Tim Ferguson | EN.605.604.81.FA24 | Object-Oriented Programming with C++ | 10/30/2024

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# What I Intend to Share:

I intend to share all of my source files with the class.

# Design:

The goal in this project was to implement a 5-card draw poker game that follows all the standard rules. In the final showdown of the game, a previous assignment was combined with this program to compare the final hands to determine a winner. This previous assignment was heavily modified to be compatible with the current program and ensure proper functionality. Player objects are created and processed within the pokerGame objects. A player can either be an AI, or a player, so an abstract class was created for a player so that it simplified the game logic within the pokerGame class.

# Source Code:

## Main

#include <iostream>

#include "PokerGame.h"

**using** **namespace** std**;**

int main**()**

**{**

PokerGame mainGame**;**

mainGame**.**initGame**();**

mainGame**.**createDeck**();**

mainGame**.**shuffleDeck**();**

mainGame**.**playPoker**();**

**return** 0**;**

**}**

## mySymbolTable

## NodeI

## Variable

## Constant

## Add

## Subtract

## Multiply

## Divide

# Test driver:

The test was to replicate the examples shown in the program requirements, both for the standard and derivative expression trees.

# Results:

The program plays poker, with a random playing AI!

## Game 1 (0 Human, 3 Ai):

Enter valid number of human players: 0

Enter valid number of AI players: 3

Whats the ante?: 5

The pot contains $15

Dealing 5 cards to each player.

Begin the betting round!

Ai Player 1's turn to place a bet!

The opponent studies their hand...

Ai Player 1 checks.

The pot contains: $15

Ai Player 2's turn to place a bet!

The opponent studies their hand...

Ai Player 2 checks.

The pot contains: $15

Ai Player 3's turn to place a bet!

The opponent studies their hand...

Ai Player 3 checks.

The pot contains: $15

Ai Player 1's turn to place a bet!

The opponent studies their hand...

Ai Player 1 raises with $7

The pot contains: $22

Ai Player 2's turn to place a bet!

The opponent studies their hand...

Ai Player 2 folds.

The pot contains: $22

Ai Player 3's turn to place a bet!

The opponent studies their hand...

Ai Player 3 calls.

The pot contains: $29

The betting round is over!

Begin the draw round!

The opponent studies their hand...

Ai Player 1 decides to keep all their cards.

The opponent studies their hand...

Ai Player 3 replaced 2 cards.

The draw round is over!

Begin the betting round!

Ai Player 1's turn to place a bet!

The opponent studies their hand...

Ai Player 1 checks.

The pot contains: $29

Ai Player 3's turn to place a bet!

The opponent studies their hand...

Ai Player 3 raises with $11

The pot contains: $40

Ai Player 1's turn to place a bet!

The opponent studies their hand...

Ai Player 1 calls.

The pot contains: $51

The betting round is over!

It's showtime.

Everyone drops their cards...

The winner is: Ai Player 1!

Ai Player 1's hand:

3 of Spades, K of Clubs, 2 of Clubs, 4 of Spades, 2 of Diamonds,

Which is a One pair

Pot won: $ 51

Player Stats:

Ai Player 1

Money bet: $18

Ai Player 1's hand:

3 of Spades, K of Clubs, 2 of Clubs, 4 of Spades, 2 of Diamonds,

Ai Player 2

Money bet: $0

Ai Player 2's hand:

3 of Clubs, 10 of Hearts, 8 of Spades, 4 of Clubs, 5 of Diamonds,

Ai Player 3

Money bet: $18

Ai Player 3's hand:

K of Spades, J of Spades, 6 of Clubs, 4 of Hearts, A of Hearts,

Thanks for playing!

C:\Users\timfe\Documents\MASTERS\C++\PokerGame\PokerGame\x64\Debug\PokerGame.exe (process 18608) exited with code 0 (0x0).

Press any key to close this window . . .

## Game 2 (1 Human, 3 Ai):

Enter valid number of human players: 1

Enter valid number of AI players: 3

Enter player 0s name: Tim

Whats the ante?: 5

The pot contains $20

Dealing 5 cards to each player.

Begin the betting round!

Tim's turn to place a bet!

Tim's hand:

J of Spades, J of Clubs, 10 of Spades, 4 of Clubs, 6 of Hearts,

No bets have been placed yet. You can:

1. Check

2. Bet a starting amount (Ante is: $5)

Enter your choice: 2

Enter your starting bet: 6

Tim raises with $6

The pot contains: $26

Ai Player 1's turn to place a bet!

The opponent studies their hand...

Ai Player 1 calls.

