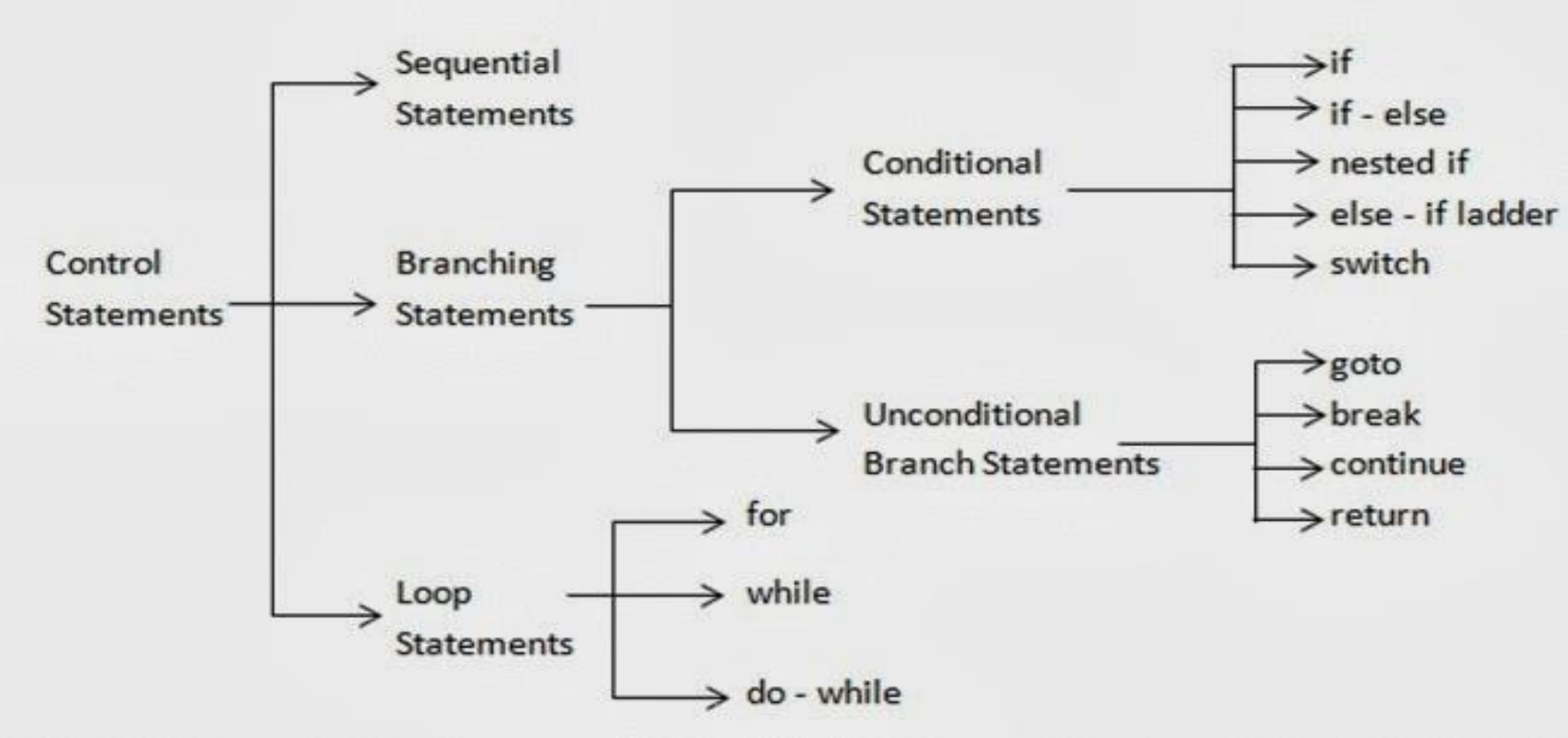
Token, Data Types, variable and constant



