Files & Streams in C++

(Unit-5)

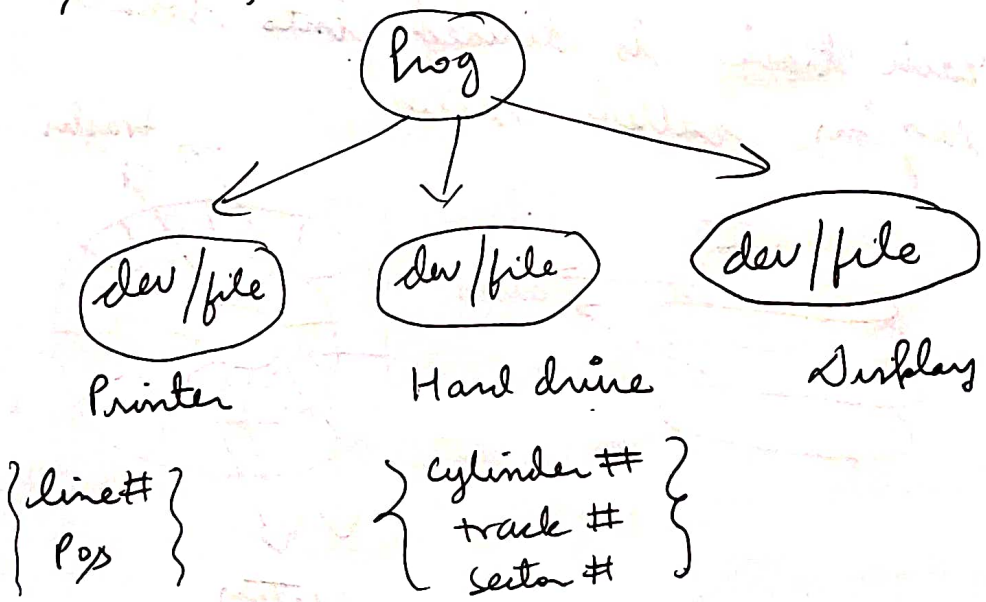
- File can have 2 meanings
  1) logical files / devices
  2) text files

Q) what are logical files?

A) Each I/o device can be represented as a ~~device~~ or logical file.

- Prog can use 2 ways to write to a dev / log. file

1) writing directly to a file



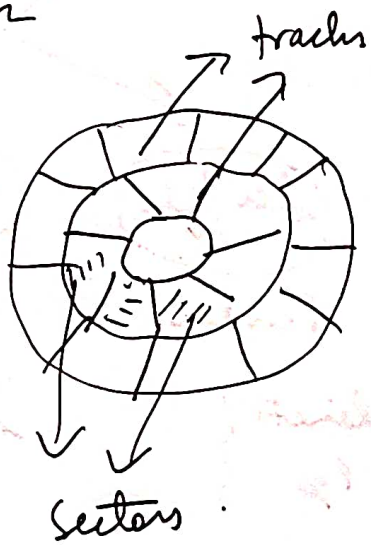
- A prog can read/write directly to a file.
- For each dev. the prog shud use a specific format supported by that dev.

eg for writing to a H/drive

Cylinder #
track #
Sector #

needs to be specified.

- The H.drive is divided into mul disks. Each disk is a cylinder.
- Each disk is divided into circular areas called track
- Each track is divided into small regions called sector.

