

ITEC 120 Lab 11

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You will need to turn in a lab report for this lab.

Problem 1: Dice games

Given the popularity of games on mobile phone platforms, your boss at 99 cent games wants you to come up with a few simple simulations for dice games. These simulations will be combined with work from the graphics department at a later time.

Part 1: The Dice class

The foundation of dice games is, of course, the dice. A dice has a certain number of faces and can be rolled which randomly picks one of these faces as a result. Create a Dice object that contains the number of faces of the dice and has two methods use the number of faces of the dice. The first that returns the result of a roll of the dice as an integer and the second changes the number of faces on the die. By default, the dice class should have six faces.

Part 2: The roll off

To simulate a game settling a decision between two individuals, create a 6-sided dice and roll it twice. The first roll is the first person's score; the second roll is the second person's score. Print out who won the roll off, or if the roll off resulted in a tie.

Part 3: The beetle game

One simple dice game for children is the beetle game. Beetle's have a body, head, six legs, two antenna, two eyes, and a tail. Each body part of a beetle corresponds to a certain face on a six-sided die. A one on the dice represents the body, two represents the head, three represents a leg, four represents an eye, five represents an antenna, and six represents the tail. A beetle must have a body before any other parts can be added. A beetle must have a head before two eyes and antenna can be attached to the beetle's body.

For example, a one must be rolled to create the Beetle's body, then 6 three's must rolled to complete the legs of the beetle.

Create a beetle player class that represents the state of a beetle for a player. This class should have a method / function that rolls a six sided dice and updates the beetle's body parts with the results of the roll where possible.

Next, create instances of two beetle player classes and have them alternate rolling the dice to complete the body parts of their beetles. The player that completes their beetle first, wins. Print out which player won and how many rolls of the dice it took for them to win, or print out if there was a tie and if so, print out how many rounds it took to have a tie game.

Part 4: The plus or minus game

Another simple dice game is the plus or minus game. A player starts off with five twenty sided dice. Each dice is rolled, and the two highest numbers added together become the player's score. Next, four of the twenty-sided dice are tossed, and the highest result is subtracted from the player's score. Then, three of the twenty-sided dice are tossed and the highest result is added to the score. Next, two of the twenty-sided dice are tossed and the highest result is subtracted from the score. Lastly, one of the twenty-sided dice is tossed and the result is added to the score.

Create an object that contains a twenty sided dice and method that uses that dice to play the game of plus or minus and returns the player's score. Lastly, write a method/function that creates one of the previous objects and obtains the scores for two different players of the plus or minus game. Lastly, print out which of the two players won the game with what score, or print out that the game was a tie (and report the tie score).