

Computer Programming

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Session: Handling Input Output Using Files

Quick Recap



- From the video lectures this week, we have learned about files
- Each file stored on an external device has
 - Name and a path (location), size, and access permissions
- All files are handled by the Operating System
- A C++ program can define and use FILE pointers
 - Name of the pointer is the internal filename for C++
 - It has to be “associated” with an external file

Overview



- In this and the next sessions, we will study how to handle data from text files
- Text data may be independently entered in a text file using any text editor
- Data in several other file-types can be saved as plain text
 - Such as data from a spread sheet
- C++ can read data from, and write data to text files

Standard input/output



- The operator 'cin' reads a sequence of ASCII characters from input keyboard, and converts given values to internal format
- 'cout' does the opposite, converting internal values to ASCII text and outputs these on monitor
- Actually these operators read and write from 'files'
 - stdin (standard input file)
 - stdout (standard output file)

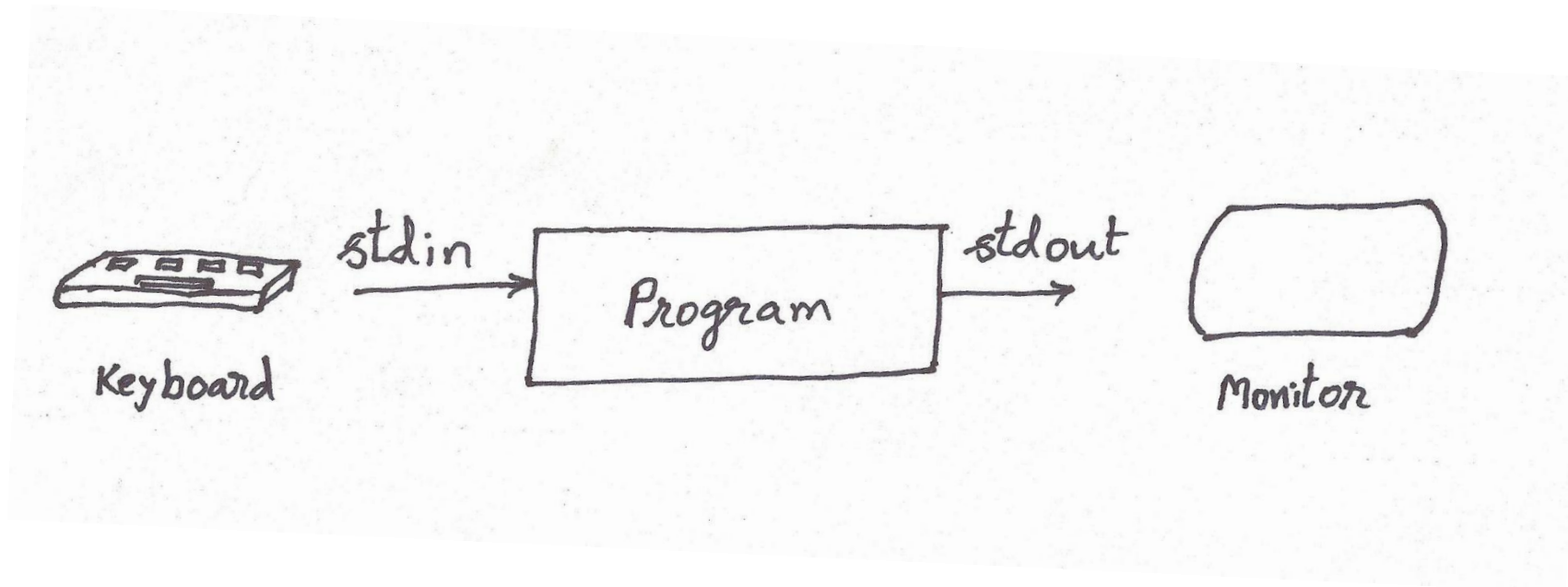
Normal I/O operations



- stdin and stdout files are automatically opened by OS
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Default connections for stdin, stdout



At the command line, when we execute a program

```
$ myprog
```

It will take input from keyboard, and give output to terminal

- When we use code blocks to execute our program, a ‘terminal’ window is opened, which is connected to stdout
- Our keyboard is used by code blocks as stdin

