**building Processor**

| PC | pre Processor | **Compiler** ↳ software Tool ↳ work as a Translator | **Assembler** ↳ software Tool ↳ work as a translator | Linker | Machine Processor |
|---|---|---|---|---|---|

PC

↳ C language
↳ easy
↳ Portable

pre Processor

.c ↦ .i

↳ Text Replacement

.i → [ ] → .osm

GCC
↳ GNU C Compiler

↳ GNU Not

asm → [ ] → .ql

machine language

Assembly instruction

(ADD)  (ooo)

SUB   dol

000
001
101

5 + 6

(oooo o|ol) ooo (oooo ollo)

R4.1   A4.2

Machine
Processor
Feature
ASS
Level
bare Code
Comments
Formate
escape
Data Type
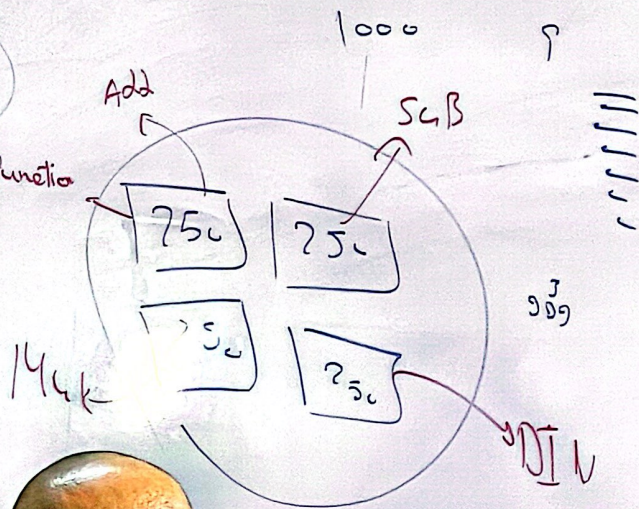Variable
naming
Print
scan
Operation

Feature of C language

L, structered language   easy to Test and Debug

L, 32 Keywords   ,   int, Char, array, auto, struct,

L, built in function

L, suport library Consept → Standard library → in c langing

use define library → by Dev

<stdio.h>
"operation.h"

#include  <stdio.h>

L, import

#include  "operation.h"

X  <operation.h>

X  <operations>

Function

Add

SUB

1000

750   750

750   750

14uk

DIV

909

Format specifier

escape sequence

%C ─ character
%d ─ decimal value
      ─ decimal

%C ─ floating value

%S ─ string

65
↓ ○
? ○

ASCI

A
B
C

1, 5

(1,) (A)

1
?
3

| (A) | 65 |

Format specifier
→ character
%c → decimal value
%d → decimal
%c → floating value
%s → string
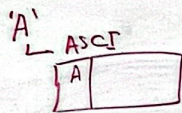
escap sequence
\n → new line
\t → Tap
\v → Tab vertical

Kaleem _ Ashraf
("Kaleem \t Ashraf ")

Kaleem _____ Ashraf

"Kaleem \n Ashraf "
k \n aleem Ashraf

k
aleem Ashraf

Kaleem

Ashraf

size

byt
Char — decimal valu     'A'  ASCI        Data Type
4 bytes   Int                    | A |
4 byte   float  } → floating value                    1 byt  =  8 bits
8 byte  double

300 → Char x = 'A' ;
300 → int  y = 65;          5

                         0000 0101

128 64 32 16 8 (4) 2 (1)
| 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
 7  6  5  4  3  2  1  0

0 0 0 0   0 1 1 0
0 0 0 0   0 1 1 1
0 0 0   1 1 0 0 0

int x = (65) → %c   A
           → %d   65

Variables

L Syntax1

Data type    name of variable ;

ex.  | int  x  ; | → decleration

X =10;  → initization

L Syntax2

Data type   name of variable = Value ;

ex.

Char Samp1 = 'A';
-Char Samp12 = 10.5;

Printf

L Syntax1

Printf (                                    );

L string
L escap sequence

ex.    Printf ( " Kaleem Ashraf          " );

Syntax 2

L

Printf ("                    ",              );

Mandated  —L format specifier
Optional  — L escape sequence     L variable
Optonal   — L string

ex

int x = 10;

Printf ( " t = %d ", x );  → 10 t =