

# CS 101: Computer Programming and Utilization

## 21-File Handling

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# Activity

Define a class *tokenizer* that:

- Can store a sentence (multiple words).
- Has constructors to create the sentence.
- Provides a function that outputs the words from the sentence, one on each line.
  - Given string `str1 = "This is a line"`; Output should be:
    - This
    - is
    - a
    - line

Compare with - [demo21-tokenizer.cpp](#)

# File handling

We have seen how to use files for I/O redirection

- `program.exe < input.txt > output.txt`
  - Instead of user typing in the input, it is redirected (taken) from the file `input.txt`
  - Instead of output appearing on screen, it is redirected to file `output.txt`

What if we need to edit a file from a C++ program?

- e.g. editing student marks in a spreadsheet.

# File handling in C & C++

C: `#include <cstdio>` or “stdio.h”

- library of functions that uses streams to operate with files and physical devices such as keyboards, printers, terminals
- <http://www.cplusplus.com/reference/cstdio/>

C++: `#include <fstream>`

- fstream provides an interface to read and write data from files as input/output streams, similar to cin and cout
- <http://www.cplusplus.com/reference/fstream/>

Run: `demo21-files.cpp` – Read comments in file for notes

# Summary: C++ File handling

## class fstream: functions

(constructor): Construct object and optionally open file

is\_open: Check if a file is open

open: Open file ; close: Close file

### Members inherited from istream

operator>> Extract formatted input

get: get character ; getline: Get line

tellg: Get position in input sequence ; seekg: Set position

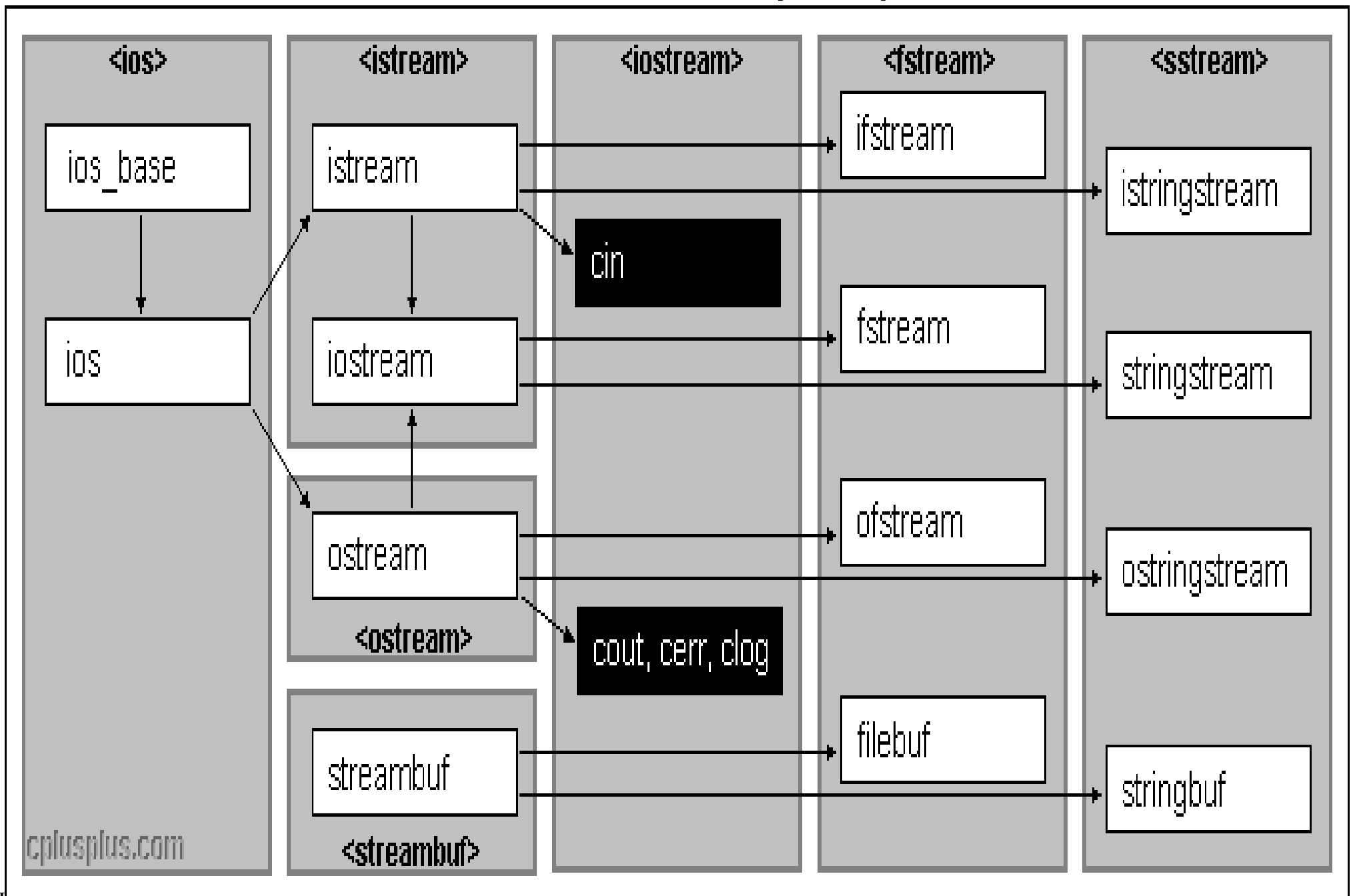
### Members inherited from ostream

operator<< Insert formatted output

put: Put character

tellp: Get position in output sequence ; seekp: Set position

# Information: Stream (file) inheritance



# (Optional) C File handling functions

fopen: Open file

fclose: Close file

fprintf: Write formatted data to stream

fscanf: Read formatted data from stream

fgetc: Get character from stream

fgets: Get string from stream

fputc: Write character to stream

fputs: Write string to stream

fseek: Reposition stream position indicator

ftell: Get current position in stream

rewind: Set position of stream to the beginning