CS 264 Systems **Spring 2020**
http://neilklingensmith.com/teaching/loyola/cs264-s2020

Homework 1

Due: January 29, 2020

Name:

1. (20 points) Write a function called `memset` in emu8086 that sets a block of bytes in memory to a specified value. Inputs to the function are:

SI	Starting address in memory to set
AX	Number of bytes to set
BL	Value to set

For example, suppose we call `memset` with SI = 0x7E10, AX = 0x10, BL = 0xFE

Before calling `memset`

```
7E00  00  00  00  00  00  00  00  00  00  00  00  00  00  00  00  00
7E10  00  00  00  00  00  00  00  00  00  00  00  00  00  00  00  00
7E20  00  00  00  00  00  00  00  00  00  00  00  00  00  00  00  00
```

After calling `memset`

```
7E00  00  00  00  00  00  00  00  00  00  00  00  00  00  00  00  00
7E10  FE  FE  FE  FE  FE  FE  FE  FE  FE  FE  FE  FE  FE  FE  FE  FE
7E20  00  00  00  00  00  00  00  00  00  00  00  00  00  00  00  00
```

2. (20 points) Write a function called `strcpy` in emu8086 that copies a NULL-terminated string from one place in memory to another.

SI	Address of the source to copy from
DI	Address of the destination to copy to

3. (20 points) Write a function called `hex2int` that converts a NULL-terminated string into a two-byte hex integer. The SI register will hold the starting address of the string in memory. For example, an input to the `hex2int` may be the string "12FA" located at address 0x7E10 in memory:

```
7E00  00  00  00  00  00  00  00  00  00  00  00  00  00  00  00  00  00
7E10  31  32  46  41  00  00  00  00  00  00  00  00  00  00  00  00  00
7E20  00  00  00  00  00  00  00  00  00  00  00  00  00  00  00  00  00
```

Your function should load the AX register with the binary value 0x12FA. This is basically the opposite of the `int2hex` function that we discussed in class.

4. (20 points) Write a function called `int2hex` that converts a 2-byte integer into a four-byte NULL-terminated string represented in ASCII.