

# Homework 10, ISTA-220

## Chapter 10, C# Step by Step

### 1 Homework

#### 1.1 Readings

Read chapter 10 in the *C# Step by Step* book.

#### 1.2 Discussion Questions

Answer the discussion questions in writing.

1. What does an array look like in memory?
2. Where is memory allocated to hold an array, on the stack or on the heap?
3. Where is memory allocated to hold an array reference, on the stack or on the heap?
4. Can an array hold values of different types? This is a trick question, the answer is, “It depends.” What determines the types that an array can hold?
5. Describe the syntax of the condition for a *foreach* loop.
6. How do you make a deep copy of a array?
7. What is the difference in the syntax between a multi-dimensional array and an array of arrays?
8. What is the difference in the uses for a multi-dimensional array and an array of arrays? In other words, what determines whether you would use one as opposed to the other?
9. How do you “flatten” a multidimensional array? In other words, take something that looks like a matrix  $\begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix}$  and turn it into an array `[1, 2, 3, 4, 5, 6, 7, 8, 9]`? Write the code to do this in English.
10. (Thought question) When we use a `for` loop, we can change the values of the array elements inside the loop. When we use a `foreach` loop, we cannot change the values of the array elements inside the loop. Why not? How is `for` different from `foreach`?