

# HW5 Report

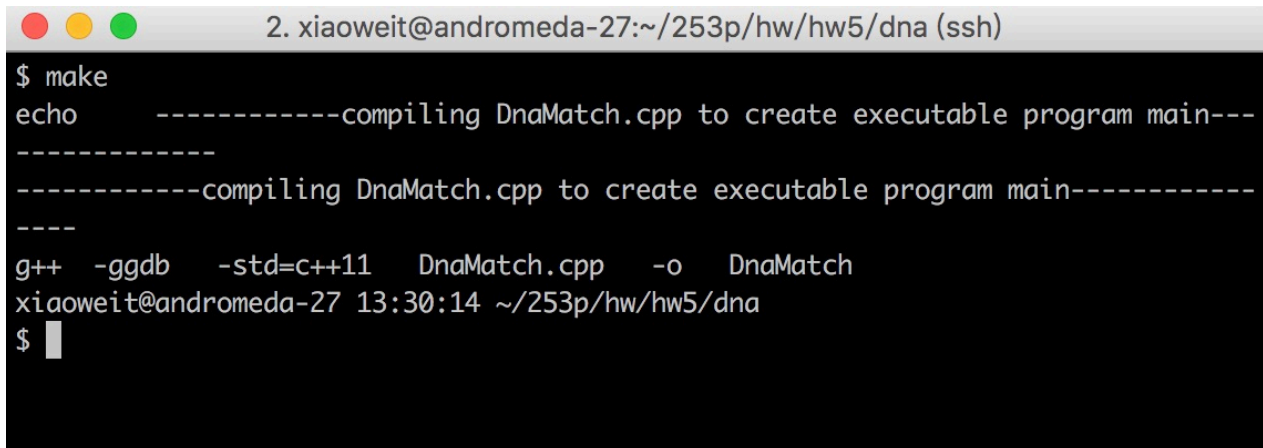
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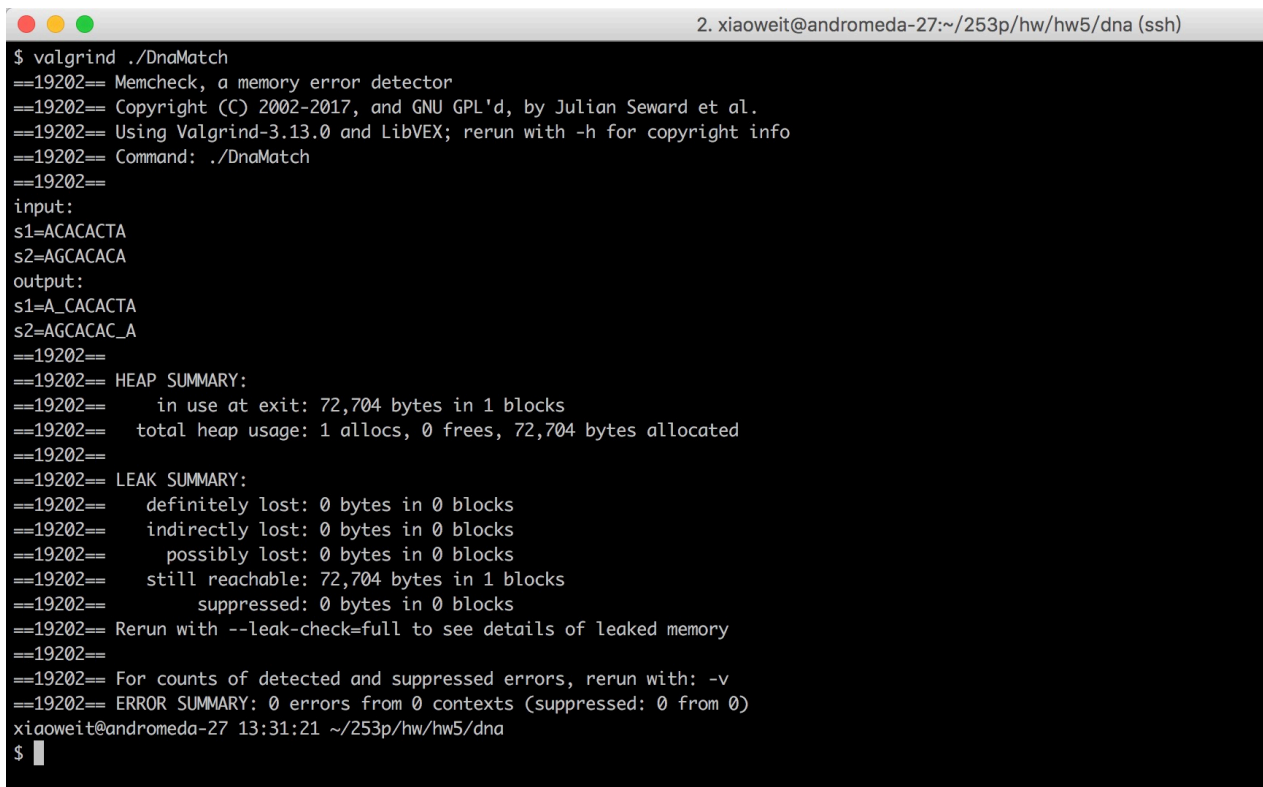
## Screenshots for Lab5.1

