CS372 Assignment #1: Bad Pointers. Bad, Bad Pointers

This assignment has 3 problems, for a total of 100 points.

Submission Instructions
To submit, please push your updated code to your class
repository on Github. Create a new branch named
"Asssignment01" in your repository. Submit on Blackboard by
by placing a comment in the assignment's submission text noting
the name of the branch.
Points will be deducted if you do not follow these instructions.

1. (30 points) Write a program in C++ that illustrates pointer coding anti-patterns. Do this by writing a function for each of the following cases and then call those functions from your main program.

   Allocate a large array of integers in the heap, storing a pointer to that data. Initialize a second pointer to the same location in memory. Then, do an array delete of the first pointer. Print the first ten integers pointed to by the second pointer.

2. (30 points) In a similar case to the first use case, add code to your program that again allocates a large array of integers in the heap and set two pointers to the location of that array. Do an regular delete on the first pointer. Print the address of the second pointer and the first ten elements of the array that pointer is referencing.

3. (40 points) This will require a second helper function: Write a function that defines a pointer to a C++ string object and then uses new to create a new string on the stack. In the return for the function, use the de-reference operator (*) to return the string just allocated on the heap. In the calling function, define a string object, set to be whatever is returned from the helper function and then print the string.