

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
1  10    s
2  10    c
3  14    s
4  13    c
5   8    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

		▲ Name
		..
		DESCRIPTION
		LICENSE
		man
		NAMESPACE
		R
		tests

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by Erick Khosasi

Thank You
For Your Attention