Project 2

Input:

/\* File: Cardtrick.cpp

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\* Course: COP 2931

\*

\* Purpose:

\* Write a program that performs a cardtrick. The program will create a

\* random deck of cards, deal them out, pick them up, and determine the

\* secret card.

\*

\*/

#include <iostream>

#include <iomanip>

#include <string>

using namespace std;

// Function prototypes

void BuildDeck(int deck[], const int size);

void PrintDeck(int deck[], const int size);

void PrintCard(int card);

void Deal(int deck[], int play[][3]);

void PickUp(int deck[], int play[][3], int column);

void SecretCard(int deck[]);

int main(void)

{

/\* declare and initialize variables \*/

int column = 0, i = 0;

string name;

char answer;

char PlayAgain;

/\* Declare a 52 element array of integers to be used as the deck of cards \*/

int deck[52] = { 0 };

/\* Declare a 7 by 3 array to receive the cards dealt to play the trick \*/

int play[7][3] = { 0 };

/\* Generate a random seed for the random number generator. \*/

/\* Opening message. Ask the player for his/her name \*/

cout << "Hello, I am a really tricky computer program and " << endl

<< "I can even perform a card trick. Here's how." << endl

<< "To begin the card trick type in your name: ";

cin >> name;

/\* Capitalize the first letter of the person's name. \*/

name[0] = toupper(name[0]);

cout << endl << "Thank you " << name << endl;

do

{

/\* Build the deck \*/

BuildDeck(deck, 52);

/\* Ask if the player wants to see the entire deck. If so, print it out. \*/

cout << "Ok " + name + ", first things first. Do you want to see what " << endl

<< "the deck of cards looks like (y/n)? ";

cin >> answer;

if (answer == 'y')

{

PrintDeck(deck, 52);

}

cout << endl << name << " pick a card and remember it..." << endl;

/\* Begin the card trick loop \*/

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

{

/\* Begin the trick by calling the function to deal out the first 21 cards \*/

Deal(deck, play);

/\* Include error checking for entering which column \*/

do

{

/\* Ask the player to pick a card and identify the column where the card is \*/

cout << endl << "Which column is your card in (0, 1, or 2)?: ";

cin >> column;

} while (column < 0 || column > 2);

/\* Pick up the cards, by column, with the selected column second \*/

PickUp(deck, play, column);

}

/\* Display the top ten cards, then reveal the secret card \*/

SecretCard(deck);

/\* if the player wants to play again \*/

cout << name << ", would you like to play again (y/n)? ";

cin >> PlayAgain;

} while (PlayAgain == 'y');

/\* Exiting message \*/

cout << endl << endl << "Thank you for playing the card trick!" << endl;

system("pause");

}

void BuildDeck(int deck[], const int size)

{

int used[52] = { 0 };

int card = 0, i = 0;

/\* Generate cards until the deck is full of integers \*/

while (i < size)

{

/\* generate a random number between 0 and 51 \*/

card = rand() % 52;

/\* Check the used array at the position of the card.

If 0, add the card and set the used location to 1. If 1, generate another number \*/

if (used[card] == 0)

{

used[card] = 1;

deck[i] = card;

i++;

}

}

return;

}

void PrintDeck(int deck[], const int size)

{

int i;

/\* Print out each card in the deck \*/

for (i = 0; i < 52; i++)

{

PrintCard(deck[i]);

}

}

void Deal(int deck[], int play[][3])

{

int row = 0, col = 0, card = 0;

/\* deal cards by passing addresses of cardvalues from

the deck array to the play array \*/

cout << endl;

cout << " Column 0 Column 1 Column 2";

cout << "======================================================="

<< endl;

for (row = 0; row < 7; row++)

{

for (col = 0; col <3; col++)

{

play[row][col] = deck[card];

PrintCard(play[row][col]);

card++;

}

cout << endl;

}

return;

}

void PrintCard(int card)

{

int rank = 0;

int suit = 0;

rank = card % 13;

suit = card / 13;

