**Pointers Lab in C**

This lab involves playing with a number of C programs to solve some problems involving pointers. The exercises here should help make sure you understand all about pointers. (get help if you are stuck!).

**Exercise 1**

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Write a short C program that declares and initializes (to any value you like) a double, an int, and a char variables. Next declare and initialize a pointer to each of the three variables. Your program should then print the address of, and value stored in, and the memory size (in bytes) of each of the six variables.

Use the “0x%x” formatting specifier to print addresses of variables in hexadecimal. You should see addresses that look something like this: "0xbfe55918". The initial characters "0x" tell you that hexadecimal notation is being used; the remainder of the digits give the address itself.

Use the sizeof() operator to determine the memory size allocated for each variable.

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**Exercise 2**

swap\_nums seems to work, but not swap\_pointers. Fix it. Modifications MUST be only in call, declaration and/or definition of swap\_pointers function.

#include <stdio.h>

void swap\_nums(int \*x, int \*y)

{

int tmp;

tmp = \*x;

\*x = \*y;

\*y = tmp;

}

void swap\_pointers(char \*x, char \*y)

{

char \*tmp;

tmp = x;

x = y;

y = tmp;

}

int main()

{

int a,b;

char \*s1,\*s2;

a = 3; b=4;

swap\_nums(&a,&b);

printf("a is %d\n", a);

printf("b is %d\n", b);

s1 = "I should print second";

s2 = "I should print first";

swap\_pointers(s1,s2);

printf("s1 is %s\n", s1);

printf("s2 is %s\n", s2);

return 0;

}

**Submit two .c files on BB.**