Name:			

CS 161 Week 6 Worksheet:

References and Pointers, Memory Model, and 1-D Arrays

References vs. Pointers:

 Explain these terms 	1.	Exp	lain	these	terms
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- Reference (noun) -
- Pointer (noun) -
- Dereference (verb) -

	2.	Answer the	following	auestions	conceptually,	. then	provide	code exam	ples
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- 1) How is a reference created? How is a pointer created?
- 2) When and how can they each be assigned values?

- 3) Can you create a reference to a reference? A pointer to a pointer?
- 4) How do you modify the value that a reference refers to? How do you modify the value that a pointer points to?

	Define these terms: a. Compile-time (static) memory – b. Runtime (dynamic) memory – c. Allocate – d. Deallocate –
2.	Compare and contrast the stack and the heap. a. What they do? b. Where are they positioned in computer memory?
	c. What happens if the stack gets too large?
	d. What happens if the heap gets too large?
	e. Can variables on the stack or the heap both be deleted?
3.	What is a memory leak, and how do you prevent them?
4.	How do you create 1-D arrays on the stack? On the heap?
1-D A ı 5.	rrays Write a function called "get_array()" that takes in a size, then return an array of integers on the heap of that size. Consider what return type this function should have. Show how you would

call it from main().

6.	Why wouldn't it work to instead allocate the array on the stack in the function above?
	Looking at the function we made in question 5, could we have made this function a void function? What are your two options in C++? Write both functions and function calls.
	strings vs. C++ strings What are the differences between a C++ and C-style string?
0.	what are the differences between a C++ and C-style string:
	How does the declaration for a function differ when using these two types of strings? How does the declaration for a C++ or C-style string <u>argument</u> change if you want to modify the contents of the string in the function?
10.	How do you make an array of C++ strings? How would you make an array of C-style strings?