

Lab 2: Pig

(Game Rules for Pig were taken from http://boardgames.about.com/od/dicegames/a/pig_rules.htm)

Overview



<http://www.all-creatures.org/anex/pig-01.html>



<http://www.grand-illusions.com>

Need to pass the time? Grab a die and play some Pig. The game play is as follows: a player will roll the 6-sided die. If a one is rolled, the player busts and the play moves to the next player, without adding any points to his/her score. Otherwise, the current roll value is added to a running total and the player may choose to roll again (to continue adding to the running total) or they may hold (keep the current running total and add it to their overall score). Note that a player only adds points to their score if they choose to hold on a particular turn. That means, if a player has a running total of 15, but rolls a 1 next, that player loses the 15 points built up in that set of rolls and no additional points are added to his/her overall score. A player wins when they have earned 100 or more points. In a case where player 1 hits 100 first, then let player 2 have a turn to try and match/win. If they both are over 100, the higher score wins! This game has many other variations some of which can be found at this website: <http://cs.gettysburg.edu/projects/pig/piglinks.html>

Objectives

- To practice using the Scanner class to retrieve console input
- To practice using loops appropriately in a particular context
- To practice writing classes and using helper methods
- To practice writing documentation for classes

What to Do

You are to write a program that will allow two human players to play Pig. When the game starts, the instructions of the game will appear and the players will be able to enter their names. On each turn, the current player will roll and be able to decide to roll again or hold. The program will automatically process a bust roll and will show an updated score between turns. The game will end and ask the players if they would like to play again. The game will follow the described rules above for the basic game of Pig.

Helpful Hints

- Start with the English – build pseudocode. Natural tasks can be turned into methods!
- Create a class to represent a player. Teach the player how to “take a turn”, then it makes coding your Pig class a little easier (and a little more English-like!)

Requirements

- You must use the Scanner class for user input
- Your game must be fully functional: all the rules for busting, rolling again, holding and winning apply and work as specified
- When a player has won, a message should print saying so
- The game must successfully play a game again should the user choose to play again
- You must use helper methods, only the `play()` method will be called from main method
- Your program must follow all style guidelines outlined for this class, including all necessary documentation. Actual javadocs files will not be required for submission.

Grading Rubric

Bust, Roll Again, and Hold actions are processed properly (8 pt)

Program successfully determines (and outputs) a winner (2 pt)

Program can execute another game if the user chooses to do so (3 pt)

Style of program is satisfactory (2 pt)

Finished early? Try these extensions:

- Allow the user will be able to select how many players will be participating (between 2 and 6 players). The game will then play according to their selection.
- Add a game AI:
 - Allow the player(s) to add computer players to the game
 - Allow for the computer to play according to various strategies