Report for Homework 2 / CS253P / Jimin Ren

Problem 1

Test cases

```
void test_strlen()
{
    require(strlen("") == 0);
    require(strlen("hello") == 5);
}

void test_strcmp()
{
    char r[] = "hello", s[] = "hello", t[] = "he";
    require(strcmp(r,s) == 0);
    require(strcmp(t,r) < 0);
    require(strcmp(s,t) > 0);
}

void test_strcpy() {
    char a[100], b[] = "hello", c[] = " world";
    strcpy(a, b);
    require(strcmp(a, b) == 0);
    strcpy(a, c);
    require(strcmp(a, c) == 0);
}

void test_strcat() {
    char a[100] = "", b[] = "hello ", c[] = "world", r[] = "hello world";
    strcat(a, b);
    strcat(a, c);
    require(strcmp(a, r) == 0);
}
```

```c
void test_strncmp() {
    char a[] = "abcd", b[] = "abde", c[] = "abce", d[] = "aaaa";
    require(strncmp(a, b, 2) == 0);
    require(strncmp(a, c, 3) == 0);
    require(strncmp(a, d, 1) == 0);
    require(strncmp(a, b, 3) < 0);
    require(strncmp(a, c, 4) < 0);
}

void test_strchr() {
    char a[] = "This is a sample string.";
    char *pch = strchr(a, 's');
    require(pch-a+1 == 4);
    pch = strchr(pch+1, 's');
    require(pch-a+1 == 7);
    pch = strchr(pch+1, 's');
    require(pch-a+1 == 11);
    pch = strchr(pch+1, 's');
    require(pch-a+1 == 18);
    pch = strchr(pch+1, 's');
    require(pch == NULL);
}
```

```c
void test_strpbrk() {
    char a[] = "This is a sample string.";
    char key[] = "aeiou";
    char *pch = strpbrk(a, key);
    require(*pch == 'i');
    pch = strpbrk(pch+1, key);
    require(*pch == 'i');
    pch = strpbrk(pch+1, key);
    require(*pch == 'a');
    pch = strpbrk(pch+1, key);
    require(*pch == 'a');
    pch = strpbrk(pch+1, key);
    require(*pch == 'e');
    pch = strpbrk(pch+1, key);
    require(*pch == 'i');
    pch = strpbrk(pch+1, key);
    require(pch == NULL);

}

void test_strstr() {
    char r[100], a[] = "This is a sample string.", b[] = "sample", c[]="strir
    char* pch = strstr(a, b);
    require(strncmp(pch, b, 6) == 0);
    pch = strstr(a, c);
    require(strncmp(pch, c, 6) == 0);
}

void test_strspn() {
    char a[] = "hello world", b[] = "1bis83nv82n3f", c[] = "aeiou", d[] = "01
    require(strspn(a, c) == 3);
    require(strspn(b, d) == 6);
}
```

```c
void test_strtok() {
    char a[] = "- This is, a sample String.", b[] = "- ,.";
    char *pch;
    pch = strtok(a, b);
    pch = strtok(pch, b);
    pch = strtok(pch, b);
}
```

