

ASSIGNMENT 3 DESIGN DOCUMENT

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About:

This assignment aims to create a program that replicates a simulation of a singular game of dreidel. Dreidel is a game derived from an ancient game that utilized a four-sided spinning top often used for gambling and at bars.

Design Proccess for Dreidel.c

In order to produce a program that would simulate a game of dreidel, I utilized the random function given to us in our assignment files. Using this I can create the main game function for my program which would handle the number of players, the coins per player, the number of rounds and the win loose statement. I was able to do this through the use of several different while, for and if statements.

Include the header files at the top of the function

Initialize any global variables

Create a program that creates a random factor for the dreidel spins

This is done by declaring it as an integer

Followed by using mtrand which was given to us to assign a random number

Return the random number created

Create an integer program for the main game function

Initialize all variables used within the code using char or int

Set the initial pot amount equal to zero at the beginning

Set the random seed for the game

Create a for loop to monitor the number of coins held in each player's hand

Keep track of the coins by first setting the integer value equal to a variable that will be used later in the code more frequently when the dreidel spins.

Set the remaining players equal to the number of players

Set the variable for the number of rounds to 0 initially.

Create a while loop which loops till there is only one remaining player for the game

Set the conditions for the player to win with a for loop.

Create an if statement which runs for a player as long as the number of coins in their hand isn't equal to zero.

Create a variable for the dreidel spin.

Make a switch statement that iterates through each face N, G, H and S

Create math functions for each of the face results.

Make another if statement for when the player has no coins.

Subtract 1 from the remaining players.

Print out a losing statement for when a player is eliminated.

Outside of the for loop and within the while loop set the round equal to the round plus one so it keeps track of the rounds played.

Create another for loop for the win condition

Followed by an if statement that checks if the player's amount of coins isn't equal to zero

Then print the winning statement given in the assignment document.

Return the results.

Play-dreidel.c

Contains my main function for my code which compiles all my code into a runnable program when ran through the make file generates the wanted results. I did this by using several different libraries, mostly consisting of ones I have used previously. The purpose of the code is executed by the implementation of a while loop that iterates through the number of players, coins a player has and the game seed. Each is given an assigned case so when typed -p for example if

the number is given within its range of 2-8 it will then input that into the game and take that as a condition. This allows the user to change the variables as they desire

Include all the necessary header files for the code

Define the options that can be used within the program such as p, c, s and v

Initialize any variables that will get used in the code

Main function

Declare the integers at the top of the function

Set the print message equal to zero at the beginning of the program.

Create a while loop that utilizes getopt so that it'll parse through the different options.

Create a for loop that runs given the required standards.

Use an if statement so that when the argument character is given it will use the value given to it.

Assign the respective role with the character and repeat this process four times for each character.

Create an if statement that sets the parameters for each character in case the user inputs an argument outside of range.

Print an error statement in return

Add an else statement that runs the code in case there are no errors

Dreidel.h

This file is my header file for my program and contains my function declarations that help the main code work. By having a header file I am able to work between different files and have them transfer over to each other depending on how I format them.

Include all the header files needed

Set the player count equal to 8 as its max

Add the main play game function so it's executable

Use extern and uint64 to utilize the random game seed

Use extern for the prin statement as well.