The pot contains: $32

Ai Player 3's turn to place a bet!

The opponent studies their hand...

Ai Player 3 calls.

The pot contains: $38

Ai Player 2's turn to place a bet!

The opponent studies their hand...

Ai Player 2 calls.

The pot contains: $44

The betting round is over!

Begin the draw round!

Tim's turn to draw new cards!

Tim's hand:

0: J of Spades

1: J of Clubs

2: 10 of Spades

3: 4 of Clubs

4: 6 of Hearts

Enter the indices of the cards you want to replace (space-separated).Press Enter without inputting anything to keep all cards: 3 4

Tim's updated hand:

0: J of Spades

1: J of Clubs

2: 10 of Spades

3: 7 of Clubs

4: 10 of Diamonds

The opponent studies their hand...

Ai Player 1 replaced 1 cards.

The opponent studies their hand...

Ai Player 3 replaced 2 cards.

The opponent studies their hand...

Ai Player 2 decides to keep all their cards.

The draw round is over!

Begin the betting round!

Tim's turn to place a bet!

Tim's hand:

J of Spades, J of Clubs, 10 of Spades, 7 of Clubs, 10 of Diamonds,

No bets have been placed yet. You can:

1. Check

2. Bet a starting amount (Ante is: $5)

Enter your choice: 2

Enter your starting bet: 20

Tim raises with $20

The pot contains: $64

Ai Player 1's turn to place a bet!

The opponent studies their hand...

Ai Player 1 raises with $26

The pot contains: $90

Ai Player 3's turn to place a bet!

The opponent studies their hand...

Ai Player 3 calls.

The pot contains: $116

Ai Player 2's turn to place a bet!

The opponent studies their hand...

Ai Player 2 raises with $33

The pot contains: $149

Tim's turn to place a bet!

Tim's hand:

J of Spades, J of Clubs, 10 of Spades, 7 of Clubs, 10 of Diamonds,

The current bet is $33

You can choose to:

1. Call (match the bet)

2. Raise (bet more)

3. Fold (exit the round)

Enter your choice: 2

Enter the amount to raise: 35

Tim raises with $35

The pot contains: $184

Ai Player 1's turn to place a bet!

The opponent studies their hand...

Ai Player 1 raises with $45

The pot contains: $229

Ai Player 3's turn to place a bet!

The opponent studies their hand...

Ai Player 3 calls.

The pot contains: $274

Ai Player 2's turn to place a bet!

The opponent studies their hand...

Ai Player 2 calls.

The pot contains: $319

Tim's turn to place a bet!

Tim's hand:

J of Spades, J of Clubs, 10 of Spades, 7 of Clubs, 10 of Diamonds,

The current bet is $45

You can choose to:

1. Call (match the bet)

2. Raise (bet more)

3. Fold (exit the round)

Enter your choice: 1

Tim calls.

The pot contains: $364

The betting round is over!

It's showtime.

Everyone drops their cards...

The winner is: Ai Player 1!

Ai Player 1's hand:

K of Clubs, 7 of Clubs, K of Hearts, 3 of Hearts, 7 of Diamonds,

Which is a Two pair

Pot won: $ 364

Player Stats:

Tim

Money bet: $106

Tim's hand:

J of Spades, J of Clubs, 10 of Spades, 7 of Clubs, 10 of Diamonds,

Ai Player 1

Money bet: $77

Ai Player 1's hand:

K of Clubs, 7 of Clubs, K of Hearts, 3 of Hearts, 7 of Diamonds,

Ai Player 3

Money bet: $77

Ai Player 3's hand:

A of Hearts, 10 of Diamonds, 10 of Clubs, 2 of Clubs, 7 of Clubs,

Ai Player 2

Money bet: $84

Ai Player 2's hand:

2 of Hearts, 3 of Clubs, Q of Clubs, 6 of Spades, K of Spades,

Thanks for playing!

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Press any key to close this window . . .

## Game 3 (2 Human, 1 Ai):

Enter valid number of human players: 2

Enter valid number of AI players: 1

Enter player 0s name: Tim

Enter player 1s name: Evil Tim

Whats the ante?: 5

The pot contains $15

Dealing 5 cards to each player.

Begin the betting round!

Tim's turn to place a bet!

Tim's hand:

3 of Clubs, 10 of Spades, Q of Hearts, 4 of Hearts, 4 of Diamonds,

No bets have been placed yet. You can:

1. Check

2. Bet a starting amount (Ante is: $5)

Enter your choice: 1

You checked.

The pot contains: $15

Evil Tim's turn to place a bet!