Build, run with Valgrind check

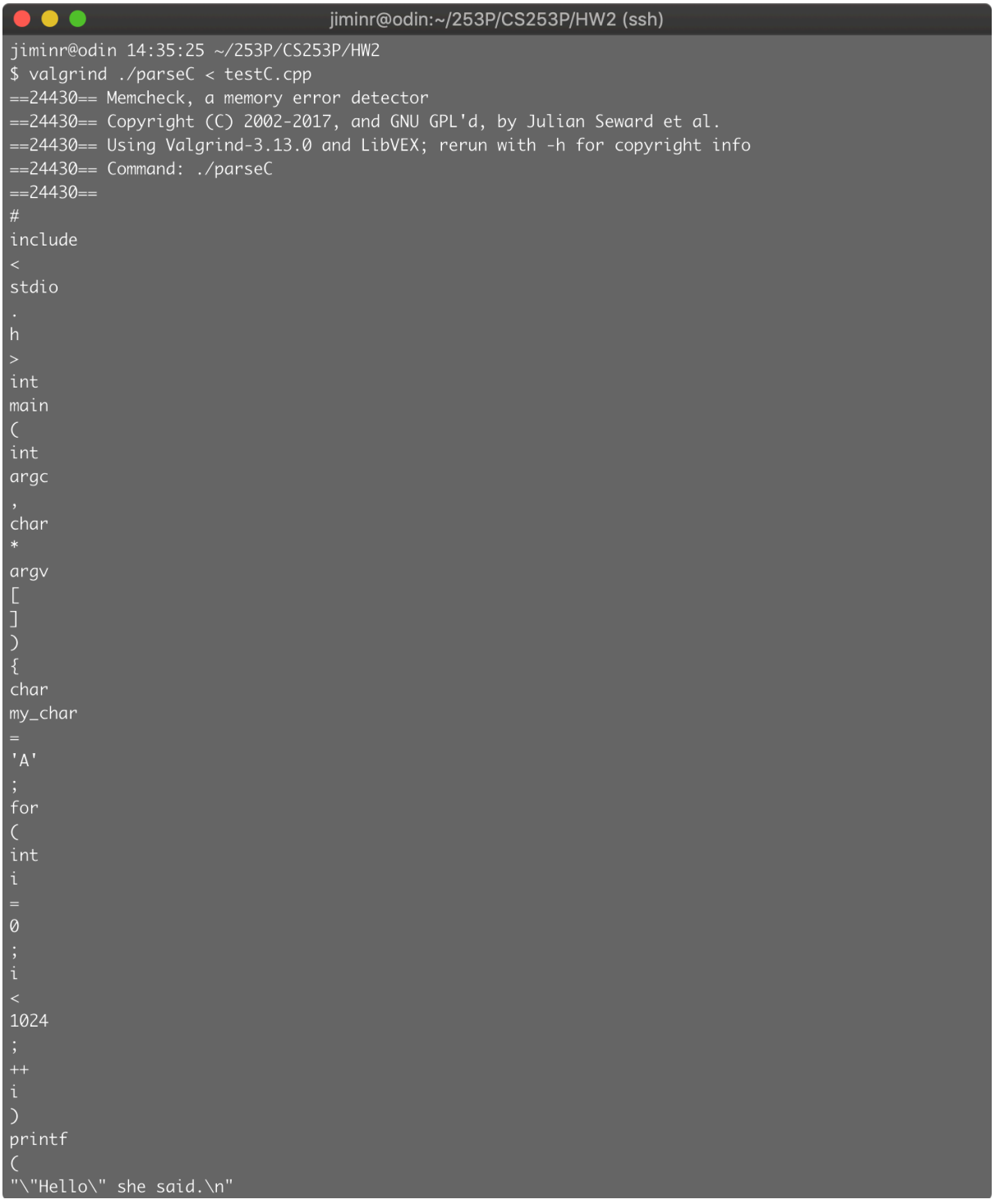
Problem 2

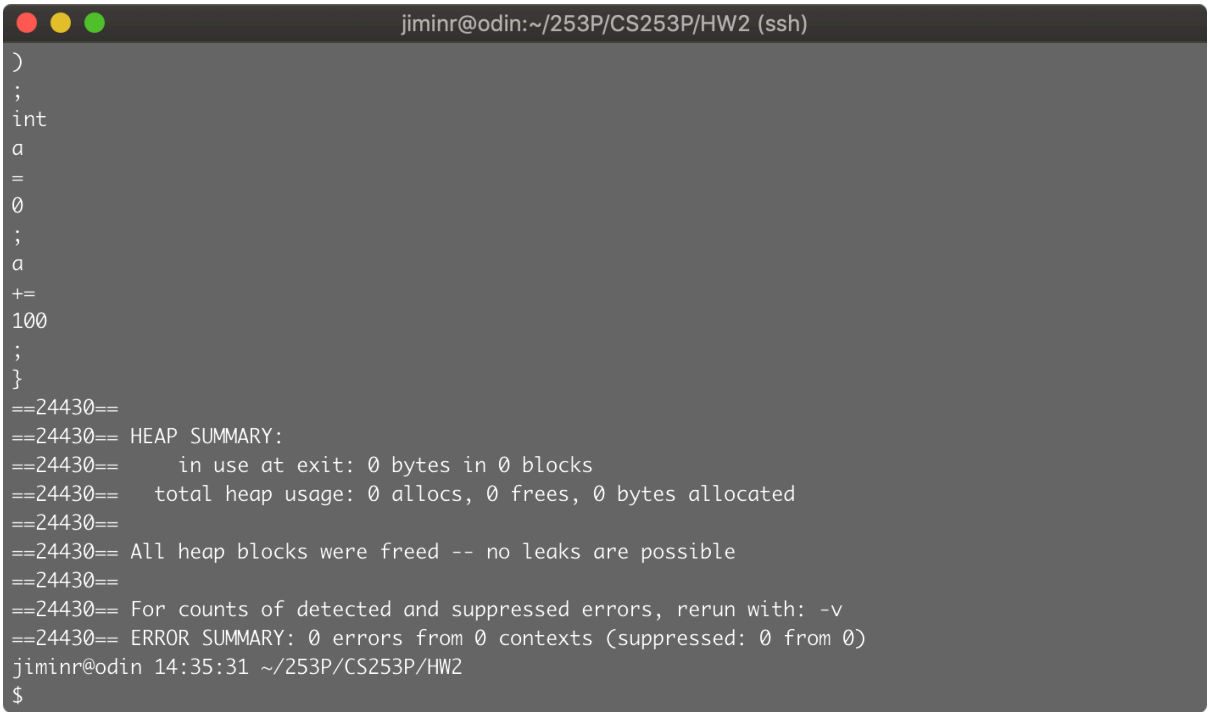
Test case

```c
#include <stdio.h>
int main(int argc, char *argv[])   /* here is a comment */
{
        char my_char = 'A';
        for (int i=0; i<1024; ++i)
        printf("\"Hello\" she said.\n");
}
```

Build run and Valgrind check

```
jiminr@odin:~/253P/CS253P/HW2 (ssh)
$ valgrind ./c_string
==24481== Memcheck, a memory error detector
==24481== Copyright (C) 2002-2017, and GNU GPL'd, by Julian Seward et al.
==24481== Using Valgrind-3.13.0 and LibVEX; rerun with -h for copyright info
==24481== Command: ./c_string
==24481==
==24481==
==24481== HEAP SUMMARY:
==24481==     in use at exit: 0 bytes in 0 blocks
==24481==   total heap usage: 0 allocs, 0 frees, 0 bytes allocated
==24481==
==24481== All heap blocks were freed -- no leaks are possible
==24481==
==24481== For counts of detected and suppressed errors, rerun with: -v
==24481== ERROR SUMMARY: 0 errors from 0 contexts (suppressed: 0 from 0)