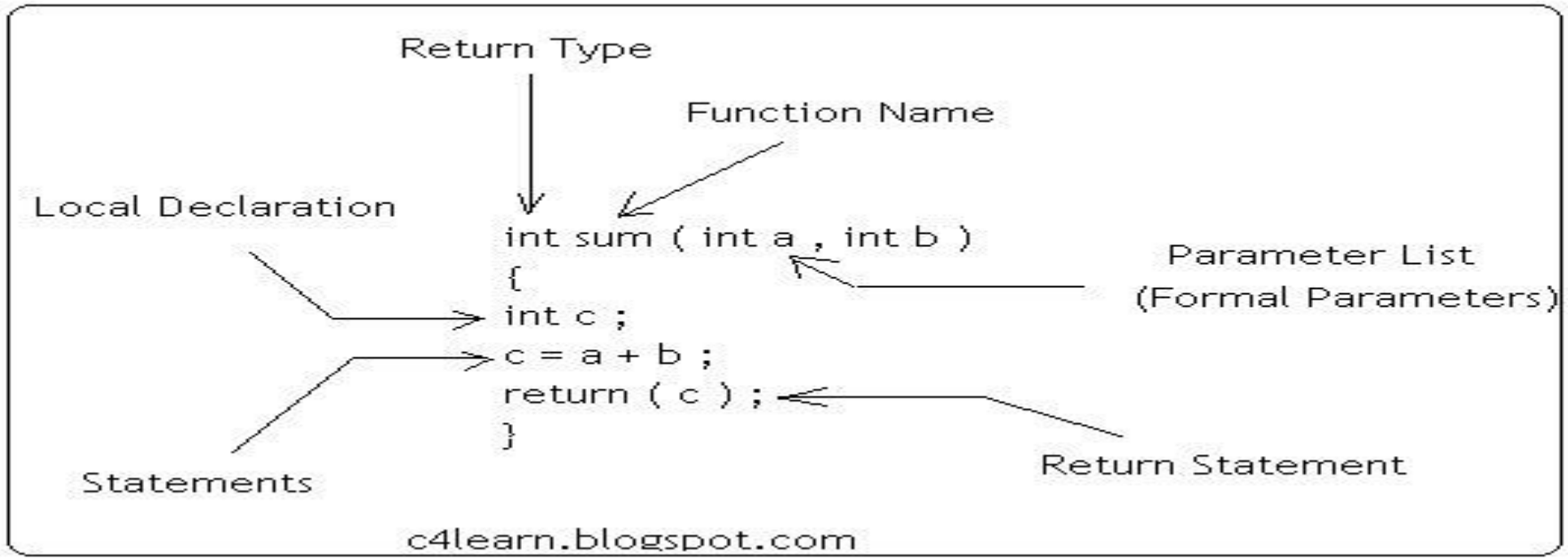


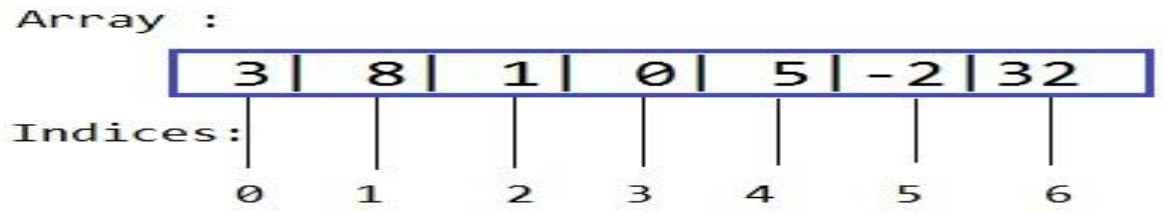
Operator	Use	Example	Result
+	To add two numbers	i=3+2	5
-	For subtraction	i=3-2	1
*	For multiplication	i=3*2	6
/	For division	i=3/2	1
%	Modular division (Reminder after division)	i=10%3	1

