



Your Name: Devin More
ID#: 011 044 739

TA's Name: Muthuu Svs
Section #: 9

Take-Home Quiz 7 (15 pts) - Arrays and Strings

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1. (5 pts) Write a fragment of C code that declares a two-dimensional array of integers called `matrix`. The array should consist of 10 rows and 5 columns. The fragment should then iterate through each row and column and set the *element* to the *difference* of the row index and column index of that element, i.e. row index - column index.

```
int matrix[10][5] = { 0 };
for (int i = 0; i < 10; i++) // Row Loop
{
    for (int j = 0; j < 5; j++) // Column Loop
    {
        matrix[i][j] = i - j;
    }
}
```

2. (7 pts) Write a function called `find_min()`, which accepts as parameters: a two-dimensional array of integers, the number of rows, and the number of columns in the array. The function searches the entire array for the smallest value and returns it.

```
int find_min(int array[10][5], int rowCount, int columnCount)
{
    int currentMin = array[0][0], newMin = 0;
    for (int i = 0; i < rowCount; i++)
    {
        for (int j = 0; j < columnCount; j++)
        {
            newMin = array[i][j];
            if (newMin < currentMin) { currentMin = newMin; }
        }
    }
    return currentMin;
}
```

3. (3 pts) What is a C string? Explain.

A String is an array of characters that ends with the special character '\0'.