

# Report

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## Screenshots for compilation

```
$ make
echo      -----compiling MusicLibrary.cpp to create executable program mai
n-----
-----compiling MusicLibrary.cpp to create executable program main-----
-----
g++ -ggdb -std=c++11 MusicLibrary.cpp -o MusicLibrary
xiaoweit@andromeda-27 22:54:39 ~/253p/hw/hw1
```

## Screenshots for tests

### 1. Test with a non-empty file 'myMusic'

- Before the test

```
Title:A my title,Artist:A my artist,Year Published:2014
Title:B abc d,Artist:a b,Year Published:2020
Title:a,Artist:a,Year Published:2015
Title:b,Artist:b,Year Published:2019
Title:c,Artist:c,Year Published:2019
~
```

- Test under Valgrind

```

$ valgrind ./MusicLibrary myMusic
==3981== Memcheck, a memory error detector
==3981== Copyright (C) 2002-2017, and GNU GPL'd, by Julian Seward et al.
==3981== Using Valgrind-3.13.0 and LibVEX; rerun with -h for copyright info
==3981== Command: ./MusicLibrary myMusic
==3981==
p
1 Title: A my title,Artist: A my artist,Year Published: 2014
2 Title: B abc d,Artist: a b,Year Published: 2020
3 Title: a,Artist: a,Year Published: 2015
4 Title: b,Artist: b,Year Published: 2019
5 Title: c,Artist: c,Year Published: 2019
i
Title: A B C D+
Artist: xiaoweiT
Year Published: 2020
d
Title: c
l
Title: A B C D+
Title: A B C D+
Artist: xiaoweiT
Year Published: 2020
P
1 Title: A B C D+,Artist: xiaoweiT,Year Published: 2020
2 Title: A my title,Artist: A my artist,Year Published: 2014
3 Title: B abc d,Artist: a b,Year Published: 2020
4 Title: a,Artist: a,Year Published: 2015
5 Title: b,Artist: b,Year Published: 2019
D
Title: QWER
title QWER not found
Q
==3981==
==3981== HEAP SUMMARY:
==3981==    in use at exit: 72,916 bytes in 6 blocks
==3981== total heap usage: 16 allocs, 10 frees, 90,704 bytes allocated
==3981==
==3981== LEAK SUMMARY:
==3981==    definitely lost: 212 bytes in 5 blocks
==3981==    indirectly lost: 0 bytes in 0 blocks
==3981==    possibly lost: 0 bytes in 0 blocks
==3981==    still reachable: 72,704 bytes in 1 blocks
==3981==
==3981==    possibly lost: 0 bytes in 0 blocks
==3981==    still reachable: 72,704 bytes in 1 blocks
==3981==    suppressed: 0 bytes in 0 blocks
==3981== Rerun with --leak-check=full to see details of leaked memory
==3981==
==3981== For counts of detected and suppressed errors, rerun with: -v
==3981== ERROR SUMMARY: 0 errors from 0 contexts (suppressed: 0 from 0)
xiaoweit@andromeda-27 22:59:29 ~/253p/hw/hw1
$ █

```

- After the test

```
$ cat myMusic
Title:A B C D+,Artist:xiaoweiT,Year Published:2020
Title:A my title,Artist:A my artist,Year Published:2014
Title:B abc d,Artist:a b,Year Published:2020
Title:a,Artist:a,Year Published:2015
Title:b,Artist:b,Year Published:2019
xiaoweit@andromeda-27 23:04:18 ~/253p/hw/hw1
$ █
```

## 2. Test without input argument

- Before the test

```
$ cat myMusic
Title:A B C D+,Artist:xiaoweiT,Year Published:2020
Title:A my title,Artist:A my artist,Year Published:2014
Title:B abc d,Artist:a b,Year Published:2020
Title:a,Artist:a,Year Published:2015
Title:b,Artist:b,Year Published:2019
xiaoweit@andromeda-27 23:04:18 ~/253p/hw/hw1
$ █
```

