

Computer Science 1510 Assignment #7

- This assignment requires electronic submission of your source code files. Follow the directions under “Submission Details for All Assignments” on the “Links” tab on the course webpage to submit your assignment.
 - It is not necessary to submit hard (printed) copies of your assignment.
 - Be sure to include sufficient comments in your code, and labels in your output.
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1. Write a C program which contains the following function:

```
void array_insert(int * src, int n, int * dest, int dn);
```

This function should take as input two integer array pointers, src and dest, as well as two integers n and dn. This function will copy the first n elements of the src array into the dest array, starting at index dn.

For example if we have:

```
int src[4] = {1, 2, 3, 4};  
int dest[8] = {10, 20, 30, 40, 50, 60, 70, 80};  
array_insert(src, 3, dest, 2);
```

The result will be that dest now has values {10, 20, 1, 2, 3, 60, 70, 80}, since we copied the first 3 elements of src into dest, starting at index 2. Also write a main function so that you can test your code with sample arrays, and show that the program works properly by coding an example such as the one above.

2. Write a C program that accepts an integer N from the command line (using the C main function's argv[] input) and prints out the first N perfect squares. A perfect square is a number that is the square of an integer. 25 is a perfect square since it is equal to 5*5. Remember that the input from argv[] is a string, so you will need to convert it to an integer using sscanf()

3. Write a C program that contains the following function:

```
int find_substring(char * str, char * substr);
```

This function accepts a character array (string) called str, and a second string called substr. This function should find and return the starting index of the first occurrence of substr within str. For example, if str = "HelloWorld!" and substr = "World", then the function should return 5, the index of the first character of substr within str. This function should return -1 if the substring is not found. Also, include a main function with example strings to show that your program works properly.

Note that this function does not take in lengths of strings as an argument, so you will have to determine the end of a string by detecting the null character '\0'