CSCI 240

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Homework #4

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Properties: This project allows three players join a game call "trap doors & trampolines"

It will record players old position, then a random number will be made to determine

this player's step. Before the player move, two functions called "checkTraps" and "checkTtampolines"

will be passed to judge rewards or punishment.

Inputs: Three players name.

Outputs: Players' position, rewards or punishment, winner of the game.

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#include <iostream>

#include <iomanip>

#include <string>

#include <fstream>

#include <conio.h>

#include <cstdlib>

using namespace std;

void printGameHeader();

void getName(string &,string &,string &);

void printChartHeader();

bool noWinner(int,int,int);

void printTurn(string,int,int);

int rollDice();

void movePlayer(int &);

bool checkTraps(int &);

bool checkTrampolines(int &);

void printMove(int);

void printWinner(string,string,string,int,int,int);

int main(){

int player1 = 1;

int player2 = 1;

int player3 = 1;

int counter = 0;

string name1;

string name2;

string name3;

printGameHeader();

getName(name1,name2,name3);

while(noWinner(player1,player2,player3) == true){

printChartHeader();

cout << setw(78) << setfill('-') << "-" << endl;

for(int i = 0; i<3; i++){

counter ++;

int player;

string name;

if(i == 0){

name = name1;

player = player1;

}

else if(i == 1){

name = name2;

player = player2;

}

else if(i == 2){

name = name3;

player = player3;

}

printTurn(name,player,counter);

player = player + rollDice();

movePlayer(player);

printMove(player);

if(i == 0){

player1 = player;

player = player2;

}

else if(i == 1){

player2 = player;

player = player3;

}

else if(i == 2){

player3 = player;

player = player1;

}

}

cout << setw(78) << setfill('-') << "-" << endl;

cout << endl;

}

printWinner(name1,name2,name3,player1,player2,player3);

return 0;

}

void printGameHeader(){

cout << "+" << setw(31) << setfill('-') << "+" << endl;

cout << "|" << setw(9) << right << setfill(' ') << " " << "Welcome to " << setw(11);

cout << setfill(' ') << "|" << endl;

cout << "|" << setw(31) << setfill(' ') << "|" << endl;

cout << "|" << " Trap Doors & Trampolines " << "|" << endl;

cout << "|" << setw(31) << setfill(' ') << "|" << endl;

cout << "+" << setw(31) << setfill('-') << "+" << endl;

cout << "|" << " Trap Doors " << " Trampolines " << "|" << endl;

cout << "|" << " ---------- " << " ----------- " << "|" << endl;

cout << "|" << " 9 -> 2 " << " 3 -> 59 " << "|" << endl;

cout << "|" << " 22 -> 8 " << " 16 -> 32 " << "|" << endl;

cout << "|" << " 30 -> 14 " << " 24 -> 54 " << "|" << endl;

cout << "|" << " 51 -> 48 " << " 35 -> 41 " << "|" << endl;

cout << "|" << " 60 -> 42 " << " 56 -> 78 " << "|" << endl;

cout << "|" << " 88 -> 61 " << " 66 -> 92 " << "|" << endl;

cout << "|" << " 116 -> 86 " << " 96 -> 110 " << "|" << endl;

cout << "|" << " 128 -> 108 " << " 109 -> 140 " << "|" << endl;

cout << "|" << " 135 -> 100 " << " 124 -> 134 " << "|" << endl;

cout << "+" << setw(31) << setfill('-') << "+" << endl;

}

void getName(string &name1,string &name2,string &name3){

cout << endl;

cout << "Enter Player 1 Name: ";

cin >> name1;

cout << "Enter Player 2 Name: ";

cin >> name2;

cout << "Enter Player 3 Name: ";

cin >> name3;

}

void printChartHeader(){

cout << endl;

cout << "Player " << "Turn " << "Old Pos " << setw(25) << setfill(' ') << " ";

cout << "Dice " << " Special " << "New Pos" << endl;

}

bool noWinner(int player1, int player2, int player3){

if(player1 >= 142){

return false;

}

else if(player2 >= 142){

return false;

}

else if(player3 >= 142){

return false;

}

else{

return true;

}

}

void printTurn(string name, int player, int counter){

cout << setw(12) << setfill(' ') << left << name << counter << " " << setw(3) << setfill(' ') << player;

cout << " <Press enter to roll> ";

\_getch();

}

int rollDice(){

int dice = 0;

int dice1 = 0;

int dice2 = 0;

dice1 = rand() \* 100 % 6 + 1;

dice2 = rand() \* 100 % 6 + 1;

dice = dice1 + dice2;

cout << setw(3) << setfill(' ') << dice;

return dice;

}

void movePlayer(int &player){

if(checkTraps(player) == false && checkTrampolines(player) == false){

cout << " ";

}

}

bool checkTraps(int &player){

if(player == 9){

player = 2;

cout << " Trap Door! ";

return true;

}

else if(player == 22){

player = 8;

cout << " Trap Door! ";

return true;

}

else if(player == 30){

player = 14;

cout << " Trap Door! ";

return true;

}

else if(player == 51){

player = 48;

cout << " Trap Door! ";

return true;

}

else if(player == 60){

player = 42;

cout << " Trap Door! ";

return true;

}

else if(player == 88){

player = 61;

cout << " Trap Door! ";

return true;

}

else if(player == 116){

player = 86;

cout << " Trap Door! ";

return true;

}

else if(player == 128){

player = 108;

cout << " Trap Door! ";

return true;

}

else if(player == 135){

player = 100;

cout << " Trap Door! ";

return true;

}

else{

return false;

}

}

bool checkTrampolines(int &player){

if(player == 3){

player = 59;

cout << " Trampoline!";

return true;

}

else if(player == 16){

player = 32;

cout << " Trampoline!";

return true;

}

else if(player == 24){

player = 54;

cout << " Trampoline!";

return true;

}

else if(player == 35){

player = 41;

cout << " Trampoline!";

return true;

}

else if(player == 56){

player = 78;

cout << " Trampoline!";

return true;

}

else if(player == 66){

player = 92;

cout << " Trampoline!";

return true;

}

else if(player == 96){

player = 110;

cout << " Trampoline!";

return true;

}

else if(player == 109){

player = 140;

cout << " Trampoline!";

return true;

}

else if(player == 124){

player = 134;

cout << " Trampoline!";

return true;

}

else{

return false;

}

}

void printMove(int player){

cout << setw(5) << setfill(' ') << right << player << endl;

}

void printWinner(string name1,string name2,string name3,int player1,

int player2, int player3){

if(player1 >= 142){

cout << endl;

cout << name1 << " win the game!" << endl;

}

else if(player2 >= 142){

cout << endl;

cout << name2 << " win the game!" << endl;

}

if(player3 >= 142){

cout << endl;

cout << name3 << " win the game!" << endl;

}

}



