

Exam Report

ECPE 170 – Computer Systems and Networks – Spring 2016

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Lab Topic: Exam

Question #1:

Download compressed archive that contains a small program, and extract the files within.

Answer:

```
> wget http://www1.pacific.edu/~jshafer3/ecpe170/exam1.tar.bz2
> unzip exam1.tar.bz2 exam1
```

Question #2:

Move the new program into your personal Bitbucket repository

Answer:

```
> mv exam1 ~/bitbucket/2017_spring_ecpe170/exam1
```

Question #3:

Compile and run the Program

Answer:

```
> cd exam1/
> make
> ./exam1
```

Question #4:

Measure the execution time in seconds

Answer:

```
> make clean
> make
> time ./exam1
real: 0.002s
user: 0.000s
sys: 0.000s
the "real" time represents the "wall clock" time the best
```

Question #5:

Use Valgrind to make a report file that identifies the specific lines in main.c where the leaking memory blocks were originally allocated

Answer:

```
> make clean
> make
> valgrind --tool=memcheck --leak-check=yes --show-reachable=yes --num-callers=20 --log-
file=memcheck.txt ./exam1
> gedit memcheck.txt &
```

memCheck.txt:

```
==19864== Memcheck, a memory error detector
==19864== Copyright (C) 2002-2015, and GNU GPL'd, by Julian Seward et al.
==19864== Using Valgrind-3.11.0 and LibVEX; rerun with -h for copyright info
==19864== Command: ./exam1
==19864== Parent PID: 18707
==19864==
==19864==
```

```
==19864== HEAP SUMMARY:
==19864==   in use at exit: 3,600 bytes in 30 blocks
==19864== total heap usage: 64 allocs, 34 frees, 9,872 bytes allocated
==19864==
==19864== 120 bytes in 1 blocks are definitely lost in loss record 1 of 2
==19864==   at 0x4C2DB8F: malloc (in /usr/lib/valgrind/vgpreload_memcheck-amd64-linux.so)
==19864==   by 0x4EA89E7: getdelim (iogetdelim.c:62)
==19864==   by 0x40069C: getline (stdio.h:117)
==19864==   by 0x40069C: main (main.c:58)
==19864==
==19864== 3,480 bytes in 29 blocks are definitely lost in loss record 2 of 2
==19864==   at 0x4C2DB8F: malloc (in /usr/lib/valgrind/vgpreload_memcheck-amd64-linux.so)
==19864==   by 0x4EA89E7: getdelim (iogetdelim.c:62)
==19864==   by 0x4006E4: getline (stdio.h:117)
==19864==   by 0x4006E4: main (main.c:72)
==19864==
==19864== LEAK SUMMARY:
==19864==   definitely lost: 3,600 bytes in 30 blocks
==19864==   indirectly lost: 0 bytes in 0 blocks
==19864==   possibly lost: 0 bytes in 0 blocks
==19864==   still reachable: 0 bytes in 0 blocks
==19864==   suppressed: 0 bytes in 0 blocks
==19864==
==19864== For counts of detected and suppressed errors, rerun with: -v
==19864== ERROR SUMMARY: 2 errors from 2 contexts (suppressed: 0 from 0)
```

Question #6:

Fix the memory Leak

Answer: