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CS 362

Random Testing Quiz

Looking at the testme() function in testme.c, I saw that inputChar() needed to generate random characters to reach different branches of the code (labeled state 1 – 9), and inputString() needed to generate the string "reset" to cause a termination of the program.

For the inputChar() function, I saw that the range of characters needed to include ascii values from ' ' (space, ascii value 32) to '}' (ascii value 125). To generate a random character within this range of ascii values during every iteration of the test, I used the seeded random number generator already provided in the testme.c file, and used the formula:

randomValue = rand() % (upper – lower + 1) + lower

This formula would generate a value within the bounds specified by lower and upper. In the case with the inputChar() function, it would generate a character with an ascii value between ' ' and '}' during every iteration the test was run. After enough iterations, the testme() function would eventually move to stage 9, which is the necessary stage to produce the exit error that terminated the program.

The last condition needed to exit the testing program was generating the word "reset" from the inputString() function. To randomly generate the word "reset", I used a similar approach taken with the inputChar() function, where I used the same formula to generate a random character and saw that the characters needed were bounded between 'e' and 't' ('e' = 101, 't' = 116). Then, I created an array of characters of size 6 to hold the randomly generated characters for the string to be returned. For the first 5 indices of the character array, the

function generated a random character between ‘e’ and ‘t’, and then changed the last index of the character array to ‘\0’, which is the character to signal the end of a string. This function outputs a random string with characters between ‘e’ and ‘t’ for every iteration of the test, and the testme() function would run infinitely until stage 9 was reached by the inputChar() function and “reset” was generated by the inputString() function.