**Design Document for Distance Calculator (Week 9 - Assignment #1)**

**Overview**

To estimate mileage, this application prompts the user to input a number for the miles per hour a vehicle is traveling, as well as how many hours the trip will be. On clicking the “Calculate!” button at the bottom of the output text box, the program will use variable processing and a while() loop to determine the mileage of a trip.

**Components and Processing**

The program uses variable processing and conversion of strings to integers from the text box controls.

Every time the user clicks on the “Calculate!” button, 7 things happen in sequence. First, the program clears any text that is from a previous input and reads the textboxes for new data, converting it from a string to an integer variable, named *speed* and *time*. Then, the program will initialize a *counter* integer variable to one. The program also establishes the proper variable to calculate *distance* from the *speed and time* variables.

The next line creates a while loop that counts how high the counter variable is, and if it is equal or less than the time input by the user. Line 47 creates a new variable to use as the desired output string, labelled *output* for simplicity. The program then appends the text and increments the *counter* variable up by one using post-fix increment tags (++)

**Input and Output**

The user is expected to input two positive, real numbers into the textboxes.

Once the data is processed as explained above, and formatted with string formatting, the text is appended to the empty textbox data and is presented in new lines per counter increment (if there is 5 hours, there will be 5 lines of output data).

**Testing**

Some errors presented on testing:

* The application will return an error if the user does not input a value into either of the textboxes
* The program may crash if the numbers entered either of the textboxes is too large, returning a data overflow error if it happens