

Report

1. Set the input file (the program reads the file as a string and sorts it)
2. Set the output file (the program writes sorted string to it)

```
public static void main(String[] args) throws IOException {  
    String testFile = "D:/Warmup/test/testfile.txt";  
    String outputFile = "D:/Warmup/test/JavaString.txt";
```

3. Run the program
4. Enter the string from console

```
TESTTEST
```

5. Get the result (measured in nanoseconds)

```
TESTTEST  
42915029700  
573800  
1216900  
61229200  
8230100  
4137400  
  
Process finished with exit code 0
```

Compare with the results of C/C++, the discussion is shown in the table.

```
Please Enter a string:TESTTEST  
[cString] Time for reading string from keyboard is 7.879296100 sec  
[cString] Time for sorting the string is 0.000002500 sec  
[cString] Time for writing the string to file is 0.001097700 sec  
  
*****Read strings from file line by line, sort the lines then write them to another file*****  
[cString] Time for reading lines from file is 0.003861900 sec  
[cString] Time for sorting the string is 0.009407000 sec  
[cString] Time for writing the string to file is 0.181742900 sec  
  
*****Read in lines from files, sort lines separately then write it to a file*****  
[cStrings] Time for writing the string to file is 0.089021900 sec  
[cStrings] Time for sorting the lines is 0.019180400 sec  
[cStrings] Time for writing the lines into files is 0.001403400 sec  
  
*****Read a string from keyboard, sort it then write it to a file*****  
Please Enter a string:TESTTEST  
[STL] Time for reading string from keyboard is 2.868719500 sec  
[STL] Time for sorting the string is 0.000003900 sec  
[STL] Time for writing the string to file is 0.000003300 sec  
  
*****Read strings from file line by line, sort the lines then write them to another file*****  
[STL] Time for reading lines from file is 0.020027500 sec  
[STL] Time for sorting the string is 0.026400200 sec  
[STL] Time for writing the string to file is 0.001130000 sec
```

Test Items	Java String & Arrays	C char	C++ STL String & Vector
Time for sorting the keyboard string "TESTTEST"	0.0005738 secs	0.0000025 secs	0.0000039 secs
Time for writing the sorted keyboard string to file	0.0012169 secs	0.0010977 secs	0.0000033 secs
Time for reading the string from file	0.0612292 secs	0.0038619 secs	0.0200275 secs
Time for sorting the file string	0.0082301 secs	0.009407 secs	0.0264002 secs
Time for writing the sorted file string back to file	0.0041374 secs	0.1817429 secs	0.00113 secs

Although as a interpreted language, the performance of Java is not bad, and in some cases Java's performance may be higher than C++.