// Determine the rank of the card and print it out i.e. Queen

switch (rank)

{

case 0:

cout << " King ";

break;

case 1:

cout << " Ace ";

break;

case 11:

cout << " Jack ";

break;

case 12:

cout << "Queen ";

break;

default:

cout <<setw(5) << rank << " ";

break;

}

// Determine the suit of the card and print it out i.e. of Clubs

switch (suit)

{

case 0:

cout << "of Clubs ";

break;

case 1:

cout << "of Spades ";

break;

case 2:

cout << "of Hearts ";

break;

case 3:

cout << "of Diamonds";

}

return;

}

void PickUp(int deck[], int play[][3], int column)

{

int card = 0, row = 0, first = 0, last = 0;

switch (column)

{

case 0:

first = 1;

last = 2;

break;

case 1:

first = 0;

last = 2;

break;

case 2:

first = 2;

last = 1;

}

for (row = 0; row < 7; row++)

{

deck[card]=play[row][first];

card++;

}

for (row = 0; row < 7; row++)

{

deck[card] = play[row][column];

card++;

}

for (row = 0; row < 7; row++)

{

deck[card] = play[row][last];

card++;

}

return;

}

void SecretCard(int deck[])

{

int card = 0;

cout << endl << "Finding secret card...";

for (card = 0; card < 10; card++)

{

PrintCard(deck[card]);

cout << endl;

}

cout << endl << "Your secret card is: ";

PrintCard(deck[card]);

cout << endl;

return;

}

**I can’t figure out how to paste it with the proper formatting but it was all lined up and nice when I ran it from Visual Studio. I also do not know how to make it responsive so when I change the screen size it messes with the alignment.**

Output:

Hello, I am a really tricky computer program and

I can even perform a card trick. Here's how.

To begin the card trick type in your name: scott

Thank you Scott

Ok Scott, first things first. Do you want to see what

the deck of cards looks like (y/n)? y

2 of Diamonds 7 of Clubs 3 of Diamonds 6 of Hearts 7 of Hearts 7 of Spades Queen of Hearts 4 of Hearts King of Hearts Jack of Spades Jack of Hearts King of Spades 5 of Hearts 3 of Hearts 10 of Spades 8 of Hearts 4 of Diamonds 2 of Hearts 8 of Diamonds 5 of Diamonds 2 of Clubs 10 of Diamonds 6 of Clubs Ace of Clubs 9 of Diamonds 10 of Clubs King of Diamonds 3 of Clubs 7 of Diamonds Ace of Spades Queen of Diamonds 5 of Spades 4 of Spades 6 of Diamonds 10 of Hearts 9 of Clubs 2 of Spades 4 of Clubs 8 of Spades Jack of Diamonds 6 of Spades 9 of Spades 5 of Clubs Queen of Clubs Queen of Spades 8 of Clubs Jack of Clubs Ace of Diamonds Ace of Hearts 9 of Hearts 3 of Spades King of Clubs

Scott pick a card and remember it...

Column 0 Column 1 Column 2=======================================================

2 of Diamonds 7 of Clubs 3 of Diamonds

6 of Hearts 7 of Hearts 7 of Spades

Queen of Hearts 4 of Hearts King of Hearts

Jack of Spades Jack of Hearts King of Spades

5 of Hearts 3 of Hearts 10 of Spades

8 of Hearts 4 of Diamonds 2 of Hearts

8 of Diamonds 5 of Diamonds 2 of Clubs

Which column is your card in (0, 1, or 2)?: 0

Column 0 Column 1 Column 2=======================================================

7 of Clubs 7 of Hearts 4 of Hearts

Jack of Hearts 3 of Hearts 4 of Diamonds

5 of Diamonds 2 of Diamonds 6 of Hearts

Queen of Hearts Jack of Spades 5 of Hearts

8 of Hearts 8 of Diamonds 3 of Diamonds

7 of Spades King of Hearts King of Spades

10 of Spades 2 of Hearts 2 of Clubs

Which column is your card in (0, 1, or 2)?: 1

Column 0 Column 1 Column 2=======================================================

