Sunbeam Infotech

Exploring new ideas, Reaching new heights!

STL

Sting class   - part of C++ lib.
#include   <string>

* Container - like vector<char>
* Compatible with C string -

STL

not all containers support all types of iterator.

- Containers are traversed using iterators. → *like trav pointer in DS list code.*

- Usually iterators are implemented as nested classes in containers. → *list<int> :: iterator*

  class is in list<> class.

- Iterators are smart pointers (with -> and * operators overloaded). *$\ast itr4$ → operator*(')*

- There are six types of iterators

  - Input iterator (read ops, fwd) → *const iterator → cbegin();*

  - Output iterator (write ops, fwd)

  - Bi-directional iterator (rw, bi-dirn) → *list::iterator: itr++ & itr--;*

  - Forward iterator (rw, fwd)

  - Reverse iterator (rw, rev) → *reverse iterator → rbegin()*

  - Random access iterator (rw, any) → *nth element. → not supported in list.*
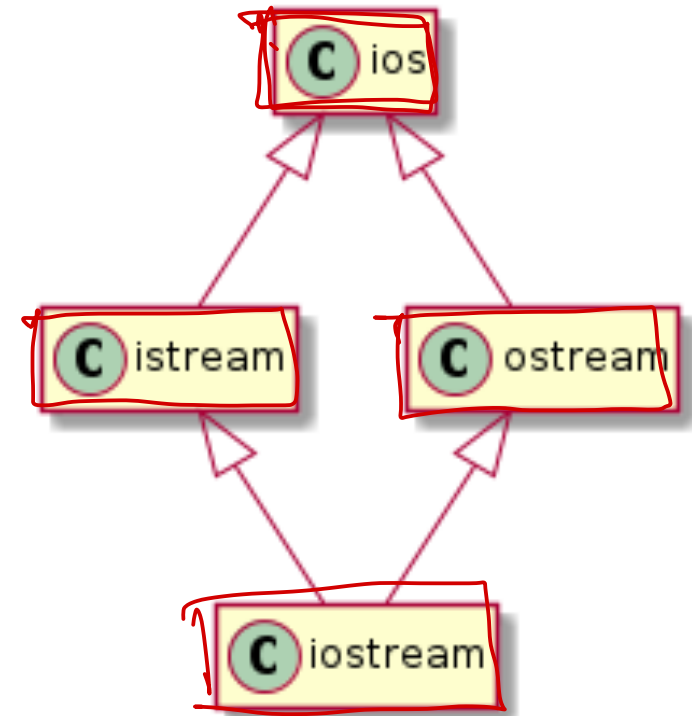
STL

non member fn.

- Algorithms are global functions that operates on containers.

- They can be classified as

  - Search functions

  - Sort functions

  - Manipulaion functions

  - Non-modifying functions
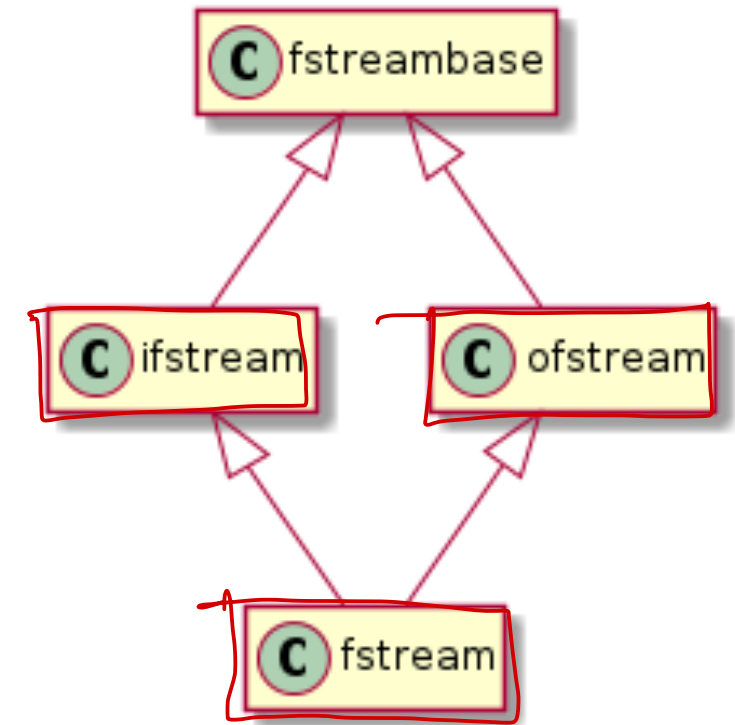
  - Numeric functions

C++ File I/O

- Stream is a logical device that either produces or consumes information.

- stream is linked to physical device by I/O system (os)

- All stream behaves in same way irrespective of device attached to it.

- Stream is continuous flow of bytes.

- These are standard C++ streams:
    - cin (istream) → stdin
    - cout (ostream) → stdout   terminal (console)
    - cerr (ostream) → stderr
    - clog (ostream)

C++ File I/O

- ifstream is used to read from file.
- ofstream is used to write into file.
- fstream is used to read & write into file.

- ifstream fin("filepath");
- ofstream fout("filepath");

- fstream file;
- file.open("filepath", mode);

- mode:
  - ios::in, ios::out, ios::app, ios::trunc, ios::binary

Binary file

short i = 12345;
↓
2 bytes.

Text file

short i = 12345;
↓
5 chars
(5 byte).

C programming

* fread() &
  fwrite() → **file position** → fseek() ; tell()

→

C++ programs

* read() &
  write() → file pos.

tellg() / seekg()

ifstream → get pos.

ofstream → put pos.

tellp() / seekp()

C++ File I/O

- File IO
  - Formatted IO
    - operator<<() and operator>>()
    - Manipulators
      - boolalpha, showpos, hex
  - Char IO: get() and put()
  - String IO: getline()
  - Binary IO: read(), write()
  - Change file current position
    - seekg(), seekp()
    - tellg(), tellp()
  - Functions: open(), eof(), …

Thank you!

Nilesh Ghule <nilesh@sunbeaminfo.com>