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COP2362

TUTORIAL 2-4: Using Arrays and Collections

I worked alone.

Timeline

Description automatically generated

Hand.cs:

using System;

namespace Cards

{

class Hand

{

public const int HandSize = 13;

private PlayingCard[] cards = new PlayingCard[HandSize];

private int playingCardCount = 0;

public void AddCardToHand(PlayingCard cardDealt)

{

if (this.playingCardCount >= HandSize)

{

throw new ArgumentException("Too many cards");

}

this.cards[this.playingCardCount] = cardDealt;

this.playingCardCount++;

}

public override string ToString()

{

string result = "";

foreach (PlayingCard card in this.cards)

{

result += $"{card.ToString()}\n";

}

return result;

}

}

}

Pack.cs

using System;

namespace Cards

{

class Pack

{

public const int NumSuits = 4;

public const int CardsPerSuit = 13;

private PlayingCard[,] cardPack;

private Random randomCardSelector = new Random();

public Pack()

{

this.cardPack = new PlayingCard[NumSuits, CardsPerSuit];

for (Suit suit = Suit.Clubs; suit <= Suit.Spades; suit++)

{

for (Value value = Value.Two; value <= Value.Ace; value++)

{

this.cardPack[(int)suit, (int)value] = new PlayingCard(suit, value);

}

}

}

public PlayingCard DealCardFromPack()

{

Suit suit = (Suit)randomCardSelector.Next(NumSuits);

while (this.IsSuitEmpty(suit))

{

suit = (Suit)randomCardSelector.Next(NumSuits);

}

Value value = (Value)randomCardSelector.Next(CardsPerSuit);

while (this.IsCardAlreadyDealt(suit, value))

{

value = (Value)randomCardSelector.Next(CardsPerSuit);

}

PlayingCard card = this.cardPack[(int)suit, (int)value];

this.cardPack[(int)suit, (int)value] = null;

return card;

}

private bool IsSuitEmpty(Suit suit)

{

bool result = true;

for (Value value = Value.Two; value <= Value.Ace; value++)

{

if (!IsCardAlreadyDealt(suit, value))

{

result = false; break;

}

}

return result;

}

private bool IsCardAlreadyDealt(Suit suit, Value value)

=> (this.cardPack[(int)suit, (int)value] == null);

}

}

Valus.cs

namespace Cards

{

enum Value { Two, Three, Four, Five, Six, Seven, Eight, Nine, Ten, Jack, Queen, King, Ace }

}

Suit.cs

namespace Cards

{

enum Suit { Clubs, Diamonds, Hearts, Spades }

}

Playingcard.cs

namespace Cards

{

class PlayingCard

{

private readonly Suit suit;

private readonly Value value;

public PlayingCard(Suit s, Value v)

{

this.suit = s;

this.value = v;

}

public override string ToString()

{

string result = $"{this.value} of {this.suit}";

return result;

}

public Suit CardSuit()

{

return this.suit;

}

public Value CardValue()

{

return this.value;

}

}

}