Redirection



- We can 'redirect' stdin and/or stdout to external text files. If we type
`$ myprog < infile.txt > outfile.txt`
- stdin is now redirected to the file 'infile.txt'
 - All keyboard input (such as by using cin) will be read from this file
- stdout is connected to 'outfile.txt'. All output (such as by using cout) will be written to this file

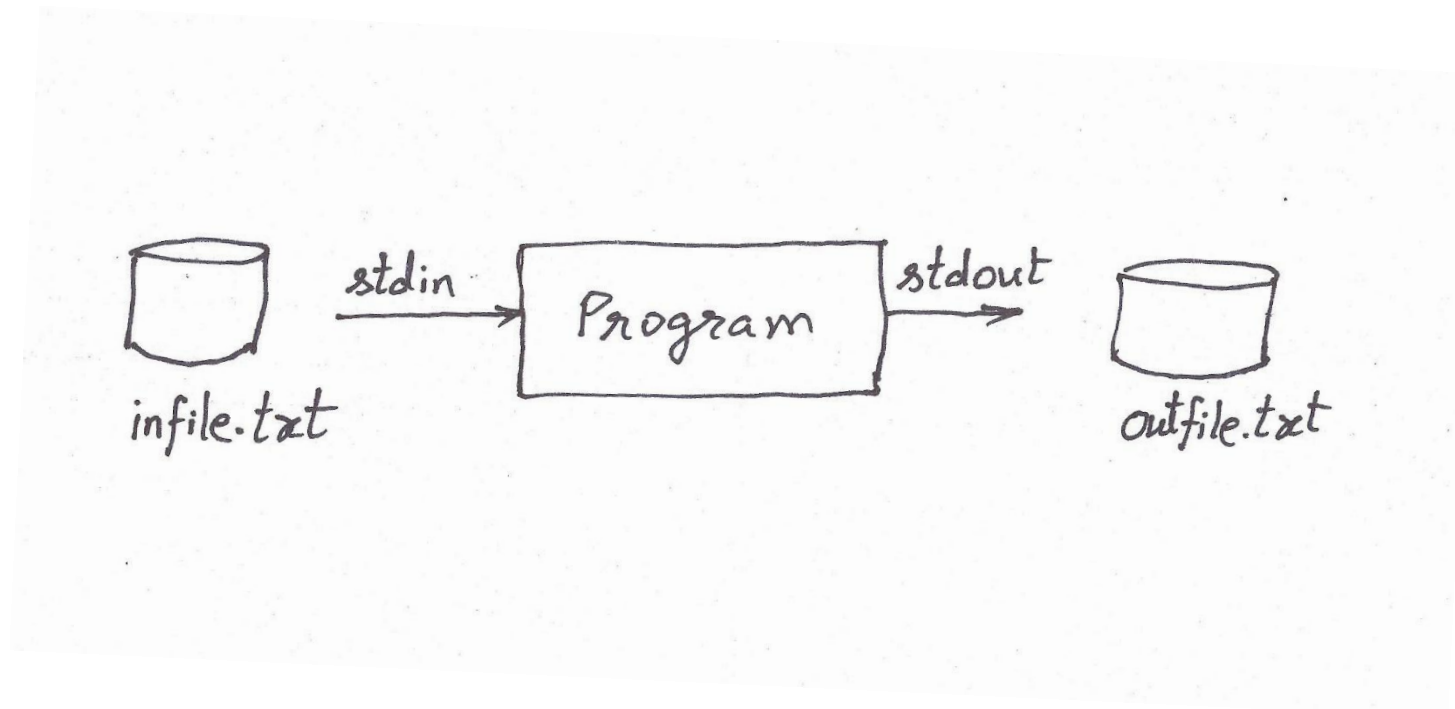
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Summary



- We saw that the normal text input and output which we handle in our programs, actually comes from, and goes to files
- stdin and stdout are standard input/output files used by any operating system
 - Normally 'connected' to keyboard and terminal
 - Can be 'redirected' to other text files