

## CS 12 - Lab 6

### Classes

Write a game that guesses a number that the computer generates. The number should fall between 1 and 100. The user should have the choice to keep guessing or to stop guessing and have the number displayed. If the user guesses the correct number, the number of guesses it took them should be displayed.

You should implement this game with a class. Only member functions of the class should have access to the answer and the number of guesses. You should separate your code for the classes into appropriate member functions. For example, you can make one function for each of the user's choices. You should also have a constructor that initializes the data members.

To get a random number you can use the random number generator function called *rand()*. You must include the standard library, *stdlib.h* in order to use this function. Thus the following will give you a random number:

```
int random_num;
random_num = rand();
```

However, this is only pseudo random. The same order of random numbers will always be given using this code. This is because this function has a *seed* value. Every seed value produces a separate ordering of random numbers. Using this code, a default *seed* value of 0 would always be used which would result in the same number being chosen each time the game is played. To fix this problem you need to supply your own seed value. However, we need the seed to be unique (different each time we run this program). One way that we can ensure this is to use a seed value based on the time, since you can never rerun a program at the same time. To set the seed value you can use the *srand()* function, giving it as a parameter the result of the function *time()*. You must include *time.h*. Thus the following code will generate a random number:

```
int random_number;
long int t;
srand(time(&t));
random_num = rand();
```

To make a number fall within a certain range you can use the mod (%) function.

You must use Unix, separate your program into separate files, and use a makefile.