Texas Hold'Em User Manual

By Team ETCetera

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System Requirements

To play Texas Hold'Em Poker, you will need a PC with Java version 1.7 or newer installed.

Installation Instructions

General Installation Instructions

1. Download the .jar file.
2. Click or double click on the .jar file.

Known Issues Affecting Installation

There are no known issues affecting installation.

Basic Troubleshooting

Verify that you have a JRE or JDK of version 1.7.0 or higher installed and retry. Otherwise, if you have any issues installing or using the Texas Hold'Em game, please email one of the following:

- eboland2@uis.edu
- tcox7@uis.edu
- camster121@gmail.com

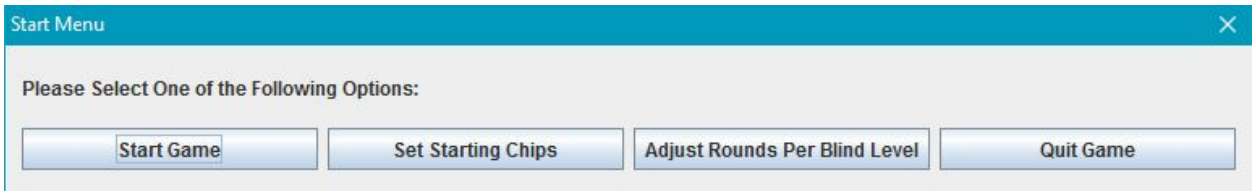
How To Play (with Screenshots)

General Game Instructions

For general instructions on playing Texas Hold'Em Poker, we recommend visiting:
http://www.pokerlistings.com/poker-rules-texas-holdem

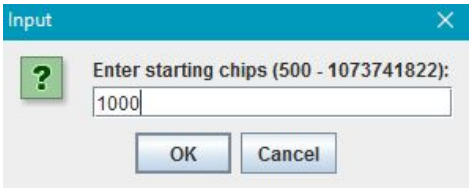
Beginning the Game

At the beginning of the game, you will be presented with 4 options:



Start Game
Begin the game with the default number of starting chips (1,000) and rounds.

Set Starting Chips
Change the number of starting chips (500-1073741822). The default is 1,000.

