

Posicionamiento en Streams

Tell y Seek

Esp. Ing. José María Sola, profesor.

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Tabla de contenidos

1. Introducción	1
2. Ejemplo	3

Introducción

Objetivo, intentar tratar un stream como array.

seekg-tellg-seekp-tellp.cpp.

```
/* Tests seekg, tellg, seekp, tellp
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 */
#include <iostream>
#include <fstream>
#include <string>
#include <cstdio> // remove TODO: This is C, should use C++17's filesystem

int main(){
    using std::cout;
    constexpr auto filename="test.txt";

    { // Creates a file with ABCDE
        std::ofstream out(filename);
        out << "ABCDE";
        out.close();
    }

    cout << "The 3-uples mean: (position before, character read or written,
    position after)\n";

    { // Reads the file sequentially, then from arbitrary positions
        std::ifstream in(filename);
        cout << "Input position indicator just after opening: " << in.tellg() << "\n";

        void ReadPrint3uple(std::ifstream&);
        for(int i=0; i<5; ++i) // We know there are five bytes.
            ReadPrint3uple(in);

        cout << "Is it at end of file? " << std::boolalpha << in.eof() <<
            "\n"; because there wasn't a sixth read operation.\n";

        in.seekg(0);
        cout << "seekg(0)\n";
```

```

ReadPrint3uple(in);

in.seekg(-2,std::ios_base::end);
cout << "seekg(-2,end)\n";
ReadPrint3uple(in);

in.seekg(1,std::ios_base::beg);
cout << "seekg(1,beg):\n";
ReadPrint3uple(in);

in.seekg(-2,std::ios_base::cur);
cout << "seekg(-2,cur)\n";
ReadPrint3uple(in);

in.seekg(3,std::ios_base::cur);
cout << "seekg(3,cur)\n";
ReadPrint3uple(in);

in.seekg(2);
cout << "seekg(2,cur)\n";
ReadPrint3uple(in);

in.close();
}

{ // Converts the file to lower case, in an arbitrary orde
void SeekReadConvertToLowerSeekWritePrint3uple(std::fstream& inout, unsigned
c);
std::fstream inout(filename);
SeekReadConvertToLowerSeekWritePrint3uple(inout, 0);
SeekReadConvertToLowerSeekWritePrint3uple(inout, 3);
SeekReadConvertToLowerSeekWritePrint3uple(inout, 2);
SeekReadConvertToLowerSeekWritePrint3uple(inout, 4);
SeekReadConvertToLowerSeekWritePrint3uple(inout, 1);
}

{ // Reads the file sequentially
std::ifstream in(filename);
cout << "File new content: ";
char c;
while(in >> c) // Read while there are more characters left
    cout << c;
cout << '\n';
cout << "Is it at end of file? " << std::boolalpha << in.eof() <<
    "; because there was a sixth read operation.\n";
}

```

```

    remove(filename);
}

void ReadPrint3uple(std::ifstream& in){
    char c;
    std::cout << "Read: ("
    << in.tellg() << ', '
    << (in >> c, c) << ', '
    << in.tellg() << ")\n";
}

void SeekReadConvertToLowerSeekWritePrint3uple(std::fstream& inout, unsigned
pos){
    inout.seekg(pos);
    char c;
    inout >> c;
    c=tolower(c);
    inout.seekp(pos);
    std::cout << "write: ("
    << inout.tellp() << ', '
    << (inout << c, c) << ', '
    << inout.tellp() << ")\n";
}

```

tellg-seekg-tellp-seekp.output.txt.

The 3-uples mean: (position before, character read or written, position after)
Input position indicator just after opening: 0

Read: (0,A,1)

Read: (1,B,2)

Read: (2,C,3)

Read: (3,D,4)

Read: (4,E,5)

Is it at end of file? false; because there wasn't a sixth read operation.

seekg(0)

Read: (0,A,1)

seekg(-2,end)

Read: (3,D,4)

seekg(1,beg):

Read: (1,B,2)

seekg(-2,cur)

Read: (0,A,1)

seekg(3,cur)

Read: (4,E,5)

seekg(2,cur)

Read: (2,C,3)

write: (0,a,1)

write: (3,d,4)

write: (2,c,3)

write: (4,e,5)

write: (1,b,2)

File new content: abcde

Is it at end of file? true; because there was a sixth read operation.