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Github URL:

Random Testing Quiz

Development:

I understood that we were trying to develop a random test that would eventually cause the error message at the end of the while loop to execute. After examining the code, I realized that initially the program is looking for certain characters form the inputChar function to increase the state variable. Then when state is equal to 9, the loop is checking each element of the string from inputString to see if it is "reset" with a null terminator at the end.

After reviewing the code, I implanted the inputChar function. I knew the characters being tested ranged from ' ' (ASCII decimal value 32) to '}' (ASCII decimal value 125 so I used the rand() function to get a value that was between 32 and 125 and returned that. Even with 94 possible values, the test quickly incremented the state to equal 9 after finding each of the necessary characters.

Then I tacked the inputString function. I limited the string to a fixed length of 5 characters plus the null terminator at the end. At first I followed the same approach as above, and gave each element of the char array (string) a random value between 32 and 125. I quickly realized this was too many combinations and the test would take too long.   I then tried to restrict it more but eventually decided upon only using the characters in the target statement. I got a random value between 1 and 4 and used as switch statement to assign one of the 4 characters in the target statement to the element in the char array. This dramatically reduced the time for the test to finish and find the error, with it running anywhere from a few hundred to a few thousand times before finding the error.