

Program #3: Craps, Part 1

This assignment is designed to give you practice with program design, control structures, and using multiple files and supplied code.

The Project

In this assignment and the next, you will create an interactive program that plays *craps*. If you aren't familiar with the game, here are the basics. Craps is played by rolling a pair of dice and using the sum of the pair as the roll's value. If one die shows 4 and the other shows 5, you have rolled a 9. On the first roll, if the value is 7 or 11, you've rolled a *natural* and win. If you roll a 2, 3, or 12 on the first roll, you *crap out* or lose. If you roll anything else, you establish a *box point*. The object is to keep rolling until you roll the box point again. However, if you roll a 7 before your box point, you lose. If you reach the box point without first rolling a 7, you win. Casino craps has a complicated set of betting rules that we will ignore for this assignment. We'll add simple betting in the next assignment.

Attached is a sample game. You'll notice that the output includes customized text depending on the progress of the game. Your program should do the same. It should identify rolls by name. It should recognize doubles and comment accordingly.

You will need to use the supplied files (`craps1.h` and `craps1.cpp`). You should keep the supplied code in separate files. The supplied code will roll and display ASCII art versions of the dice. You'll need to complete the rest of the program. Since some of the coding has been done for you, your code should show a great deal of polish.

You will need to add the following line to your main program:

```
srand( static_cast<unsigned> (time(static_cast<time_t *>(NULL))));
```

We'll discuss what this means in class

What to Hand In

1. Create and turn in a structure chart for your code that includes the supplied routines.
2. Turn in *all* code files used for your project by attaching the files to an email. This should be done by the start of class on the project due date. Be sure to keep archival copies of your files!
3. At the start of class on the due date, turn in a printout of your source code.
4. At the start of class on the due date, turn in a printout of sample output for your code.
5. You should also turn in the answers to the following questions.

Questions

Answer the following questions and turn in your answers with your program.

1. How much time did you spend planning before you started coding?
2. How much time did you spend coding?
3. How much time did it take to correct the errors in your program?
4. What problems did you have getting your code to work?

Grading

The program will be graded on the following basis:

1. Error-free. The program should compile without error or warning messages.
2. Documentation. The main program and every function should be properly documented. The comment for the main program should include your name, the date, and a brief description of what the program does. Each function should include a comment that includes a brief description of what the function does. Each function should also include a comment listing preconditions and post conditions.
3. Programming style. Did you use appropriate indentation and white space?

4. Completeness and correctness. Does your program fulfill all the requirements of the assignment correctly? Did you turn in everything including the questions?

Be sure to review the checklist on the class website before you submit your code.

Due: Start of class, Wednesday, March 8.

Sample Run

Welcome to computer craps! Let's get started!

And here is the roll ...

```

=====
|
| *
|
|=====

```

```

=====
|
| *
|  *
|   *
|=====

```

You rolled a four.

You are trying for a four.
Rolling again!

```

=====
|
| * * *
|
| * * *
|=====

```

```

=====
|
| *   *
|  *
| *   *
|=====

```

You rolled an eleven.

Rolling again!

```

=====
|
| *   *
|  *
| *   *
|=====

```

```

=====
|
| *
|
|
|   *
|=====

```

You rolled a seven.

You crapped out!
Keep playing? (1 for yes, 0 for no):
1

***** A Real Sport *****

And here is the roll ...

```

=====
|
| *   *
|
| *   *
|=====

```

```

=====
|
| *   *
|
| *   *
|=====

```

You rolled double fours.

You are trying for a eight.
Rolling again!

```

=====
|
| *   *
|  *
| *   *
|=====

```

```

=====
|
|   *
|=====

```

You rolled a six.

Rolling again!

```

=====
|
| * * *
|
| * * *
|=====

```

```

=====
|
|   *
|=====

```

You rolled a seven.

You crapped out!
Keep playing? (1 for yes, 0 for no):
0
See you around!