### Compile



```
2. xiaowei@andromeda-27:~/253p/hw/hw5/dna (ssh)
$ make
echo      -----compiling DnaMatch.cpp to create executable program main---
-----
-----compiling DnaMatch.cpp to create executable program main-----
----
g++ -ggdb -std=c++11 DnaMatch.cpp -o DnaMatch
xiaowei@andromeda-27 13:30:14 ~/253p/hw/hw5/dna
$
```

### Testcase 1: standard case



```
2. xiaowei@andromeda-27:~/253p/hw/hw5/dna (ssh)
$ valgrind ./DnaMatch
==19202== Memcheck, a memory error detector
==19202== Copyright (C) 2002-2017, and GNU GPL'd, by Julian Seward et al.
==19202== Using Valgrind-3.13.0 and LibVEX; rerun with -h for copyright info
==19202== Command: ./DnaMatch
==19202==
input:
s1=ACACACTA
s2=AGCACACA
output:
s1=A_CACACTA
s2=AGCACAC_A
==19202==
==19202== HEAP SUMMARY:
==19202==    in use at exit: 72,704 bytes in 1 blocks
==19202==   total heap usage: 1 allocs, 0 frees, 72,704 bytes allocated
==19202==
==19202== LEAK SUMMARY:
==19202==    definitely lost: 0 bytes in 0 blocks
==19202==    indirectly lost: 0 bytes in 0 blocks
==19202==    possibly lost: 0 bytes in 0 blocks
==19202==    still reachable: 72,704 bytes in 1 blocks
==19202==         suppressed: 0 bytes in 0 blocks
==19202== Rerun with --leak-check=full to see details of leaked memory
==19202==
==19202== For counts of detected and suppressed errors, rerun with: -v
==19202== ERROR SUMMARY: 0 errors from 0 contexts (suppressed: 0 from 0)
xiaowei@andromeda-27 13:31:21 ~/253p/hw/hw5/dna
$
```

### Testcase 2: smaller case

```
2. xiaoweit@andromeda-27:~/253p/hw/hw5/dna (ssh)
$ valgrind ./DnaMatch
==19922== Memcheck, a memory error detector
==19922== Copyright (C) 2002-2017, and GNU GPL'd, by Julian Seward et al.
==19922== Using Valgrind-3.13.0 and LibVEX; rerun with -h for copyright info
==19922== Command: ./DnaMatch
==19922==
input:
s1=ABC
s2=ADC
input:
s1=ABC
s2=ADC
output:
s1=A_BC
s2=AD_C
==19922==
==19922== HEAP SUMMARY:
==19922==   in use at exit: 72,704 bytes in 1 blocks
==19922== total heap usage: 1 allocs, 0 frees, 72,704 bytes allocated
==19922==
==19922== LEAK SUMMARY:
==19922==   definitely lost: 0 bytes in 0 blocks
==19922==   indirectly lost: 0 bytes in 0 blocks
==19922==   possibly lost: 0 bytes in 0 blocks
==19922==   still reachable: 72,704 bytes in 1 blocks
==19922==   suppressed: 0 bytes in 0 blocks
==19922== Rerun with --leak-check=full to see details of leaked memory
==19922==
==19922== For counts of detected and suppressed errors, rerun with: -v
==19922== ERROR SUMMARY: 0 errors from 0 contexts (suppressed: 0 from 0)
xiaoweit@andromeda-27 13:38:41 ~/253p/hw/hw5/dna
$
```

