C++

Input / Output Stream

I/O Stream

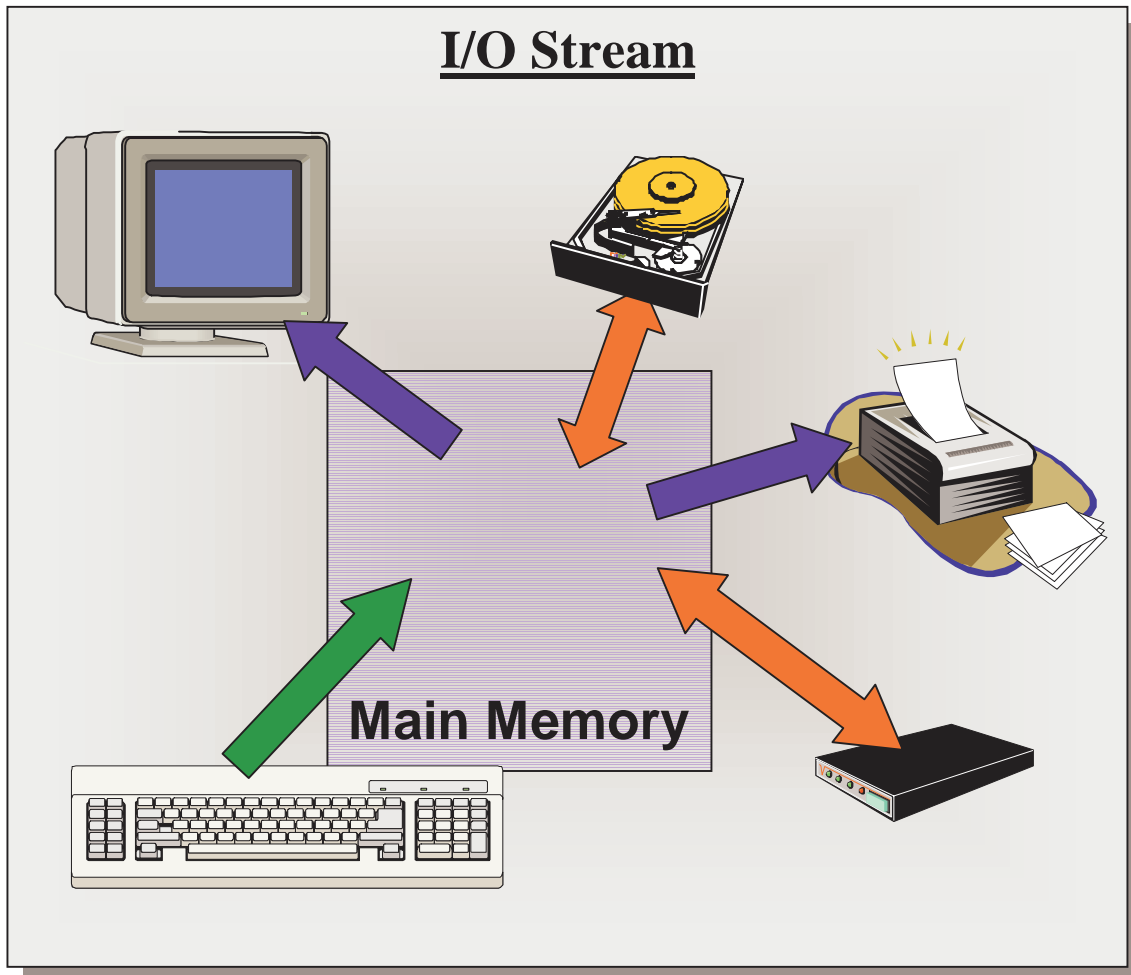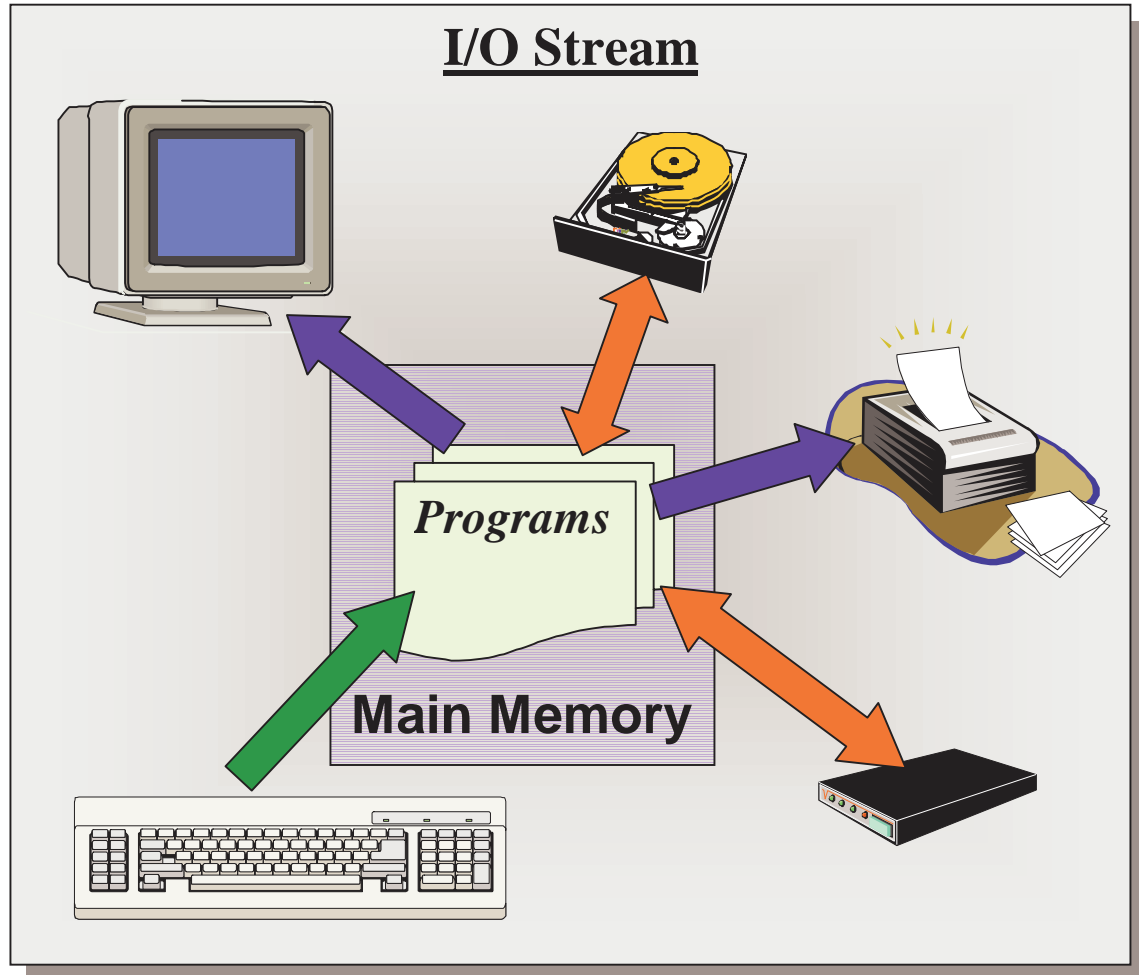**Main Memory**

- C++ I/O occurs in a ***stream*** …where a stream is simply a sequence of data (bytes)…

- In input operations, the data flow from the device (keyboard, disk, etc.) to the main memory…

- In output operations, data flow from the main memory to the output device (screen, printer, disk)…

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I/O Stream

Programs

Main Memory

- To enable a program to communicate with any I/O device, an object (identification entity) must be created and a stream is associated with this object…

- The association of the stream and the object provides a communication channels between the program and a particular input / output device…

C++

<u>Standard Stream Objects</u>

- When a program is lunched by the operating system, four standard stream objects are automatically created and are made ready to be used by the program…
  Those objects are:
    - **Standard Input**… Usually connected to the keyboard.
    - **Standard Output**… Usually connected to the screen…
    - **Standard Error**…
    - **Standard Log**…

- In C++ those stream object can be referred to as follow:
    - **Cin** as the Standard Input…
    - **Cout** as Standard Output…
    - **Cerr** as Standard Error…
    - **Clog** as Standard Log…

- Note that any other stream object, must first be created by the program before being used…