- Test under Valgrind

```

$ valgrind ./MusicLibrary
==5899== Memcheck, a memory error detector
==5899== Copyright (C) 2002-2017, and GNU GPL'd, by Julian Seward et al.
==5899== Using Valgrind-3.13.0 and LibVEX; rerun with -h for copyright info
==5899== Command: ./MusicLibrary
==5899==
p
1 Title: A B C D+,Artist: xiaoweiT,Year Published: 2020
2 Title: A my title,Artist: A my artist,Year Published: 2014
3 Title: B abc d,Artist: a b,Year Published: 2020
4 Title: a,Artist: a,Year Published: 2015
5 Title: b,Artist: b,Year Published: 2019
l
Title: B abc d
Title: B abc d
Artist: a b
Year Published: 2020
d
Title: a
i
Title: shape of you
Artist: ed sheeran
Year Published: 2017
p
1 Title: A B C D+,Artist: xiaoweiT,Year Published: 2020
2 Title: A my title,Artist: A my artist,Year Published: 2014
3 Title: B abc d,Artist: a b,Year Published: 2020
4 Title: b,Artist: b,Year Published: 2019
5 Title: shape of you,Artist: ed sheeran,Year Published: 2017
q
==5899==
==5899== HEAP SUMMARY:
==5899==   in use at exit: 72,930 bytes in 6 blocks
==5899== total heap usage: 17 allocs, 11 frees, 90,828 bytes allocated
==5899==
==5899== LEAK SUMMARY:
==5899==   definitely lost: 226 bytes in 5 blocks
==5899==   indirectly lost: 0 bytes in 0 blocks
==5899==   possibly lost: 0 bytes in 0 blocks
==5899==   still reachable: 72,704 bytes in 1 blocks
==5899==     suppressed: 0 bytes in 0 blocks
==5899== Rerun with --leak-check=full to see details of leaked memory
==5899==

==5899== Rerun with --leak-check=full to see details of leaked memory
==5899==
==5899== For counts of detected and suppressed errors, rerun with: -v
==5899== ERROR SUMMARY: 0 errors from 0 contexts (suppressed: 0 from 0)
xiaoweit@andromeda-27 23:10:43 ~/253p/hw/hw1
$ █

```

- After the test

```
$ cat myMusic
Title:A B C D+,Artist:xiaoweiT,Year Published:2020
Title:A my title,Artist:A my artist,Year Published:2014
Title:B abc d,Artist:a b,Year Published:2020
Title:b,Artist:b,Year Published:2019
Title:shape of you,Artist:ed sheeran,Year Published:2017
xiaoweit@andromeda-27 23:12:40 ~/253p/hw/hw1
$ █
```

### 3. Test with an empty file 'mLib'

- Before the test

```
$ cat mLib
xiaoweit@andromeda-27 23:13:47 ~/253p/hw/hw1
$ █
```

- Test under Valgrind



```

$ valgrind ./MusicLibrary mLib
==6717== Memcheck, a memory error detector
==6717== Copyright (C) 2002-2017, and GNU GPL'd, by Julian Seward et al.
==6717== Using Valgrind-3.13.0 and LibVEX; rerun with -h for copyright info
==6717== Command: ./MusicLibrary mLib
==6717==
p
i
Title: a
Artist: b
Year Published: 2012
l
Title: a
Title: a
Artist: b
Year Published: 2012
d
Title: a
p
i
Title: b
Artist: a
Year Published: 2013
q
==6717==
==6717== HEAP SUMMARY:
==6717==    in use at exit: 72,704 bytes in 1 blocks
==6717==   total heap usage: 5 allocs, 4 frees, 90,224 bytes allocated
==6717==
==6717== LEAK SUMMARY:
==6717==    definitely lost: 0 bytes in 0 blocks
==6717==    indirectly lost: 0 bytes in 0 blocks
==6717==    possibly lost: 0 bytes in 0 blocks
==6717==    still reachable: 72,704 bytes in 1 blocks
==6717==         suppressed: 0 bytes in 0 blocks
==6717== Rerun with --leak-check=full to see details of leaked memory
==6717==
==6717== For counts of detected and suppressed errors, rerun with: -v
==6717== ERROR SUMMARY: 0 errors from 0 contexts (suppressed: 0 from 0)
xiaoweit@andromeda-27 23:15:39 ~/253p/hw/hw1
$ █

```

- After the test

```

$ cat mLib
Title:b,Artist:a,Year Published:2013
xiaoweit@andromeda-27 23:16:23 ~/253p/hw/hw1
$ █

```