### Testcase 3: longer case

```
2. xiaoweit@andromeda-27:~/253p/hw/hw5/dna (ssh)
$ valgrind ./DnaMatch
==20164== Memcheck, a memory error detector
==20164== Copyright (C) 2002-2017, and GNU GPL'd, by Julian Seward et al.
==20164== Using Valgrind-3.13.0 and LibVEX; rerun with -h for copyright info
==20164== Command: ./DnaMatch
==20164==
input:
s1=ACTAGCGTAGCT
s2=ACGCGCGACG
input:
s1=ACTAGCGTAGCT
s2=ACGCGCGACG
output:
s1=A__CTAGCGTA_GCT
s2=ACGC__GCG_ACG__
==20164==
==20164== HEAP SUMMARY:
==20164==   in use at exit: 72,704 bytes in 1 blocks
==20164== total heap usage: 1 allocs, 0 frees, 72,704 bytes allocated
==20164==
==20164== LEAK SUMMARY:
==20164==   definitely lost: 0 bytes in 0 blocks
==20164==   indirectly lost: 0 bytes in 0 blocks
==20164==   possibly lost: 0 bytes in 0 blocks
==20164==   still reachable: 72,704 bytes in 1 blocks
==20164==   suppressed: 0 bytes in 0 blocks
==20164== Rerun with --leak-check=full to see details of leaked memory
==20164==
==20164== For counts of detected and suppressed errors, rerun with: -v
==20164== ERROR SUMMARY: 0 errors from 0 contexts (suppressed: 0 from 0)
xiaoweit@andromeda-27 13:41:33 ~/253p/hw/hw5/dna
$
```

## Screenshots for Lab5.2

## Compile

```
2. xiaoweit@andromeda-27:~/253p/hw/hw5/edit (ssh)
$ make
echo -----compiling EditDistance.cpp to create executable program main-----
-----compiling EditDistance.cpp to create executable program main-----
g++ -ggdb -std=c++11 EditDistance.cpp -o EditDistance
xiaoweit@andromeda-27 13:42:07 ~/253p/hw/hw5/edit
$
```

## Testcase 1: standard case

```
2. xiaoweit@andromeda-27:~/253p/hw/hw5/edit (ssh)
$ valgrind ./EditDistance
==20319== Memcheck, a memory error detector
==20319== Copyright (C) 2002-2017, and GNU GPL'd, by Julian Seward et al.
==20319== Using Valgrind-3.13.0 and LibVEX; rerun with -h for copyright info
==20319== Command: ./EditDistance
==20319==
input:
s1=horse
s2=ros
output:
the minimum number of edits is 3
==20319==
==20319== HEAP SUMMARY:
==20319==    in use at exit: 72,704 bytes in 1 blocks
==20319==   total heap usage: 1 allocs, 0 frees, 72,704 bytes allocated
==20319==
==20319== LEAK SUMMARY:
==20319==    definitely lost: 0 bytes in 0 blocks
==20319==    indirectly lost: 0 bytes in 0 blocks
==20319==    possibly lost: 0 bytes in 0 blocks
==20319==    still reachable: 72,704 bytes in 1 blocks
==20319==    suppressed: 0 bytes in 0 blocks
==20319== Rerun with --leak-check=full to see details of leaked memory
==20319==
==20319== For counts of detected and suppressed errors, rerun with: -v
==20319== ERROR SUMMARY: 0 errors from 0 contexts (suppressed: 0 from 0)
xiaoweit@andromeda-27 13:42:43 ~/253p/hw/hw5/edit
$
```

