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File Streaming Example



C++ Object Oriented Programming

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Example file

✧ Filename: data.txt

10	本檔案
1001	維修項目代號
3	維修物料個數
a31f	需更換料號1
a32	需更換料號2
b01	需更換料號3
20	標準維修時間 (分鐘)
700	工資
1002	
2	
a31r	
b02	

What do you see in this file?

1. Numeric values: 10, 1001, 3, 20, 700, 1002, 2
2. Alphanumeric strings: a31f, a32, b01, a31r, b02
3. Chinese character strings
4. Spaces and newlines '\n'

A Data Stream

- ✧ A programmer should see this file as a **stream of data bytes** with a unique read/write head like a tape recorder.

Hexadecimal ASCII representation

read/write head
(current position)

20	31	30	20	20	20	20	20	20	20	20	A5	BB	C0	C9	AE	D7
----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

0D	0A	20	20	31	30	30	31	20	20	BA	FB	AD	D7	B6	B5
----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

A5	D8	A5	4E	B8	B9	0D	0A	33	20	20	20	20	20	20	20
----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

...

Shown in a
text editor

10 本檔案

.. 1001 維修項

目代號..3

File Reading with iostream

current position

[illegible]

修物料個數\na31f 需更換料號1\n...

- ✧ Basic input functions provided by iostream
 1. `infile >> x;` // x could be any basic type, e.g. char, char[], int, float, double, string
 - a. starting from “current position” skip all white spaces
 - b. depending on the data type of x, convert characters valid with respect to the data type of x, and store the result in x
 2. `infile.getline(buf, 50);` // char buf[50]; at most 50 characters
// including the terminating '\0' would be put into buf
 3. `getline(infile, buf);` // string buf;
starting from the “current position”, read all characters in raw format until '\n', and store all these characters in buf without '\n'

Example Sequence of Codes

10 本檔案\n 1001 維修項目代號\n3 維

修物料個數\na31f

需更換料號1\n...

```
int num;  
char item[10], buf[50];  
string str;  
infile >> num;  
infile.getline(buf,50);  
infile >> item;  
getline(infile, str);
```

num 10

buf 本檔案\0

item 1001\0

str 維修項目代號