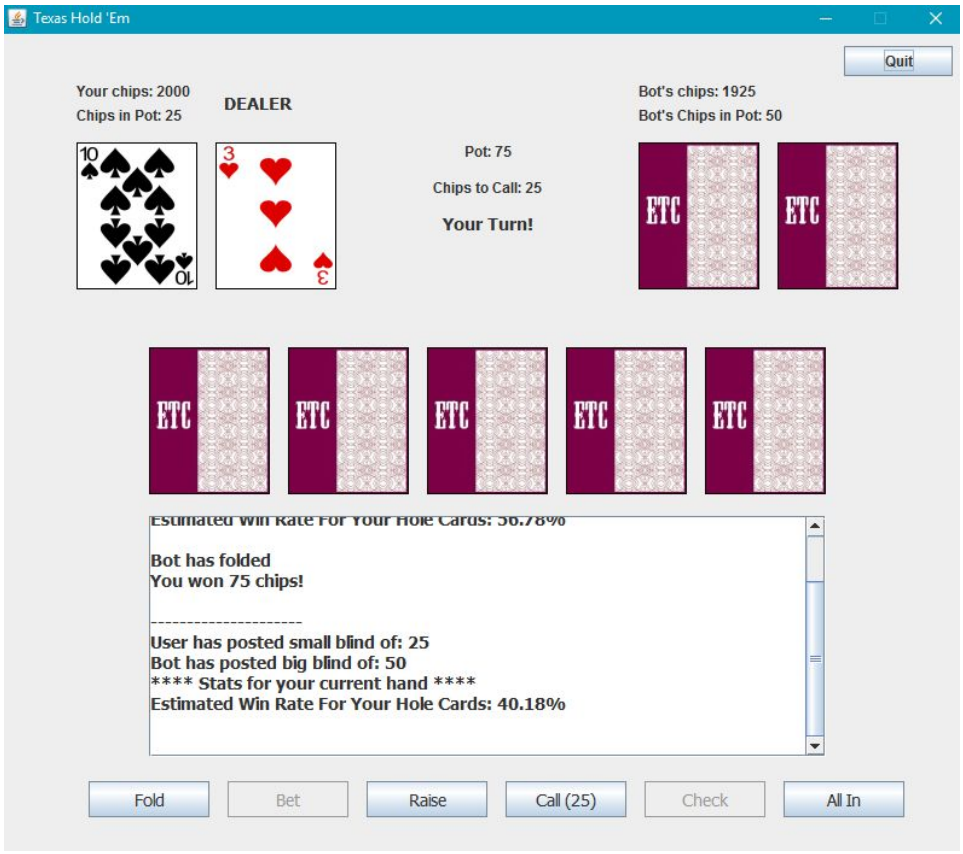


Adjust Rounds per Blind Level
Change the number of rounds per blind, minimum of 1. The default is 10.

Quit Game
Quit the game.

Playing the Game

At the beginning of the game, the bot and the user will automatically post the small blinds and the big blinds. The small blind begins at 25 and the big blind begins at 50. The Estimated Win Rate will be displayed in the Message Window.



The user begins in the big blind, so the bot will go first. He will Call, Bet, or All In.

Depending on the bot's decision, the user will have the option to either Fold, Bet, Raise, Call, Check, and/or All In.

After every hand that is played, a pop up dialog box will appear that will ask you to continue. Simply press OK to continue the game.

Once either the player or bot has run out of chips, the game will end. The first one to run out of chips is the loser in this heads up match. A box will pop up at the end of the game, asking if you would like to play another game.

Player Options

Folding

Folding is conceding the round to the bot without risking additional chips. This is an option available if the player is not confident in their potential hand. To fold:

1. Click on the **Fold** button

Betting

Betting will allow the user to increase the pot, giving the bot the option to either fold or call. To bet:

1. Click on the **Bet** button.
2. Enter the amount of chips to bet. The amount of chips available to bet will be determined by the number of chips in your possession.
3. Click the **OK** button.

Raising

After the bot has made a bet on his hand, you will have the option to Raise. If you are confident in your hand, raising will increase the potential winnings. To raise:

1. Click on the **Raise** button on the main Poker Screen.
2. In the pop up screen, enter the amount of chips that you would like to raise the pot by. The number of chips available to raise will be determined by the number of chips you are currently in possession of.
3. Click the **OK** button.

Calling

When the bot places a bet, or the player is in the small blind, the player will have the option to call. Calling is matching the bot's bet. This will allow the round to continue. To call:

1. Click on the **Call** button

Checking

If betting was not opened by the bot, the player will have the option to check and defer betting. This will allow the player to see a free flop, turn card, or river. To check:

1. Click on the **Check** button.

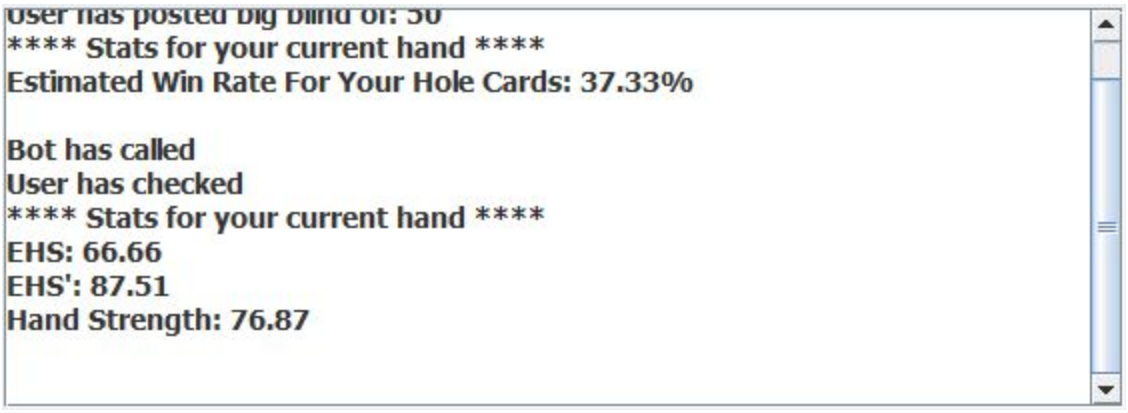
All In

To bet all of your available chips:

