

# Assignment 1 – Pass the Pigs

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## Purpose

The purpose of this program is to simulate the game “pass the pigs” which is a game entirely based on luck. In the game players roll a dice(the “pig”) and get points depending on which side they land on. The program will simulate this by generating a random number for the sides and adding to a players score until they reach 100 or more points and win.

## How to Use the Program

To use this program the user will be given two prompts in the beginning. The first is the number of players from 2 to 10. If a number outside of that range is entered then the default selection of 2 players will be selected. The next prompt will be a random seed to generate random numbers in the program. This can be any number. If an invalid input is given then the default seed 2023 will be selected. After that the user can just watch as the program will play the game.

## Program Design

The program uses two arrays, one for the names of the players and one for the scores of the players. To simulate the game play and the rolling a while loop and for loop is used. The while loop is used to print the name of the player when it is their turn. The for loop within the while loop is used to simulate a player's turns. It uses a series of if statements based on which side they land on which prints the information of what the player rolls and their total points. The loop ends when a player wins by reaching a score of 100 or more or when they roll a 0 or 1 which results in no points and an end to their turn.

## Data Structures

The data structures used in this program are an array for the names of the players as well as an array to keep track of the scores. There are five integers also used in the program. num\_players for the number of players, seed for the seed, side for the side landed on, and 2, i and j, are used for positions in the for and while loops used.

## Results

The program does work as intended, getting the number of players and seed as inputs and printing the statements of which player is playing, their roll, and their score as the game progresses. When a player wins it gives a congratulations statement and the program ends.

```
collinwen@13s-vm:~$ ./pig
Number of players (2 to 10)? 2
Random-number seed? 3
Margaret Hamilton
rolls 15, has 15
rolls 5, has 20
rolls 0, has 20
Katherine Johnson
rolls 0, has 0
Margaret Hamilton
rolls 5, has 25
rolls 0, has 25
Katherine Johnson
rolls 0, has 0
Margaret Hamilton
rolls 5, has 30
rolls 0, has 30
Katherine Johnson
rolls 5, has 5
rolls 0, has 5
Margaret Hamilton
rolls 15, has 45
rolls 0, has 45
Katherine Johnson
rolls 10, has 15
rolls 15, has 30
rolls 15, has 45
rolls 5, has 50
rolls 10, has 60
rolls 10, has 70
rolls 10, has 80
rolls 15, has 95
rolls 5, has 100
Katherine Johnson won!
collinwen@13s-vm:~$
```

Figure 1: Screenshot of the program running.