

CS261 Machine Organization
(Prof. Theys)
Lab Week 6

Name:

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Please answer the following questions about two arrays “myArray” and “cube” declared in the provided C code. (100 Points)

myArray - 1d array of type short

1) What is the starting address of myArray (address of element myArray[0])? (5 points)

2) What is the address of myArray[1]? (5 points)

3) What is the address of myArray[9]? (5 points)

4) What values (in hex) can the least significant nibble of the **address** for myArray[i] be? (10 points)

5) What is the equation to find the address of element `myArray[i]`? (10 points)

cube - 3d array of type short

6) What is the starting address of `cube` (address of element `cube[0][0][0]`)? (5 points)

7) What is the starting address of the second **row** of `cube` (address of element `cube[0][1][0]`)? (5 points)

8) How many bytes are there in a row of `cube`? (10 points)

9) What is the starting address of the second **plane** of `cube` (address of element `cube[1][0][0]`); (5 points)

10) How many bytes are in a plane of cube? (10 points)

11) What is the equation required to determine the address of `cube[i][j][k]`? Your answer should use `i,j,k` in the equation and information from questions 6-10. (20 points)

12) If the 3d array `cube`, is changed to be a struct of size 32 bytes instead of short, how would your equation in 11 change? (10 points)