Control Satements

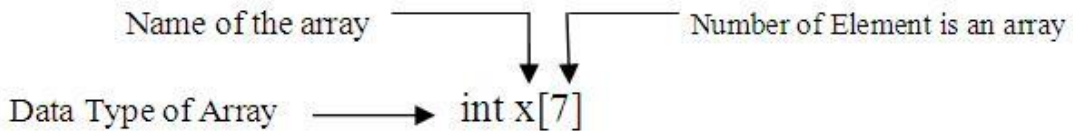


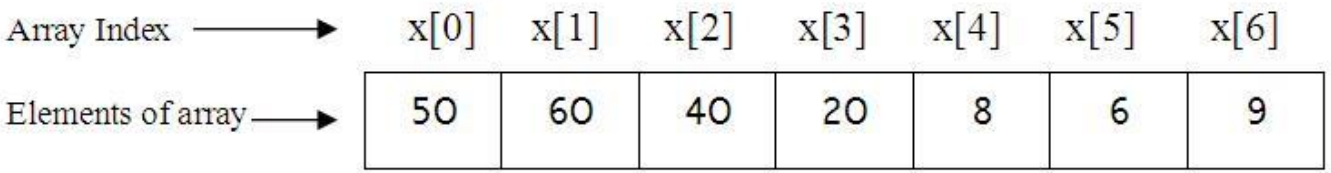
Function and Array

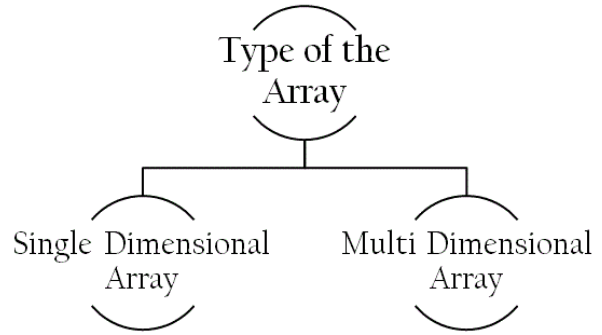




Array

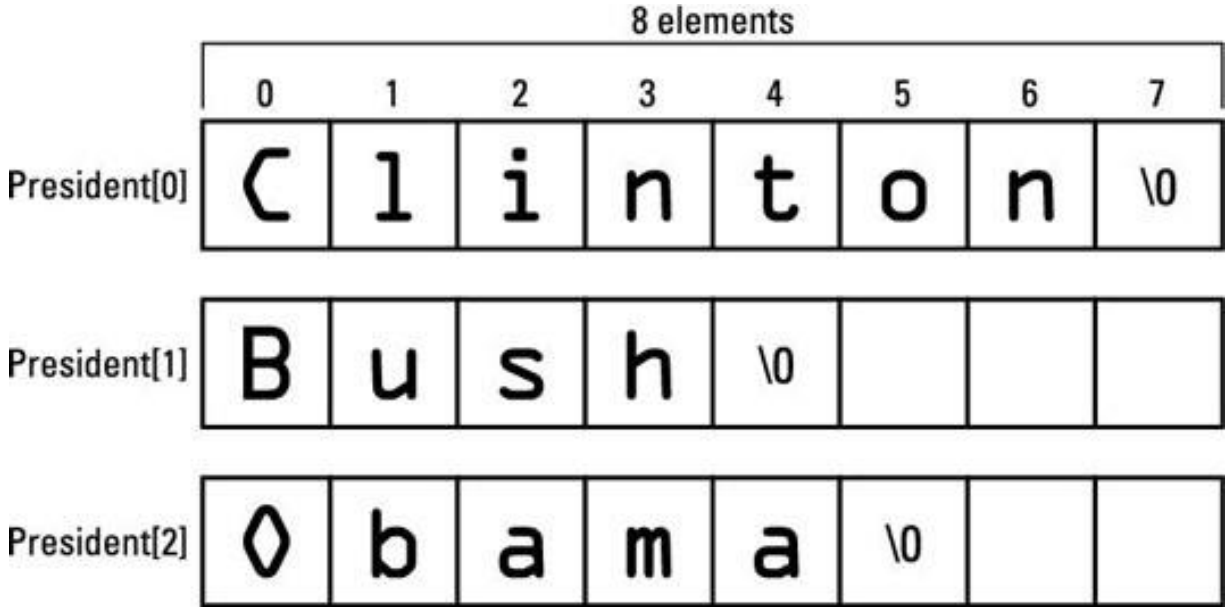






	Column 0	Column 1	Column 2	Column 3
Row 0	a[0][0]	a[0][1]	a[0][2]	a[0][3]
Row 1	a[1][0]	a[1][1]	a[1][2]	a[1][3]
Row 2	a[2][0]	a[2][1]	a[2][2]	a[2][3]

