

ICS Homework 4

March 9, 2023

1 System Software

1.1 Signal handler

Jack wrote the following code about a user-defined signal handler on a x86-64 Linux machine. Read this C program and answer the questions below.

```
1  #include <signal.h>
2  #include <sys/types.h>
3  #include <stdio.h>
4  #include <unistd.h>
5
6  void handler(int sig)
7  {
8      printf("hello\n");
9  }
10
11 int main(void)
12 {
13     signal(SIGINT, handler);
14     kill(getpid(), SIGINT);
15     while(1);
16     return 0;
17 }
```

1. Does the function 'handler' run in user mode or kernel mode?
2. What's the output of this program? When we type a 'ctrl-c', what will happen? How to use *kill* command to stop this program?
3. When we run this program in gdb, can we see the same result as Q2? If not, explain why and show how to fix it to get the same result in gdb as Q2.