# CS 1331 Homework 2

**Due Thursday, January 24th, 2013 8:00pm**

## Introduction

This week the homework is designed to give you practice with user input and String formatting. You will be making two command line based programs that take in user input, perform simple calculations, and output results.

## 2.1 RoadTripStopCalculator.java

The first program you will be making is a program to calculate the number of stops a person must make on a road trip. The number of stops is solely determined by when you need to refill the car with gas – we will not take into account the needs of the people on the trip. You also assume that you start off with a full tank of gas, you only need to fill up when the car is 100% out of gas, and every time you get gas, you completely fill the tank.

Your program should prompt the user for the distance for the road trip rounded to the nearest whole number, the tank size of the car, and the mpg (miles per gallon) rating of the car.

Here is an example of what your program could look like when run:

```
How many miles (to the nearest whole number) is your trip?
615
How many gallons of gas does your tank hold?
12.1
What is the mpg rating of your car?
24.5
You will have to make 2 stops during your trip
```

## 2.2 SalesTaxCalculator.java

The second program you will be making is a program to calculate the cost of sales tax on an item, and the total cost to purchase that item. Your program will prompt the user for the sales tax percentage and the cost of the item, and will output the tax on the item, and the total cost of the purchase.

Your program must output the price in the correct currency, determined by the settings on the user's computer (hint: think NumberFormat).

Here is an example:

```
Enter the tax percentage (for example, if tax is 6.5%, enter 6.5)
7.2
Enter the cost of the item
50
The tax on your item is: $3.60
The total cost of your purchase is $53.60
```

# 2.3 StringFun.java

The third program that you will be making is one that will manipulate user input in specific ways and print out the result of the manipulations.

You program should prompt the user for an initial string. It should then split the string in half, change the first half to all capital letters, and change the second half to all lowercase letters. It should then put the string back together in reverse order (the last half, then the first half) and print the result out to the user.

It should then take in another string. In this new string, it should locate the first instance of a lowercase a. It should then replace all lowercase a's with uppercase A's, and replace all e's with the number 3. Then print out the result to the user.

You finished program should do something like this:

```
Please input a string of text
What am I doing this for?
ing this for?WHAT AM I DO

Please input another string of text
To teach you how to read the java API and learn how to do cool things with it :]
The first 'a' is located at index 5
To t3Ach you how to r3Ad th3 jAvA API And l3Arn how to do cool things with it :]
```

# Turn-in Procedure

Turn in the following files to T-Square. When you are ready, make sure that you have actually **submitted** your files, and not just saved them as a draft.

- RoadTripStopCalculator.java
- SalesTaxCalculator.java
- StringFun.java

Note** Always submit .java files - never submit your .class files. And be 100% certain that the files you turn in compile and run - submissions that do not will receive an automatic 0. Also, make sure that your files are in on time; the real deadline is 8 pm. While you have until 2 am to get it turned in, we will not accept homework past 2 am for any reason. Don't wait until the last minute!

# Verify the Success of Your HW Turn-in

Practice "safe submission"! Verify that your HW files were truly submitted correctly, the upload was successful, and that the files compile and run. It is solely your responsibility to turn in your homework and practice this safe submission safeguard.

1. After uploading the files to T-Square you should receive an email from T-Square listing the names of the files that were uploaded and received. If you do not get the confirmation email almost immediately, something is wrong with your HW submission and/or your email. Even receiving the email does not guarantee that you turned in exactly what you intended.
2. After submitting the files to T-Square, return to the Assignment menu option and this homework. It should show the submitted files.
3. Download copies of your submitted files from the T-Square Assignment page placing them in a new folder.
4. Recompile and test those exact files.
5. This helps guard against a few things.
   a. It helps insure that you turn in the correct files.
   b. It helps you realize if you omit a file or files. (If you do discover that you omitted a file, submit all of your files again, not just the missing one.)
   c. Helps find last minute causes of files not compiling and/or running.