String

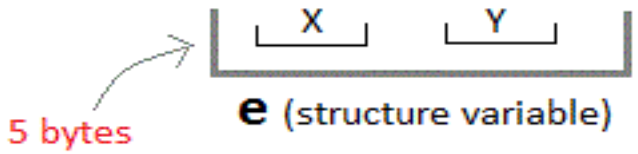


- strcmp
- strcat
- strcpy
- strlen

Structure and Union

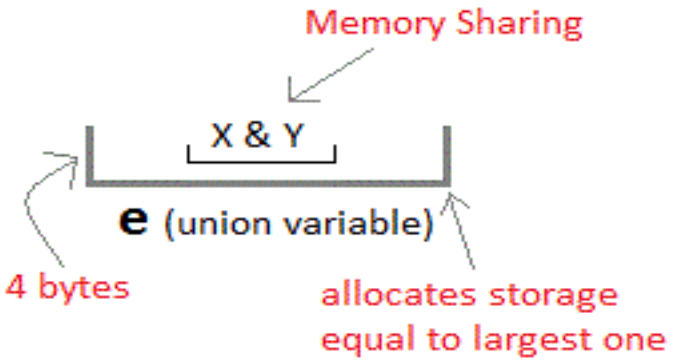
Structure

```
struct Emp
{
 char X ;     // size 1 byte
 float Y ;    // size 4 byte
} e ;
```

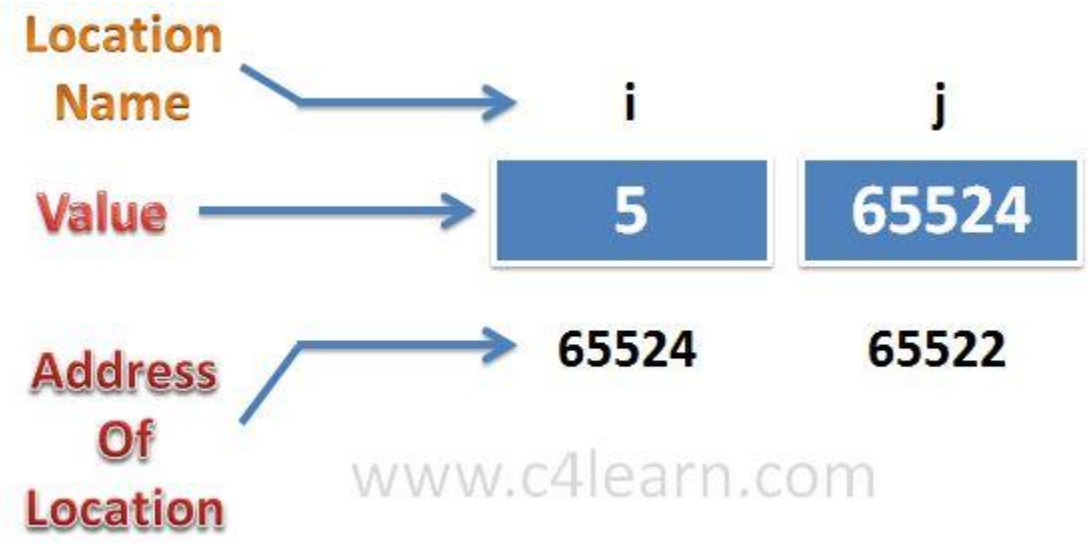


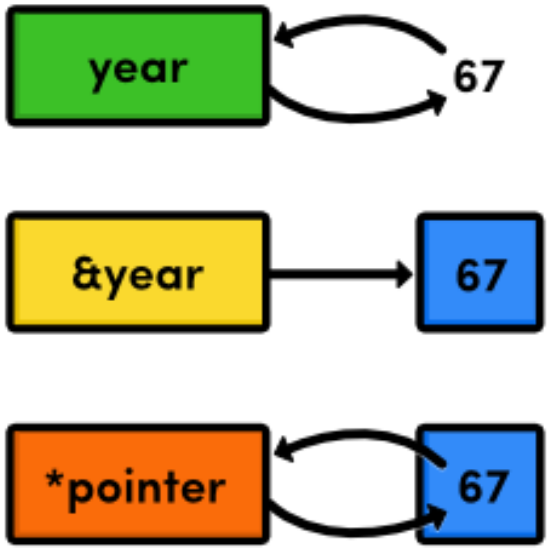
Unions

```
union Emp
{
 char X ;
 float Y ;
} e ;
```