## Testcase 2: totally different two strings

```
2. xiaoweit@andromeda-27:~/253p/hw/hw5/edit (ssh)
$ valgrind ./EditDistance
==20547== Memcheck, a memory error detector
==20547== Copyright (C) 2002-2017, and GNU GPL'd, by Julian Seward et al.
==20547== Using Valgrind-3.13.0 and LibVEX; rerun with -h for copyright info
==20547== Command: ./EditDistance
==20547==
input:
s1=horse
s2=a
output:
the minimum number of edits is 5
==20547==
==20547== HEAP SUMMARY:
==20547==    in use at exit: 72,704 bytes in 1 blocks
==20547==   total heap usage: 1 allocs, 0 frees, 72,704 bytes allocated
==20547==
==20547== LEAK SUMMARY:
==20547==    definitely lost: 0 bytes in 0 blocks
==20547==   indirectly lost: 0 bytes in 0 blocks
==20547==    possibly lost: 0 bytes in 0 blocks
==20547==   still reachable: 72,704 bytes in 1 blocks
==20547==     suppressed: 0 bytes in 0 blocks
==20547== Rerun with --leak-check=full to see details of leaked memory
==20547==
==20547== For counts of detected and suppressed errors, rerun with: -v
==20547== ERROR SUMMARY: 0 errors from 0 contexts (suppressed: 0 from 0)
xiaoweit@andromeda-27 13:44:53 ~/253p/hw/hw5/edit
$
```

### Testcase 3: longer case

```
2. xiaoweit@andromeda-27:~/253p/hw/hw5/edit (ssh)
$ valgrind ./EditDistance
==20634== Memcheck, a memory error detector
==20634== Copyright (C) 2002-2017, and GNU GPL'd, by Julian Seward et al.
==20634== Using Valgrind-3.13.0 and LibVEX; rerun with -h for copyright info
==20634== Command: ./EditDistance
==20634==
input:
s1=abadfasewrqwerwgaslfjklaksvzneiqrupwfjkasjfkakfgak
s2=zmnxcbvkjsahflhiuqrueoiruiehkjashkjhahsjflkasjflkl
output:
the minimum number of edits is 42
==20634==
==20634== HEAP SUMMARY:
==20634==    in use at exit: 72,704 bytes in 1 blocks
==20634==   total heap usage: 5 allocs, 4 frees, 72,888 bytes allocated
==20634==
==20634== LEAK SUMMARY:
==20634==    definitely lost: 0 bytes in 0 blocks
==20634==   indirectly lost: 0 bytes in 0 blocks
==20634==    possibly lost: 0 bytes in 0 blocks
==20634==   still reachable: 72,704 bytes in 1 blocks
==20634==     suppressed: 0 bytes in 0 blocks
==20634== Rerun with --leak-check=full to see details of leaked memory
==20634==
==20634== For counts of detected and suppressed errors, rerun with: -v
==20634== ERROR SUMMARY: 0 errors from 0 contexts (suppressed: 0 from 0)
xiaoweit@andromeda-27 13:45:40 ~/253p/hw/hw5/edit
$
```

## Screenshots for Lab5.3

### Compile

```
2. xiaoweit@andromeda-27:~/253p/hw/hw5/coin (ssh)
$ make
echo -----compiling CoinChange.cpp to create executable program main-----
-----compiling CoinChange.cpp to create executable program main-----
g++ -ggdb -std=c++11 CoinChange.cpp -o CoinChange
xiaoweit@andromeda-27 13:46:26 ~/253p/hw/hw5/coin
$
```