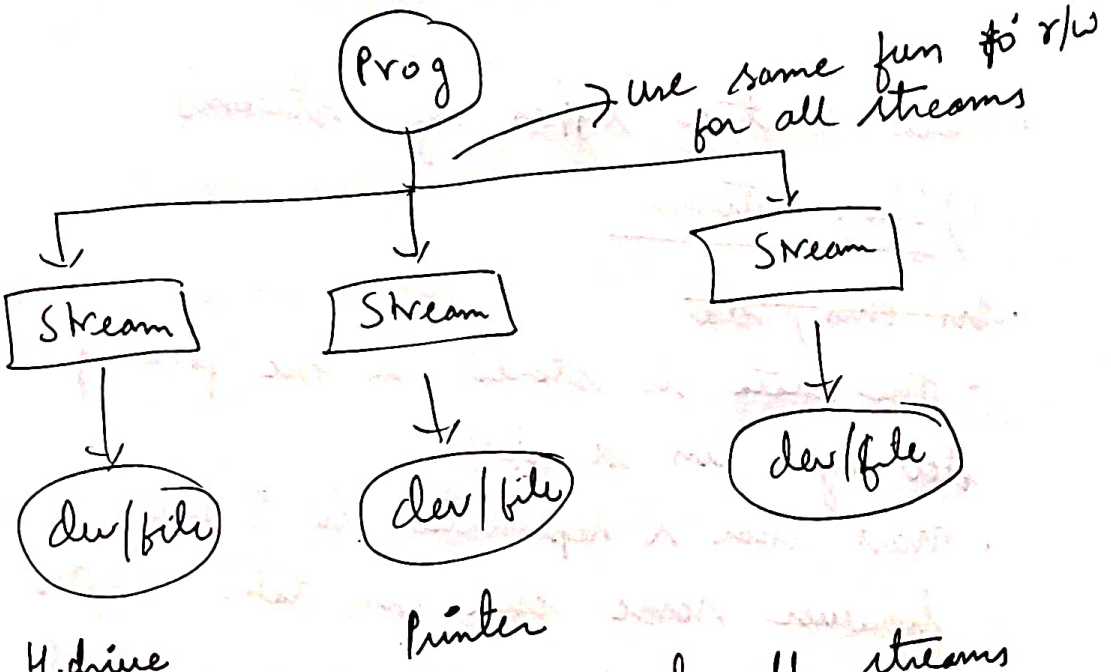


- similarly for writing to a printer, has a line # needs to be specified.
- So different format must be used to r/w to diff dev.

2) R/W from dev using streams

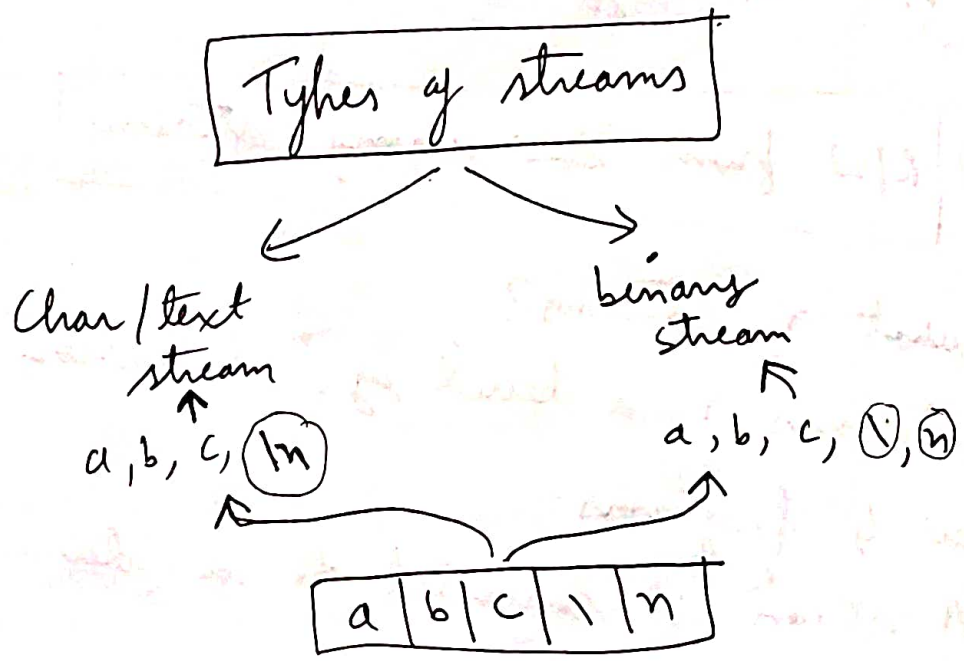
Q) what r streams?

A) - streams r a level of abstraction b/w dev & programs.
- A stream is connected to a dev



- The adv of stream is that all streams behave similarly, so you can use same fun to r/w to diff devices.

- All the implementation is done by streams. You simply need to use the stream.



- There r two types of streams

1) Char stream

- ~~In this, data~~
  - The data is stored in the form of ~~dec~~ bytes in a dec.
  - Most char r represented in 1 byte, however some char can take 2 bytes.
- In a char stream, when bytes r read from the stream then translations will occur
- for eg. '\', 'n' ~~are~~ are two diff bytes but they will be converted to '\n'.

- So char read by stream will be
  a, b, c, \n.
- In char stream, No. of char may be less than No. of bytes.
- There is no one to one relationship b/w char and bytes.

2) Binary stream

- In a bin stream, bytes r read/write from the stream.
- No translations will occur.
- So the stream will read three bytes
  a, b, c, \, n
  \, n will not be translated to '\n'
- # of bytes read is same as # of bytes stored.
- There is one to one mapping b/w bytes read & bytes stored.

Char / Text stream	Binary stream
• It is a sequence of char.	• It is a seq. of bytes
• Translations will occur when reading bytes from stream.	• No translations
• No. of Char <= No. of bytes	• No of bytes read = No. of bytes stored.
• No 1 to 1 mapping b/w char & bytes	• one to one relationship b/w bytes stored & read.