IERG 2080 asg2

Problem 1

(a)

Scp the files:

```
(base) mac@Leos-Macbook asm2 % scp ./asg2q1.c ym022@gateway.ie.cuhk.edu.hk:~
ym022@gateway.ie.cuhk.edu.hk's password:
/etc/profile.d/lang.sh: line 19: warning: setlocale: LC_CTYPE: cannot change locale (UTF-8): No such file or directory
asg2q1.c                                                                      100%   94    12.2KB/s   00:0
```

Home directory:

```
[ym022@lx1 ~]$ ls
_asm  _lab  _lecTry  _tut  asg2q1.c  lx1  lx3  mail
```

Compile:

```
[ym022@lx1 asm2]$ gcc asg2q1.c -o asg2q1 -O3 -std=gnu11
asg2q1.c: In function 'main':
asg2q1.c:5:1: error: stray '\303' in program
 ã€€ã€€printf("Hello World!\n");
 ^
asg2q1.c:5:1: error: stray '\243' in program
asg2q1.c:5:1: error: stray '\342' in program
asg2q1.c:5:1: error: stray '\202' in program
asg2q1.c:5:1: error: stray '\254' in program
asg2q1.c:5:1: error: stray '\342' in program
asg2q1.c:5:1: error: stray '\202' in program
asg2q1.c:5:1: error: stray '\254' in program
asg2q1.c:5:1: error: stray '\303' in program
asg2q1.c:5:1: error: stray '\243' in program
asg2q1.c:5:1: error: stray '\342' in program
asg2q1.c:5:1: error: stray '\202' in program
asg2q1.c:5:1: error: stray '\254' in program
asg2q1.c:5:1: error: stray '\342' in program
asg2q1.c:5:1: error: stray '\202' in program
asg2q1.c:5:1: error: stray '\254' in program
```

(b)

From the prompt ":5:1" we know that the problem is at line 5.

(c)

$(303)_8 = (c3)_{16}$
$(234)_8 = (a3)_{16}$
…
$(342)_8 = (e2)_{16}$
$(202)_8 = (82)_{16}$
$(254)_8 = (ac)_{16}$

So the problematic part is as highlighted:

```
[ym022@lx1 asm2]$ xxd asg2q1.c
0000000: 2369 6e63 6c75 6465 203c 7374 6469 6f2e  #include <stdio.
0000010: 683e 0a0a 696e 7420 6d61 696e 2876 6f69  h>..int main(voi
0000020: 6429 0a7b 0ac3 a3e2 82ac e282 acc3 a3e2  d).{............
0000030: 82ac e282 ac70 7269 6e74 6628 2248 656c  .....printf("Hel
0000040: 6c6f 2057 6f72 6c64 215c 6e22 293b 0a20  lo World!\n");.
0000050: 2020 2072 6574 7572 6e20 303b 0a7d          return 0;.}
```

(d)

$(20)_{16} = (32)_{10}$

The 32nd char in ASCII table is space (‘ ‘), so it is a space.

(e)

by changing the highlighted part in (c) to space gives the following xxd:

```
[ym022@lx1 asm2]$ xxd asg2q1.c
0000000: 2369 6e63 6c75 6465 203c 7374 6469 6f2e  #include <stdio.
0000010: 683e 0a0a 696e 7420 6d61 696e 2876 6f69  h>..int main(voi
0000020: 6429 0a7b 0a20 2020 2070 7269 6e74 6628  d).{.    printf(
0000030: 2248 656c 6c6f 2057 6f72 6c64 215c 6e22  "Hello World!\n"
0000040: 293b 0a20 2020 2072 6574 7572 6e20 303b  );.    return 0;
0000050: 0a7d 0a                                  .}.
```

(f)

No we can’t.

The scp command is used to initiate the file transfer, so it needs to be executed on the computer where the file is located.

Problem 2

(a)

SIGFPE

(b)

7

(c)

x = 2, y = 0

problem 3

(a)

Log in to newuser:

```
leosunix@Leo:~/CUHK/IERG2080/asm2$ sudo su newuser
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

newuser@Leo:/home/leosunix/CUHK/IERG2080/asm2$ ^C
```

```
newuser@Leo:/home/leosunix/CUHK/IERG2080/asm2$ whoami
newuser
```

(b)

```
newuser@Leo:~$ touch a.txt
newuser@Leo:~$ echo "Hello" > a.txt
newuser@Leo:~$ cat a.txt
Hello
```

(c)

```
newuser@Leo:~$ chgrp sudo a.txt
newuser@Leo:~$ ls
a.txt
newuser@Leo:~$ ls -l
total 4
-rw-rw-r-- 1 newuser sudo 6 Mar 29 10:00 a.txt
newuser@Leo:~$ chmod 240 a.txt
newuser@Leo:~$ ls -l
total 4
--w-r----- 1 newuser sudo 6 Mar 29 10:00 a.txt
```

(d)

i) read: root, original user
ii) write: root, new user
iii) execute: none