CS50 R FINAL PROJECT

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Location: Medan, Indonesia

Date: 24 Jun 2025

Poker R

A Simplified Texas Hold'em Poker Game Using R programming language

What is PokerR?

R package to play Texas Hold'em poker

Simulates games with npc players

Calculates winning probability using Monte Carlo

Package Features

– play_poker(num_players)

- estimate_win_prob()

Evaluate poker hands and calculate score

Modular functions

How PokerR Works

- Uses a 52-cards deck
- Each player gets 2 cards
- 5 community cards revealed
- Best 5-cards hand is evaluated for each player
- Winner determined with tie-breaker logic

Estimating Win Probability (Monte Carlo)

- Given player 1 hand and community cards
- Randomly simulate remaining unknown cards
- Repeat playing simulation N times
- Count how often Player 1 wins
- Return win % for user's decision making

Example Usage

```
> play poker(3)
Your playing hands: Jh, 7s
Community cards: As, Tc, 7c, 8h, Kc
Calculating winning probability by monte carlo simulation...
Your probability of winning is 18.6 %
Continue to play (y/n): n
You fold. Try again next time
Showing players' hands:
Player 1 : Jh, 7s
Player 2: Ts, 4s
Player 3: Qd, 9h
Winner(s): Player 2
Player 2 - One Pair
  rank suit
  10
2 10
       C
  14 s
  13 c
         h
```

Testing and Validation

Unit tested with `testthat` from `devtools` package

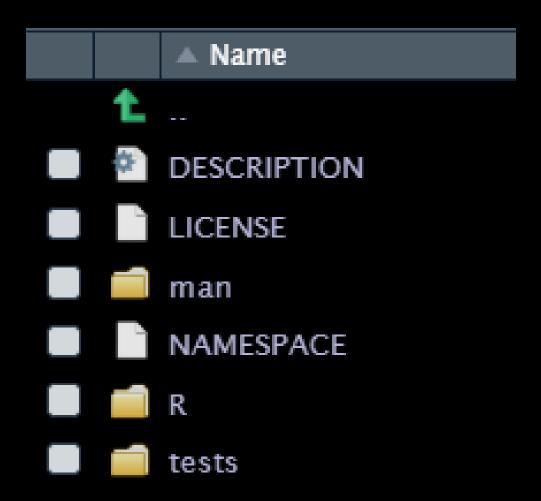
Validates all hand types: High Cards -> Royal Flush

-Prevents false positive in the hand checking functions

Modular Functions

- create_deck()
- deal(deck, players)
- parse_cards(hand, community)
- evaluate_hands(parsed_cards)
- get_score(evaluations)
- get_winner(scores)

Package Structure Overview



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by Erick Khosasi

Thank You
For Your Attention