Fr2md
CS 2150 In-lab 4 worksheet

What is your name? Farid Rajabi Nia
What is your quest? No Quest
What is your favorite color? Dark

Size of C++ data types

C++ Type	Size in bytes?	Max value? (base 10)	Zero is stored as (in hex)?	One (or 1.0) is stored as (in hex)?
int	4	32,767	0x0	0x1
unsigned int	4	4,294,967,295	0x0	0x1
float	4	3.4E+38	0x0	`0x3f800000`
double	8	1.7E+308	0x0	`0x3ff0000000000000`
char	1	255	Char'0'= `0x30`	Char '1'= `0x31`
bool	1	255	false = 0x00	true = 0x01
C++ Type	Size in bytes?	Max value? (base 16 (hexadecimal))	NULL is stored as?	
int*	8	2^64	0x00	
char*	8	2^64	0x00	
double*	8	2^64	0x00	

Primitive Arrays in C++

How does the compiler determine the address of **`&(IntArray2D[i][j])`**? Assume the array is defined as: **`int IntArray2D[6][5];`**

There is no 2D array in the memory and everything is stored in a one dimension array. The compiler gets the address of the first element (IntArray2D[0][0]) in the array and then gets the rest of the array elements consequently. Since it's a int array every element of the array is 4 bytes apart. To find the first element of the second row, the complier multiplies the number of columns to the size of the array elements (int, so 4bytes). Then

it adds another 4 bytes to get to the memory address of the first element in the second row, (1*5+1) * 4. It does the same for the remaining rows. The first element of the third row is (2*5+1) * 4.
So, the general formula to get the first element of each row
((the requested row-1) * (Number of Columns) + 1) * size of each element.
then the remaining columns are going to be find by adding 4 bytes to the first element.