7 of Clubs Jack of Hearts 5 of Diamonds

Queen of Hearts 8 of Hearts 7 of Spades

10 of Spades 7 of Hearts 3 of Hearts

2 of Diamonds Jack of Spades 8 of Diamonds

King of Hearts 2 of Hearts 4 of Hearts

4 of Diamonds 6 of Hearts 5 of Hearts

3 of Diamonds King of Spades 2 of Clubs

Which column is your card in (0, 1, or 2)?: 0

Finding secret card... Jack of Hearts

8 of Hearts

7 of Hearts

Jack of Spades

2 of Hearts

6 of Hearts

King of Spades

7 of Clubs

Queen of Hearts

10 of Spades

Your secret card is: 2 of Diamonds

Scott, would you like to play again (y/n)? y

Ok Scott, first things first. Do you want to see what

the deck of cards looks like (y/n)? y

Ace of Spades 9 of Diamonds 7 of Spades 10 of Diamonds 7 of Clubs Queen of Clubs 5 of Diamonds King of Spades 2 of Clubs Ace of Clubs 10 of Spades 10 of Hearts 5 of Hearts Queen of Diamonds 8 of Spades King of Clubs 6 of Spades 3 of Hearts 10 of Clubs Jack of Hearts Jack of Diamonds 9 of Clubs Jack of Spades 8 of Clubs 9 of Hearts 9 of Spades King of Diamonds 5 of Clubs 7 of DiamondsQueen of Spades 4 of Diamonds Ace of Hearts Queen of Hearts 6 of Hearts 3 of Diamonds Ace of Diamonds 4 of Hearts 6 of Diamonds 7 of Hearts King of Hearts 6 of Clubs 4 of Spades 3 of Clubs 8 of Hearts 2 of Diamonds 5 of Spades 2 of Hearts 8 of Diamonds 4 of Clubs 3 of Spades 2 of Spades Jack of Clubs

Scott pick a card and remember it...

Column 0 Column 1 Column 2=======================================================

Ace of Spades 9 of Diamonds 7 of Spades

10 of Diamonds 7 of Clubs Queen of Clubs

5 of Diamonds King of Spades 2 of Clubs

Ace of Clubs 10 of Spades 10 of Hearts

5 of Hearts Queen of Diamonds 8 of Spades

King of Clubs 6 of Spades 3 of Hearts

10 of Clubs Jack of Hearts Jack of Diamonds

Which column is your card in (0, 1, or 2)?: 0

Column 0 Column 1 Column 2=======================================================

9 of Diamonds 7 of Clubs King of Spades

10 of Spades Queen of Diamonds 6 of Spades

Jack of Hearts Ace of Spades 10 of Diamonds

5 of Diamonds Ace of Clubs 5 of Hearts

King of Clubs 10 of Clubs 7 of Spades

Queen of Clubs 2 of Clubs 10 of Hearts

8 of Spades 3 of Hearts Jack of Diamonds

Which column is your card in (0, 1, or 2)?: 1

Column 0 Column 1 Column 2=======================================================

9 of Diamonds 10 of Spades Jack of Hearts

5 of Diamonds King of Clubs Queen of Clubs

8 of Spades 7 of Clubs Queen of Diamonds

Ace of Spades Ace of Clubs 10 of Clubs

2 of Clubs 3 of Hearts King of Spades

6 of Spades 10 of Diamonds 5 of Hearts

7 of Spades 10 of Hearts Jack of Diamonds

Which column is your card in (0, 1, or 2)?: 0

Finding secret card... 10 of Spades

King of Clubs

7 of Clubs

Ace of Clubs

3 of Hearts

10 of Diamonds

10 of Hearts

9 of Diamonds

5 of Diamonds

8 of Spades

Your secret card is: Ace of Spades

Scott, would you like to play again (y/n)? n

Thank you for playing the card trick!

Press any key to continue . . .