1. Click on the **All In** button.

Explanation of Statistics

A brief introduction to the hand statistics used in this game. The screenshot below is used as an example of how statistics are shown in-game.



Pre-Flop:

The statistic displayed for your hand prior to the flop is an approximate win rate. In other words, the statistic is the number of times that particular set of hole cards wins in a two-player scenario, assuming that both players remain in the hand up to the showdown. This provides a good indication of the strength of a hand. As an example, if your hole cards are two Aces, then the win rate displayed will be about 85%, indicating that in idealized play with two players it will win roughly 85% of the time. This would be considered a strong hand. However, a seven and a two of different suits has a win rate of only about 32%, making it a significantly weaker hand.

The win rate was calculated by simulating 1,000,000 games for each of 169 unique possible starting hands types. For each game, it was assumed that there were only two players and that each remained in the game until showdown. Though this is an idealized scenario, it works well with a computer opponent using the same information.

Post-Flop:

Three separate statistics are displayed for hands post-flop: Effective Hand Strength (EHS), Effective Hand Strength Optimistic (EHS') and Hand Strength (HS). EHS and EHS' are based on a principle called hand potential. There are two types of hand potential: positive and negative. Positive potential is the likelihood that your current hand will improve as the remaining two (or one) board cards are revealed.

Negative potential is the exact opposite and indicates the likelihood that your hand will become weaker as the remaining board cards are revealed.

HS is the result of a simple calculation that looks at the cards currently visible to you (your hole cards plus any visible board cards) and then looks at every possible set of hole cards your opponent might be holding and how those cards compare to your own, given the visible board cards. The result is the proportion of times your hand either wins or ties against the simulated opponent cards. As shown in the example above, the hand strength for the hand at that stage (just after the flop) is 76.87%. This indicates that there is a 76.87% chance that your current hole cards will win or tie against your opponent's cards, given the currently visible board cards. The main limitation of HS is that it does not take examin what might happen on the Turn or River, which add new board cards that will change your hand's chances of winning.

This last consideration brings us to the EHS value, which is 66.66% in the screen shot above. EHS represents the following calculation: $EHS = HS + (1 - HS) * PPOT - HS * NPOT$, where HS is the hand strength, and PPOT and NPOT representing the hand's positive and negative potential, respectively. Basically, EHS indicates how likely your current hand is to be stronger than your opponent's, plus how likely your hand will improve in the cases in which your current hand is behind, minus the likelihood that your hand will worsen as the remaining board cards are revealed. This calculation is accomplished by examining all the possible outcomes that may result from the board cards revealed during the Turn and River (or simply the River, as the case may be) once for each possible set of hole cards your opponent may be holding. This is an intensive calculation but provides a good indication of your hand's chances of winning.

The last statistic displayed in the current version is EHS'. This is actually very close to EHS, as can be seen in the equation for EHS': $EHS = HS + (1 - HS) * PPOT$. The only difference is the removal of the HS*NPOT term. What this means is that EHS' is somewhat more optimistic than EHS, as it ignores the chances that your current hand's chances of winning will decrease with subsequent board cards. You may wonder why this is at all relevant. The optimistic version can be better for betting decisions involving pot odds.

Note: On the river, HS, EHS, and EHS' will be the same. This is because the potentials become 0 as there is no further potential for your hand to worsen or improve (no further board cards will be revealed. For this reason, on the river only the HS value is displayed).