Chap 1: C Programming basics.

Need of comp → accuracy, speed in exe.

Parts of comp → I/O → CPU

control unit → controls the parts.

s/w

System software — appln s/w

↓

Lang. translators (human lang → comp lang)

operating system.

→ Resource mgr, platform for running appln s/w.
interface b/w user and the h/w.

ex: compiler

appln s/w → word processor,
spreadsheet,
DBs, present

Prog. langs

↓

for comm between user & system.

Generations:

1) M/c lang → in binary

Ads: No translator, less time, M/c friendly.

disads: we cant remember, debugging is difficult.

2) Assembly lang: → communicate directly with comp h/w.

↓ symbolic code (mnemonics)

ad: user-friendly, don't need to remember

dis: need of translator (assembler)

↓

M/c dependant, debugging little difficult

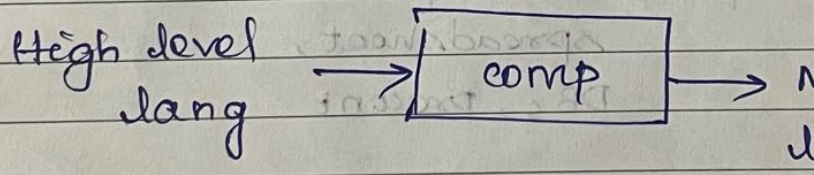
ex: Load, move, Add.

3) High-level langs:-

more user friendly, uses english lang. statement → Readability, Portability, easy debugging.

dis: Compilation.

compiler



Prog lang → set of insts in a lang understandable ~~by~~ to the user also recognizable by the computer

done

C-compilation model.

↓ source code

Preprocessor (# files) Removes comment Processes

↓

compiler → gives

↓

assembler
↓
linker & Loader
↓
executable code

Compiler: Splits sentences into tokens, checks syntax, meaning.

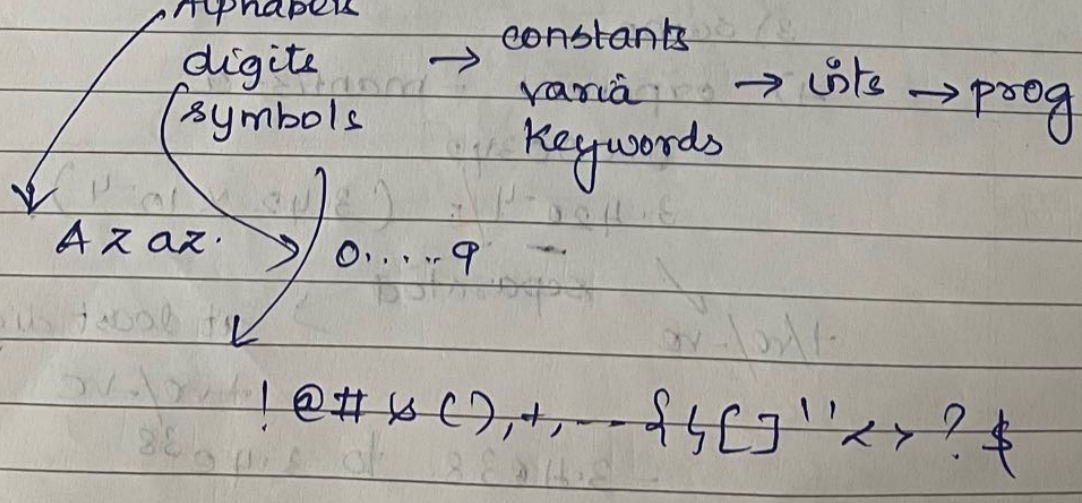
Linker: Links programs + lib fns + global variables into one object code, and then produces the executable code.

C Lang

- developed by AT & T Bell labs USA 1972 by Dennis Ritchie
- Prereq to C++, Java
- major popular OS like windows, UNIX, Linux are written in C.
- embedded system development,
- game development.

Eng: Alphabets → words → sentences → para

C:



→ literals

constant → doesn't change
Variable → may change
(or) identifier
Keyword → special meaning, reserved words.

Constants:

Primary — sec.

Int — Array
Real — string
char — pointers
structures
Uncons.

Rules: (Int) 4 bytes
Int: 1) atleast 1 digit
2) no decimal
3) zero, +ve, -ve (sign).

range -2147483648 to 2147483647 (4294967296).

0 → octal
0x/0X → Hexa decimal

Real
1) same
2) decimal
3) same.
4) exponent - mantissa
0.000342
3.420^{-4} / E (3.42×10^{-4}).
separated
+/ve/-ve
at least digit
+ve/-ve
$-3.4e38$ to $3.4e^{38}$