Assignment 1 - Pass the Pigs

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Purpose

Implement a game of "Pass the Pigs" where players take turns rolling a pig to score points

Game breakdown

- k number of players (2 min and 10 max)
- Each player rolls a pig of 5 possible positions to gain points
    - 0 points for side (2/7 probability)
    - 5 points for jowler/ear (2/7 probability)
    - 10 points for razorback/back (1/7 probability)
    - 10 points for trotter/upright (1/7 probability)
    - 15 points for snouter/nose (1/7 probability)
- If side is rolled, end turn and pass to next player
- Else, continue rolling until side is rolled (then pass to next player) or reach 100 or more points (then win and end the game)

Pseudocode

#include <stdio.h> for commands

#include <stdlib.h> for random generator

#include <limits.h> for seed range

#include "names.h" for accessing player names

Main function:

[Obtaining the number of players]

Prompt user to enter the number of players with "How many players?" and use scanf, label the input with variable *k*

If *k* is less than 2 or greater than 10:

Print error message and assume 2 players (so *k* = 2)

If *k* is not an integer:

Print error message and assume 2 players (so *k* = 2)

Else, continue with *k* = user's input

[Obtaining the seed value]

Prompt user to enter a valid/unsigned seed value with “Random seed:” and use scanf, label the input with variable *seedValue*

If *seedValue* is invalid/signed:

Print error message and assume value of 2021 (so seed(2021) will be used)

Else, continue with *seedValue* = user’s input

[Creating arrays for the pig roll]

Create array numbered from 0 to k-1 that represents each player, call array *players*

Create another array of k amount of 0s (represents each player’s initial points), call array *points*

Create another array that enumerates the 5 positions (side, jowler, razorback, trotter, and snouter), use typedef and define it as *Positions* (as stated in assignment document)

Create another array of the roll possibilities (side, side, jowler, jowler, razorback, trotter, and snouter) -> call it *pig* (as stated in assignment document)

[Simulating the pig roll]

For i = 0, i < k, i += 1 (each player, starting with 0th player and until the last k-1 player):

Print “(corresponding player name from names.h) rolls the pig”

Randomly select value from *pig* with srandom()

For pig[random() % 7] not equal to side:

Randomly select value from *pig* with srandom()

If pig[random() % 7] equals jowler:

points[i] += 5

If points[i] >= 100:

Break

Else:

Continue (go back to the start of this for loop)

If pig[random() % 7] equals razorback:

points[i] += 10

If points[i] >= 100:

Break

Else:

Continue (go back to the start of this for loop)

If pig[random() % 7] equals trotter:

points[i] += 10

If points[i] >= 100:

Break

Else:

Continue (go back to the start of this for loop)

If pig[random() % 7] equals snouter:

points[i] += 15

If points[i] >= 100:

Break

Else:

Continue (go back to the start of this for loop)

If pig[random() % 7] equals side:

If i equals *k*-1:

Set i back to 0 (essentially starts a new round)

Else:

Increase i by 1 (moves to next player)

Go back to the start of the outermost for loop

[End of game]

Print name of winner and their number of points

*Note: random() % 7 makes sure that the randomly generated values are between 0 and 6 (where each number corresponds to a possible position)