ECM2414 Software Development

CA Continuous Assessment Plan

Assessment Breakdown

Due Date: 12 November 2020 (approximately 3 weeks)

Development Technique: Java programming with emphasis on concurrency.

Team Roles: Pair programming would usually focus on switching roles between who is coding and who is checking the code, however, it may be more effective to give specialised roles in this instance.

Game Details

Initialisation

* Players - n players each labelled 1…n, such as player1, player2, …, playern.
* Decks - n decks each labelled 1…n, such as deck1, deck2, …, deckn.
* Each player will hold a hand of 4 cards.
* Each deck will hold 4 cards.
* Players hands and decks will be drawn from a pack of size 8n.

Layout

Diagram

Description automatically generatedPlayers and decks will be arranged into a ring topology (see image below).

Dealing

* Players – will be dealt cards FIRST in a round-robin fashion (one card to player1, one card to player2, and so on) from the pack until each player has 4 cards in their hand.
* Decks – will be dealt SECOND in the exact same fashion until the pack is empty.

Winning Conditions

* A player has 4 cards in their hand all of the same value. This can happen at any stage in the game including the first hand after drawing.

Playing

* In a round-robin fashion, each player picks up one card from the top of the deck to their left and discards one card to the bottom of the deck on their right.
* Example: player1 picks up one card from the top of deck1 and discards one card to the bottom of deck2

Strategy

* Each player has a card value denomination where player1’s will be 1s, player2’s will be 2s and so on.
* Players MUST discard cards that are non-denomination (the discarded card will be random from the list of non-denomination cards).
* A player MUST NOT hold onto a non-denomination card for the entire game (as this may cause stagnation)

Implementation

Objects/Classes

* Card
* Player
* CardDeck
* CardGame(interface)

Object Attributes and Methods

Card

Attributes:

* Value (Positive Int)

Methods:

* set(Int Value)
* get()

Player

Attributes:

* Index (Positive Int)
* Hand (List<Card>)

Methods:

* set(Int Index, List<Cards> Hand)
* get() (one for each attribute)
* addCard()
* discardCard()
* checkWin()
* playGame()

CardDeck

Attributes:

* Index(Positive Int)
* Cards(List<Card>)

Methods

* set(Int Index, List<Cards> Cards)
* get() (one for each attribute)

Time Allocation

23 days (from 21/10 to 12/11) to complete the project.

Time spent on Coding:EndTesting:Report 17:3:2 (subject to change based on progress).

A rough schedule should be decided based on this ratio.