Evil Tim's hand:

7 of Clubs, 8 of Spades, 6 of Clubs, A of Spades, 8 of Clubs,

No bets have been placed yet. You can:

1. Check

2. Bet a starting amount (Ante is: $5)

Enter your choice: 2

Enter your starting bet: 6

Evil Tim raises with $6

The pot contains: $21

Ai Player 1's turn to place a bet!

The opponent studies their hand...

Ai Player 1 raises with $12

The pot contains: $33

Tim's turn to place a bet!

Tim's hand:

3 of Clubs, 10 of Spades, Q of Hearts, 4 of Hearts, 4 of Diamonds,

The current bet is $12

You can choose to:

1. Call (match the bet)

2. Raise (bet more)

3. Fold (exit the round)

Enter your choice: 1

Tim calls.

The pot contains: $45

Evil Tim's turn to place a bet!

Evil Tim's hand:

7 of Clubs, 8 of Spades, 6 of Clubs, A of Spades, 8 of Clubs,

The current bet is $12

You can choose to:

1. Call (match the bet)

2. Raise (bet more)

3. Fold (exit the round)

Enter your choice: 1

Evil Tim calls.

The pot contains: $57

The betting round is over!

Begin the draw round!

Tim's turn to draw new cards!

Tim's hand:

0: 3 of Clubs

1: 10 of Spades

2: Q of Hearts

3: 4 of Hearts

4: 4 of Diamonds

Enter the indices of the cards you want to replace (space-separated).Press Enter without inputting anything to keep all cards: 0 1 2

Tim's updated hand:

0: J of Clubs

1: Q of Spades

2: 6 of Spades

3: 4 of Hearts

4: 4 of Diamonds

Evil Tim's turn to draw new cards!

Evil Tim's hand:

0: 7 of Clubs

1: 8 of Spades

2: 6 of Clubs

3: A of Spades

4: 8 of Clubs

Enter the indices of the cards you want to replace (space-separated).Press Enter without inputting anything to keep all cards: 0 2

Evil Tim's updated hand:

0: J of Clubs

1: 8 of Spades

2: Q of Spades

3: A of Spades

4: 8 of Clubs

The opponent studies their hand...

Ai Player 1 replaced 1 cards.

The draw round is over!

Begin the betting round!

Tim's turn to place a bet!

Tim's hand:

J of Clubs, Q of Spades, 6 of Spades, 4 of Hearts, 4 of Diamonds,

No bets have been placed yet. You can:

1. Check

2. Bet a starting amount (Ante is: $5)

Enter your choice: 2

Enter your starting bet: 20

Tim raises with $20

The pot contains: $77

Evil Tim's turn to place a bet!

Evil Tim's hand:

J of Clubs, 8 of Spades, Q of Spades, A of Spades, 8 of Clubs,

The current bet is $20

You can choose to:

1. Call (match the bet)

2. Raise (bet more)

3. Fold (exit the round)

Enter your choice: 1

Evil Tim calls.

The pot contains: $97

Ai Player 1's turn to place a bet!

The opponent studies their hand...

Ai Player 1 raises with $40

The pot contains: $137

Tim's turn to place a bet!

Tim's hand:

J of Clubs, Q of Spades, 6 of Spades, 4 of Hearts, 4 of Diamonds,

The current bet is $40

You can choose to:

1. Call (match the bet)

2. Raise (bet more)

3. Fold (exit the round)

Enter your choice: 1

Tim calls.

The pot contains: $177

Evil Tim's turn to place a bet!

Evil Tim's hand:

J of Clubs, 8 of Spades, Q of Spades, A of Spades, 8 of Clubs,

The current bet is $40

You can choose to:

1. Call (match the bet)

2. Raise (bet more)

3. Fold (exit the round)

Enter your choice: 1

Evil Tim calls.

The pot contains: $217

The betting round is over!

It's showtime.

Everyone drops their cards...

The winner is: Evil Tim!

Evil Tim's hand:

J of Clubs, 8 of Spades, Q of Spades, A of Spades, 8 of Clubs,

Which is a One pair

Pot won: $ 217

Player Stats:

Tim

Money bet: $72

Tim's hand:

J of Clubs, Q of Spades, 6 of Spades, 4 of Hearts, 4 of Diamonds,

Evil Tim

Money bet: $78

Evil Tim's hand:

J of Clubs, 8 of Spades, Q of Spades, A of Spades, 8 of Clubs,

Ai Player 1

Money bet: $52

Ai Player 1's hand:

J of Clubs, K of Spades, 2 of Clubs, 10 of Diamonds, 9 of Spades,

Thanks for playing!

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