

jithu@DESKTOP-BGRVDL1: ~

```
jithu@DESKTOP-BGRVDL1:~$ valgrind --tool=callgrind ./grind
```

```
==23970== Callgrind, a call-graph generating cache profiler
```

```
==23970== Copyright (C) 2002-2017, and GNU GPL'd, by Josef Weidendorfer et al.
```

```
==23970== Using Valgrind-3.18.1 and LibVEX; rerun with -h for copyright info
```

```
==23970== Command: ./grind
```

```
==23970==
```

```
==23970== For interactive control, run 'callgrind_control -h'.
```

```
Value of *ptr: 10
```

```
String: Good day to you!
```

```
Value of *ptr: 0
```

```
==23970==
```

```
==23970== Events      : Ir
```

```
==23970== Collected : 223594
```

```
==23970==
```

```
==23970== I   refs:      223,594
```

```
jithu@DESKTOP-BGRVDL1:~$
```



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#include <stdio.h>

#include <stdlib.h>

#include <string.h>

#define NUM_STRUCTS

typedef struct {

char *name;

int id;

int *values;

} DataStruct;

void test1() {

int *ptr = malloc(sizeof

if (ptr == NULL) {

perror("Failed to all

return;

jithu@DESKTOP-BGRVDL1: ~

==9990==

==9990== HEAP SUMMARY:

==9990== in use at exit: 0 bytes in 0 blocks

==9990== total heap usage: 101 allocs, 101 frees, 5,700 bytes allocated

==9990==

==9990== All heap blocks were freed -- no leaks are possible

==9990==

==9990== For lists of detected and suppressed errors, rerun with: -s

==9990== ERROR SUMMARY: 0 errors from 0 contexts (suppressed: 0 from 0)

jithu@DESKTOP-BGRVDL1:~\$ vim grind.c

jithu@DESKTOP-BGRVDL1:~\$ gcc -o grind grind.c

jithu@DESKTOP-BGRVDL1:~\$ valgrind --leak-check=full ./grind

==10462== Memcheck, a memory error detector

==10462== Copyright (C) 2002-2017, and GNU GPL'd, by Julian Seward et al.

==10462== Using Valgrind-3.18.1 and LibVEX; rerun with -h for copyright info

==10462== Command: ./grind

==10462==

Value of *ptr: 10

String: Good day to you!

Value of *ptr: 0

==10462==

==10462== HEAP SUMMARY:

==10462== in use at exit: 0 bytes in 0 blocks

==10462== total heap usage: 106 allocs, 106 frees, 7,464 bytes allocated

==10462==

==10462== All heap blocks were freed -- no leaks are possible

==10462==

==10462== For lists of detected and suppressed errors, rerun with: -s

==10462== ERROR SUMMARY: 0 errors from 0 contexts (suppressed: 0 from 0)

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```
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==23970== Callgrind, a call-graph generating cache profiler
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==23970== Command: ./grind
==23970==
==23970== For interactive control, run 'callgrind_control -h'.
```

```
Value of *ptr: 10
String: Good day to you!
Value of *ptr: 0
==23970==
==23970== Events      : Ir
==23970== Collected : 223594
==23970==
```

```
==23970== I  refs:      223,594
jithu@DESKTOP-BGRVDL1:~$ valgrind --tool=cachegrind ./grind
```

```
==24056== Cachegrind, a cache and branch-prediction profiler
==24056== Copyright (C) 2002-2017, and GNU GPL'd, by Nicholas Nethercote et al.
==24056== Using Valgrind-3.18.1 and LibVEX; rerun with -h for copyright info
==24056== Command: ./grind
==24056==
```

```
--24056-- warning: L3 cache found, using its data for the LL simulation.
```

```
Value of *ptr: 10
String: Good day to you!
Value of *ptr: 0
```

```
==24056==
==24056== I  refs:      224,443
==24056== I1 misses:      1,408
==24056== L1i misses:     1,387
==24056== I1 miss rate:    0.63%
==24056== L1i miss rate:  0.62%
```

```
==24056==
==24056== D  refs:      78,141 (54,957 rd + 23,184 wr)
==24056== D1 misses:    2,340 ( 1,592 rd +   748 wr)
==24056== L1d misses:    2,021 ( 1,315 rd +   706 wr)
==24056== D1 miss rate:   3.0% (  2.9% +   3.2% )
==24056== L1d miss rate:  2.6% (  2.4% +   3.0% )
```

```
==24056==
==24056== LL refs:      3,748 ( 3,000 rd +   748 wr)
==24056== LL misses:     3,408 ( 2,702 rd +   706 wr)
==24056== LL miss rate:   1.1% (  1.0% +   3.0% )
```

```
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