## Testcase 1: standard case

```
2. xiaoweit@andromeda-27:~/253p/hw/hw5/coin (ssh)
$ valgrind ./CoinChange
==20770== Memcheck, a memory error detector
==20770== Copyright (C) 2002-2017, and GNU GPL'd, by Julian Seward et al.
==20770== Using Valgrind-3.13.0 and LibVEX; rerun with -h for copyright info
==20770== Command: ./CoinChange
==20770==
input:
10p 10n 10d 10q 255
output:
the maximum number of coins is 33
==20770==
==20770== HEAP SUMMARY:
==20770==   in use at exit: 72,704 bytes in 1 blocks
==20770==   total heap usage: 1 allocs, 0 frees, 72,704 bytes allocated
==20770==
==20770== LEAK SUMMARY:
==20770==   definitely lost: 0 bytes in 0 blocks
==20770==   indirectly lost: 0 bytes in 0 blocks
==20770==   possibly lost: 0 bytes in 0 blocks
==20770==   still reachable: 72,704 bytes in 1 blocks
==20770==   suppressed: 0 bytes in 0 blocks
==20770== Rerun with --leak-check=full to see details of leaked memory
==20770==
==20770== For counts of detected and suppressed errors, rerun with: -v
==20770== ERROR SUMMARY: 0 errors from 0 contexts (suppressed: 0 from 0)
xiaoweit@andromeda-27 13:47:03 ~/253p/hw/hw5/coin
$
```

## Testcase 2: standard case

```
2. xiaoweit@andromeda-27:~/253p/hw/hw5/coin (ssh)
$ valgrind ./CoinChange
==21000== Memcheck, a memory error detector
==21000== Copyright (C) 2002-2017, and GNU GPL'd, by Julian Seward et al.
==21000== Using Valgrind-3.13.0 and LibVEX; rerun with -h for copyright info
==21000== Command: ./CoinChange
==21000==
input:
1p 4n 2d 20q 46
output:
the maximum number of coins is 6
==21000==
==21000== HEAP SUMMARY:
==21000==   in use at exit: 72,704 bytes in 1 blocks
==21000==   total heap usage: 1 allocs, 0 frees, 72,704 bytes allocated
==21000==
==21000== LEAK SUMMARY:
==21000==   definitely lost: 0 bytes in 0 blocks
==21000==   indirectly lost: 0 bytes in 0 blocks
==21000==   possibly lost: 0 bytes in 0 blocks
==21000==   still reachable: 72,704 bytes in 1 blocks
==21000==   suppressed: 0 bytes in 0 blocks
==21000== Rerun with --leak-check=full to see details of leaked memory
==21000==
==21000== For counts of detected and suppressed errors, rerun with: -v
==21000== ERROR SUMMARY: 0 errors from 0 contexts (suppressed: 0 from 0)
xiaoweit@andromeda-27 13:48:47 ~/253p/hw/hw5/coin
$
```



### Testcase 3: larger case

```
2. xiaoweit@andromeda-27:~/253p/hw/hw5/coin (ssh)
$ valgrind ./CoinChange
==21142== Memcheck, a memory error detector
==21142== Copyright (C) 2002-2017, and GNU GPL'd, by Julian Seward et al.
==21142== Using Valgrind-3.13.0 and LibVEX; rerun with -h for copyright info
==21142== Command: ./CoinChange
==21142==
input:
10p 100n 1000d 10000q 2000
output:
the maximum number of coins is 257
==21142==
==21142== HEAP SUMMARY:
==21142==    in use at exit: 72,704 bytes in 1 blocks
==21142==   total heap usage: 1 allocs, 0 frees, 72,704 bytes allocated
==21142==
==21142== LEAK SUMMARY:
==21142==    definitely lost: 0 bytes in 0 blocks
==21142==    indirectly lost: 0 bytes in 0 blocks
==21142==    possibly lost: 0 bytes in 0 blocks
==21142==    still reachable: 72,704 bytes in 1 blocks
==21142==    suppressed: 0 bytes in 0 blocks
==21142== Rerun with --leak-check=full to see details of leaked memory
==21142==
==21142== For counts of detected and suppressed errors, rerun with: -v
==21142== ERROR SUMMARY: 0 errors from 0 contexts (suppressed: 0 from 0)
xiaoweit@andromeda-27 13:49:53 ~/253p/hw/hw5/coin
$
```