Random Testing Quiz

For this Random Testing Quiz, I created two functions to get random characters and strings.

For random characters, I looked up all characters in ASCII chart, starting from ' ' to '~'. The range is 32(' ') to 126('~'). Next, I create a char, use ' ' to add a randomly value from 0~94. (32+94=126) Then I output the result. The output will be a random characters from ' ' to '~'.

For random strings, first, I tried to create a random length string by following code:

```
int i = 1+rand()% 5;
char *str = new char[i];
```

I can compile it by gcc it in command line, but I cannot compile it by Makefile. On the other hand, it will reduce a lot of chance on hitting state 9. Finally I made a string of length 5 by a static char. (It is assigned as length 6 to include /0)

For an easily way to get reset and exit, I created a char to hold random lowercase letters from e-t using random input from a-z and insert them to the 5 slots of string. Finally, output the string. My original code is:

But a whole run will be much longer than an easily walkthrough. Here is my "easier-exit" code for testing inputString:

```
char *inputString()
{
    char ch;
    static char str[6];
    for(int j = 0; j < 5; j++){
        int e = rand() % 4;
        if(e==1)          //random letter from   'r' 'e' 's' e' 't'
    ch = 'r';
        else if(e==2)
    ch = 'e';
        else if(e==3)
    ch = 's';
        else
    ch = 't';
        str[j] = ch;
    }
    return str;
}
```

Finally, create a makefile, including CFLAGS= -Wall -fpic -coverage -lm -std=c99 and cite it in gcc command(we can also do this by including -ftest-coverage -fprofile-arcs command) to create .gcno and .gcda file for coverage test, run make to compile and run testme, get results in testmeresult.out, and then run "make results" to get the code coverage in file "testmegcov.out".

The result like this:

```
 1    Function 'main'
 2    Lines executed:75.00% of 4
 3    No branches
 4    Calls executed:100.00% of 3
 5
 6    Function 'testme'
 7    Lines executed:100.00% of 22
 8    Branches executed:100.00% of 50
 9    Taken at least once:98.00% of 50
10    Calls executed:100.00% of 5
11
12    Function 'inputString'
13    Lines executed:100.00% of 12
14    Branches executed:100.00% of 8
15    Taken at least once:100.00% of 8
16    Calls executed:100.00% of 1
17
18    Function 'inputChar'
19    Lines executed:100.00% of 3
20    No branches
21    Calls executed:100.00% of 1
22
23    Function 'printf'
24    Lines executed:100.00% of 5
25    No branches
26    Calls executed:100.00% of 1
27
28    File 'testme.c'
29    Lines executed:97.56% of 41
30    Branches executed:100.00% of 58
31    Taken at least once:98.28% of 58
32    Calls executed:100.00% of 10
33    Creating 'testme.c.gcov'
34
35    File 'c:/mingw/include/stdio.h'
36    Lines executed:100.00% of 5
37    No branches
38    Calls executed:100.00% of 1
39    Creating 'stdio.h.gcov'
```