

Craps

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

The Project

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. The sum of the pair is 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. While casino craps have complicated betting rules, we'll just assume that you place a bet before each set of rolls.

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. Feel free to customize the comments. Your code should show a great deal of polish.

Pair Programming

For this assignment, you will work in teams of two or three—no solo efforts! Unless you have done pair programming on both of the preceding projects, you must be on a team of two for this project. To the extent it is feasible, please select people that you haven't worked with before. Your team will submit one program and you will each receive the same grade.

Constraints

You should create both a dice class and a craps program that uses that class. Your class code should be implemented as a module in a separate file. The craps code for your program should be in a different file. *Be sure to include doc-strings with you class definition!*

What to Hand In

1. Turn in *all* files used for your project by attaching the files to an email. Be sure to keep archival copies of your files! There should be one email submission per team with the two attached files. Be sure your name is part of each file name.
2. Turn in one copy per team of the printout of sample run for your code.
3. Each of 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. Estimate how much time you spent planning before you started coding, how much time you spend coding, and how much time you took to correct the errors in your program.
2. Estimate how much time your partners spent planning, coding, and debugging the code.
3. What problems did you have getting your code to work?
4. How did team-programming work for you? What worked well? What problems did you have? If you worked as a team of three, how did that compare to pair programming?

This project will count as three routine assignments.

Due: Noon, Tuesday, May 4

>>> **craps()**

Welcome to Interactive Craps!

Enter your bet: **10**

+++++ +++++

|3 | |4 4|

| 3 | | |

| 3| |4 4|

+++++ +++++

You rolled a seven.

You win.

Your current winnings are \$10.

You are ahead. No time to quit now.

PLAY AGAIN? Enter Yes or No **yes**

Enter your bet: **10**

+++++ +++++

|2 | | |

| | | 1 |

| 2| | |

+++++ +++++

You rolled a three.

You lost.

You are currently even with the bank.

Don't stop until you are ahead.

PLAY AGAIN? Enter Yes or No **yes**

Enter your bet: **10**

+++++ +++++

|2 | | |

| | | 1 |

| 2| | |

+++++ +++++

You rolled a three.

You lost.

You currently owe the bank \$10.

You are in the hole. Want to try to make it up?

PLAY AGAIN? Enter Yes or No **yes**

Enter your bet: **20**

+++++ +++++

|5 5| |6 6|

| 5 | |6 6|

|5 5| |6 6|

+++++ +++++

You rolled an eleven.

You win.

Your current winnings are \$10.

You are ahead. No time to quit now.

PLAY AGAIN? Enter Yes or No **yes**

Enter your bet: **10**

+++++ +++++

|6 6| |2 |

|6 6| | |

|6 6| | 2|

+++++ +++++

You rolled an eight.

You want 8

You rolled.....

+++++ +++++

| | |3 |

| 1 | | 3 |

| | | 3|

+++++ +++++

You rolled a four.

You want 8

You rolled.....

+++++ +++++

|4 4| |3 |

| | |3 |

|4 4| | 3|

+++++ +++++

You rolled a seven.

You crapped out.

You are currently even with the bank.

Don't stop until you are ahead.

PLAY AGAIN? Enter Yes or No **no**

Wimp!