Coursework Feedback: Halatro

CS141 Student [REDACTED] March 2025

This document lays out your marks for the first coursework of CS141 Functional Programming.

Correctness

All correctness testing was done by comparing the output of your functions to a "known good" reference implementation. The results of the tests are appended to this document.

- Exercises 2, 4: The case where an empty hand is provided is not cleanly handled.

Your AI

The "baseline" score for myAI is around 400 points—an implementation of sensibleAI can score this amount. A reasonable upper bound for performance is a little over 750 points.

After 1000 varied trials, your score was 704.63. The score is computed by the reference implementation (to avoid any potential bugs in your scoring). This earns 9/10, by rounded linear interpolation between 4 and 10.

Code Quality

Your code quality receives a score of 9/10, based on the criteria given in the spec. We will discuss idiomatic approaches to Halatro in the final week of lectures. If you would like any direct feedback on your attempt, you are very welcome to visit during office hours or ask in the labs.

Mark Breakdown

Exercise	Mark
Ex. 1 (contains)	5 / 5
Ex. 2 (bestHandType)	3 / 5
Ex. 3 (whichCardsScore)	5 / 5
Ex. 4 (scoreHand)	2 / 4
Ex. 5 (highestScoringHand)	5 / 5
Ex. 6 (simpleAI)	3 / 3
Ex. 7 (sensibleAI)	3 / 3
Ex. 8 (myAI)	9 / 10
Code Quality	9 / 10
Final Mark	44 / 50

Note: Any additional adjustments (for example, lateness penalties) will be applied via Tabula and will not appear here.

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Comprehensive Tests
  Ex. 1: contains
    Valid Inputs: Hands of 0-5 distinct cards
    Testing against the reference implementation:     OK (0.06s)
      +++ OK, passed 1000 tests.

      Hand types tested (1000 in total):
      11.1% StraightFlush
      10.6% ThreeOfAKind
       9.8% Straight
       9.7% Flush
       9.6% TwoPair
       9.1% RoyalFlush
       8.7% None
       8.3% FourOfAKind
       7.8% Pair
       7.7% FullHouse
7.6% HighCard
  Ex. 2: bestHandType
    Valid Inputs: Hands of 0-5 distinct cards
    Testing against the reference implementation:     FAIL
      *** Failed! Falsified (after 2 tests):
      For the following expression:
        bestHandType []
      The reference implementation returned: None
But your implementation returned: HighCard

      Use --quickcheck-replay=761324 to reproduce.
  Ex. 3: whichCardsScore
    Valid Inputs: Hands of 0-5 distinct cards
    Testing against the reference implementation:     OK (0.22s)
      +++ OK, passed 1000 tests.
  Ex. 4: scoreHand
    Valid Inputs: Hands of 0-5 distinct cards
    Testing against the reference implementation:     FAIL
      *** Failed! Falsified (after 11 tests):
      For the following expression:
        scoreHand []
      The reference implementation returned: 0
      But your implementation returned: 5

      Use --quickcheck-replay=35128 to reproduce.
Ex. 5: highestScoringHand
    Valid Inputs: Sets of up to 10 distinct cards
    Testing against the reference implementation:     OK (3.39s)
      +++ OK, passed 1000 tests.
  Ex. 6: simpleAI
    Always plays the five highest-ranked cards:       OK (0.01s)
      +++ OK, passed 1000 tests.
  Ex. 7: sensibleAI
    Always plays the best hand (but doesn't discard): OK (5.46s)
      +++ OK, passed 1000 tests.
  Ex. 8: myAI
    Plays Halatro:                                    OK (5.82s)

      Average score over 1000 games: 704.63

2 out of 8 tests failed (5.82s)
```