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CSCI 411

1. In which memory segments are the variable in the following code located?

int i =0;

void funcc(char(str)

{

Char \*ptr = new int;

Char buf[1024];

}

int I is in the data section because it is a global variable and ptr, buf, and str(the parameter) are on the stack because they are in the main ‘function’. What the ptr is pointing to is in the heap.

1. Define explain the following counter measures to the buffer overflow attack and why it makes buffer-overflow attack more difficult
   1. Address Randomization – This makes the attacks more difficult by randomizing the location where the system executables are loaded into memory.
   2. StackGuard- this is a method that modifies the compiler in order to remove the possibility of buffer overflow when the program is compiled with the modified compiler.
   3. Non executable stack- this makes the portion of a users processs virtual address space non-executable so the attack code being injected onto the stack cannot be executed.