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Homework 3 Summary

This program is a game called Farkle. It has all the logic that players need to play it. It also has a multiplayer mode and the option to set a custom target score.

In this homework, I focused on making multiplayer implementation fairly simple including the code for my endgame. I managed to add about 5 new functions and they are fairly easy except the main game function which has logic for triggering endgame or responding to the 'Q' choice aka forced game end.

The main challenge in this homework was to implement a proper farkle endgame. I tried several implementations of my endgame and stopped on the implementation in which after reaching the target score, the game goes to the separate endgame function in which the logic for the endgame is. It allowed me to keep the proper order of players.

For this homework, I wrote 3 tests to test how my new combo is working in different conditions. I tested it with regular dice values (dice that are not combo by themselves). I also tested how the logic will work if a player will have a straight one of combo dice and my last test looks at how my system works if the combo has only this special dice.

If I had more time I would definitely work more on my endgame logic. I have an idea of how it could be implemented without a separate function, but I didn't have enough time to work on it.

Hand

- diceInMeld : ArrayList<Integer>
- diceInCombo : ArrayList<Integer>
- die : Die
- meldScore : Integer
- numDicesInBank : ArrayList<Integer>
- bank : ArrayList<Integer>
- diceNumberCount : ArrayList<Integer>
- hand : ArrayList<Integer>

+ getHand() : ArrayList<Integer>
+ setBank(newBank : ArrayList<Integer>) : void
+ setDiceNumberCount(newNumBank : ArrayList<Integer>) : void
+ setNumDicesInBank(newNumDicesInBank : ArrayList<Integer>) : void
+ returnDiceInMeld() : ArrayList<Integer>
+ getDiceNumberCount() : ArrayList<Integer>
+ getDiceInMeld() : ArrayList<Integer>
+ getMeldScore() : Integer
+ getReady() : void
+ rollHand() : void
+ printInterface(player : Player) : void
+ printHand(player : Player) : void
+ bankHand(str : String) : void
+ findNumDices(from : ArrayList<Integer>, to : ArrayList<Integer>) : void
+ countMeld(player : Player) : void
+ findOnes(player : Player) : void
+ findPairs(player : Player) : void
+ findTriplesPlus(player : Player) : void
+ isFarkle() : boolean
+ findDiceInCombo() : void
+ prepareForReroll(player : Player) : Boolean
+ endRound(player : Player) : void
+ printChoice() : void

Board

- gameRunning : Boolean
- playersInput : String
- input : Scanner
- hand : Hand

+ playRound(player : Player) : void
+ playGame(players : ArrayList<Player>, score : Integer) : void
+ playersTurn(player : Player) : void
+ playersAction(player : Player) : void
+ printGreetings() : void
+ endgame(players : ArrayList<Player>, playerToBeat : Integer) : void
+ printResults(players : ArrayList<Player>) : void
+ prepareRound(player : Player) : void
+ isGameEnded(players : ArrayList<Player>, score : Integer) : Boolean
+ printEndgame(players : ArrayList<Player>) : void

HandTest

~ testCountMeldStraight() : void
~ testCountMeldThreePairs() : void
~ testCountMeldOne() : void
~ testIsFarkle() : void
~ testFullhouse() : void
~ testFullhousePlus() : void
~ testFullhouseOnesAndFives() : void

GeneralTest

~ alwaysTrue() : void

java.util.ArrayList<java.lang.Integer>

java.lang.Comparable<edu.gonzaga.Farkle.Die>

Die

- DEFAULT_SIDE_UP : Integer {readOnly}
- DEFAULT_NUM_SIDES : Integer {readOnly}
- numSides : Integer
- sideUp : Integer

+ Die()
+ Die(numSides : Integer)
+ Die(numSides : Integer, startingSide : Integer)
+ roll() : void
+ getSideUp() : Integer
+ getNumSides() : Integer
+ toString() : String
+ compareTo(otherDie : Die) : int

java.lang.Integer

Player

- constMeld : Integer
- nameInput : String
- input : Scanner
- name : String
- bank : Integer
- meld : Integer

+ getMeld() : Integer
+ setMeld(newMeld : int) : void
+ addMeld(add : Integer) : void
+ getBank() : Integer
+ setBank(newBank : int) : void
+ addBank(add : Integer) : void
+ getName() : String
+ setName(newName : String) : void
+ getConstMeld() : Integer
+ setConstMeld(newConstMeld : int) : void
+ addConstMeld(add : Integer) : void
+ transferToBank() : void

java.util.Scanner

java.lang.Boolean

java.lang.String

Farkle

+ main(args : String[]) : void
+ setPlayers(players : ArrayList<Player>) : ArrayList<Player>
+ setScore() : Integer

DieTest

~ testDefaultValue() : void
~ testInitializedValue() : void
~ testGreaterThan() : void
~ testLessThan() : void
~ testEquals() : void

PlayerTest

~ testSetPlayerName() : void
~ testSetPlayerNameEmpty() : void