jiminr@odin 14:36:24 ~/253P/CS253P/HW2
$
```


jiminr@odin:~/253P/CS253P/HW2 (ssh)
jiminr@odin 14:35:25 ~/253P/CS253P/HW2
$ valgrind ./parseC < testC.cpp
==24430== Memcheck, a memory error detector
==24430== Copyright (C) 2002-2017, and GNU GPL'd, by Julian Seward et al.
==24430== Using Valgrind-3.13.0 and LibVEX; rerun with -h for copyright info
==24430== Command: ./parseC
==24430==
#
include
<
stdio
.
h
>
int
main
(
int
argc
,
char
*
argv
[
]
)
{
char
my_char
=
'A'
;
for
(
int
i
=
0
;
i
<
1024
;
++
i
)
printf
(
"\"Hello\" she said.\n"


jiminr@odin:~/253P/CS253P/HW2 (ssh)
)
;
int
a
=
0
;
a
+=
100
;
}
==24430==
==24430== HEAP SUMMARY:
==24430==   in use at exit: 0 bytes in 0 blocks
==24430==   total heap usage: 0 allocs, 0 frees, 0 bytes allocated
==24430==
==24430== All heap blocks were freed -- no leaks are possible
==24430==
==24430== For counts of detected and suppressed errors, rerun with: -v
==24430== ERROR SUMMARY: 0 errors from 0 contexts (suppressed: 0 from 0)
jiminr@odin 14:35:31 ~/253P/CS253P/HW2
$