



Problem Set:	Assignment 01	Semester:	Spring 2022
Points:	10		
Date Set:	February 17, 2022	Due Date:	February 20, 2022 / 8am
Course:	CS2006 Operating Systems	Instructor:	Nauman

1. Write an assembly program with the following code and name it `hello.asm`:

```
1  section .data
2  hello:      db 'Hello world!',10      ; 'Hello world!' plus a linefeed character
3  helloLen:   equ $-hello              ; Length of the 'Hello world!' string
4
5  section .text
6  global _start
7
8  _start:
9  mov eax,4      ; The system call for write (sys_write)
10 mov ebx,1      ; File descriptor 1 - standard output
11 mov ecx,hello   ; Put the offset of hello in ecx
12 mov edx,helloLen ; helloLen is a constant
13 int 80h        ; ??
14
15 mov eax,1
16 mov ebx,0
17 int 80h
```

2. Compile the program using the command:

```
nasm -f elf64 hello.asm
```

If you are on a 32-bit machine, issue this command instead:

```
nasm -f elf hello.asm
```

Note: If you don't have nasm installed, you can issue the following command to install it.

```
apt install nasm
```

3. Link the object file using the following command:

```
ld -s -o hello hello.o
```

4. Run the new executable:

```
./hello
```

5. Explain the line marked with ?? in the assembly code above.

1 Submission

Follow these requirements closely. Otherwise, you may not get any credit for your submission:

1. Submit a *single* PDF file with screenshots of all the steps performed. Any other format will be rejected.
2. Make sure your screenshots are visible. Low quality or illegible text will not be graded.
3. Your PDF file must be named [YOUR-NU-ID] .pdf