CSCD 240

1) Type in, compile and execute the following code (name your program cscd240_lab5.c):

```
#include <stdio.h>
int main()
{
        int arr[] = { 20, 40, 60, 80, 100, 120, 140, 160, 180, 200};
        int *aptr = arr;

        /* This gives us an idea of the memory map */
        printf("arr %p\n", arr);
        printf("aptr %p\n", aptr);

        printf("arr[1] %p\n", &arr[1]);
        printf("arr[9] %p\n", &arr[9]);
        printf("&aptr %p\n", &aptr);
        /* end memory map */
        return 0;
}
```

   a) Obtain the base address of the array (as reported by the system)
   b) Save the base address in a text file named firstrun.txt
   c) Draw a memory map that shows the memory locations of each element of the array and of aptr.

2) Create a text file named myguess.txt that clearly outlines what you believe will happen based on the following code. Use the base address from #1 as the base address of the array. In your explanation clearly explain what is happening, don't just give memory addresses or values.

```
int arr[] = { 2, 4, 6, 8, 10, 12, 14, 16, 18, 20};
int *aptr = arr;

/* This gives us an idea of the memory map */
printf("arr %p\n", arr);
printf("aptr %p\n", aptr);

printf("arr[1] %p\n", &arr[1]);
printf("arr[2] %p\n", &arr[2]);
printf("&aptr %p\n", &aptr);
/* end memory map */

++aptr;
printf("*aptr %i\n", *aptr);
printf("aptr %p\n", aptr);

// Command being executed is *++aptr
printf("*++aptr %i\n", *++aptr);
printf("aptr %p\n", aptr);

// Command being executed is *aptr++
printf("*aptr++ %i\n", *aptr++);
printf("aptr %p\n", aptr);

*aptr += 1;
printf("*aptr %i\n", *aptr);
printf("aptr %p\n", aptr);

// Command being executed is *(aptr+1)
printf("*(aptr+1) %i\n", *(aptr+1));

*(arr+2) = *aptr+100;
printf("*(arr+2) %i\n", *(arr+2));

aptr = arr + 5;
```

```
printf("*aptr %i\n", *aptr);
printf("aptr %p\n", aptr);

*(arr+2) =*aptr +5;
printf("*arr[2] %i\n", arr[2]);

aptr = (arr + 10);
printf("aptr %p\n", aptr);
printf("*aptr %i\n", *aptr);

*aptr + 4 = *arr+2;
```

3) Edit the C file
   a) Add the code from problem #2 to your C file
   b) Compile and execute your C file - capture the output
   c) Create a new text file named results.txt. This text file will contain your guess and your results. You will denote any areas that were incorrect and why the guess was incorrect. Essentially tell me what really happened and prove that you have an understanding. There are some tricky ones here so I don't expect perfects.

TO TURN IN:

A zip file containing:

- All text files,
- Your C file

Your zip will be named your last name, first letter of your first name lab5.zip (Example: steinerslab5.zip)