

CSE 142 Section Handout #2

Challenge Sheet

You are not expected or required to solve these problems. These problems are designed for students who want a fun, extra challenge to test their skills on harder programming problems. Have fun!

1. One of the tools we use to memorize basic multiplication results is a multiplication table. Write a static method named `multTable` that produces the following output using `for` loops for structure to create a multiplication table for the numbers 1, 2, and 3.

```
|_____| |_____| |_____|
|  1  | |  2  | |  3  |
|_____| |_____| |_____|

|_____| |_____| |_____|
|  2  | |  4  | |  6  |
|_____| |_____| |_____|

|_____| |_____| |_____|
|  3  | |  6  | |  9  |
|_____| |_____| |_____|
```

2. Modify your `multTable` method from the previous exercise so that it labels the rows and columns with the numbers being multiplied. Your modified method should produce the following output:

```
x | 1 | | 2 | | 3 |
---
1 | 1 | | 2 | | 3 |
  |_____| |_____| |_____|
---
2 | 2 | | 4 | | 6 |
  |_____| |_____| |_____|
---
3 | 3 | | 6 | | 9 |
  |_____| |_____| |_____|
```

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Solutions

1.

```
public static void multTable() {
    for (int i = 1; i <= 3; i++) {
        for (int j = 1; j <= 3; j++) {
            System.out.print(" _____ ");
        }
        System.out.println();
        for (int j = 1; j <= 3; j++) {
            System.out.print("|         |");
        }
        System.out.println();
        for (int j = 1; j <= 3; j++) {
            System.out.print("|   " + (i*j) + "   |");
        }
        System.out.println();
        for (int j = 1; j <= 3; j++) {
            System.out.print("|_____|");
        }
        System.out.println();
    }
}
```

2.

```
public static void multTable() {
    System.out.print(" x ");
    for (int i = 1; i <= 3; i++) {
        System.out.print("|   " + i + "   |");
    }
    System.out.println();
    for (int i = 1; i <= 3; i++) {
        System.out.print("----");
        for (int j = 1; j <= 3; j++) {
            System.out.print(" _____ ");
        }
        System.out.println();
        System.out.print("   ");
        for (int j = 1; j <= 3; j++) {
            System.out.print("|         |");
        }
        System.out.println();
        System.out.print(" " + i + " ");
        for (int j = 1; j <= 3; j++) {
            System.out.print("|   " + (i*j) + "   |");
        }
        System.out.println();
        System.out.print("   ");
        for (int j = 1; j <= 3; j++) {
            System.out.print("|_____|");
        }
        System.out.println();
    }
}
```