Pointers



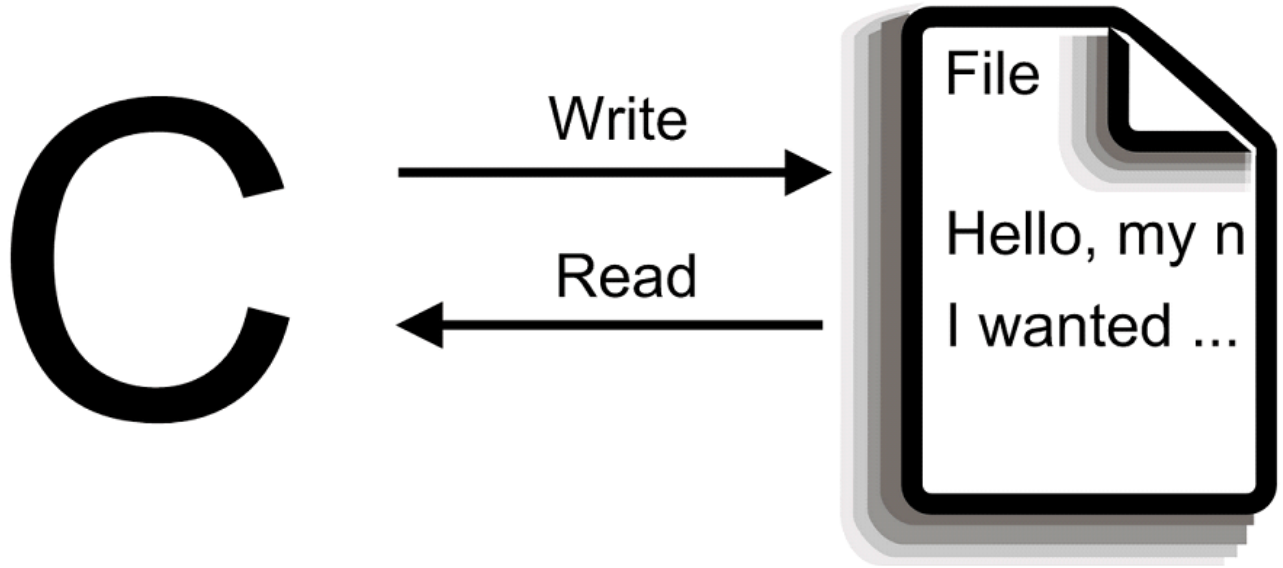


A variable transparently stores a value with no notion of memory addresses.

The reference operator returns the memory address of a variable.

The dereference operator accesses the value stored in a memory address.

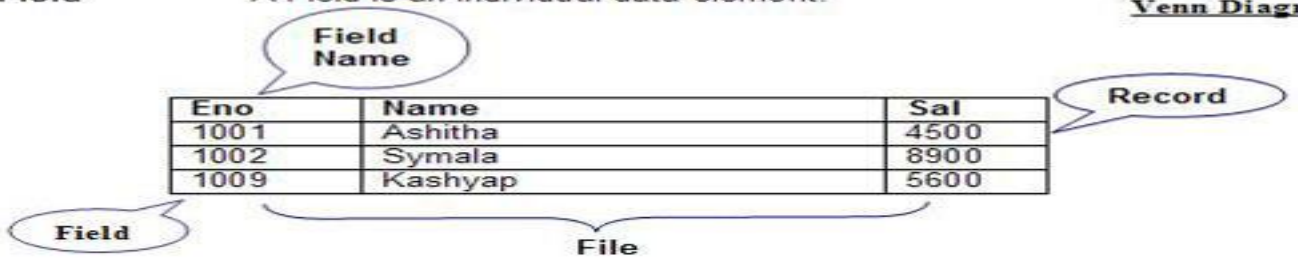
File handling



- Create file
- Open file
- Close file

File	A file is a collection of records
Record	Record is a collection of fields
Field	A Field is an individual data element.

Venn Diagram



Next Class: Computer Organization

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