Terminology:

* card: has a suit, rank, and is either face-up or face-down. When face-up the card front is displayed. When face-down the card back is displayed.
* card front: an image of the card that shows the suit and rank
* card back: an image of the card that is identical for all cards in the deck
* suit: values and sorting order = {heart, diamond, club, spade}
* rank: values and sorting order = {ace, 2, 3, 4, 5, 6, 7, 8, 9, 10, jack, queen, king}
* face card: a card with rank jack, queen, or king
* color: a card with suit heart or diamond is red; a card with suit club or space is black
* deck: ordered set of 52 cards, where each card has a unique combination of rank and suit. (13 ranks \* 4 suits = 52). All cards in a deck have the same image for the card back.
* shuffle (a deck or set of cards): put the cards in randomized order
* run: ordered set of 2 or more cards, sorted according to rank, where the lowest rank card is first and each subsequent card has rank one higher than previous.
* inverted run: a run where the highest rank card is first
* straight run: a run where all cards have the same suit
* inverted straight run: an inverted run where all cards have the same suit
* inverted alternating run: an inverted run where the color alternates between black and red (either color can start the run).

Spider Solitaire:

* tableau: contains a row of 10 card stacks. In each stack the bottom of the stack is laid down first, and each subsequent card is overlaid below with a small offset. (See diagram). Only the card at the top of the stack is shown in full.
* foundation: contains 8 card stacks. Cards are always face-down.
* stock: stack of cards, face-down
* waste: stack of cards, face-up. The waste is displayed to the right of the stock.

stock

waste

tableau

foundation

Save Game

New Game

text area 1

Spider Solitaire

Klondike Solitaire:

* tableau: contains a row of 7 card stacks. In each stack the bottom of the stack is laid down first, and each subsequent card is overlaid below with a small offset. (See diagram). Only the card at the top of the stack is shown in full.
* foundation: contains 4 card stacks. Cards are always face-down.
* stock: stack of cards, face-down
* waste: stack of cards, face-up. The waste is displayed to the right of the stock.

foundation

Klondike Solitaire

stock

waste

tableau

Save Game

New Game

text area 1

Rummy and Gin Rummy:

* stock: stack of cards, face-down
* discard: stack of cards, face-up. The waste is displayed to the right of the stock.
* hand: ordered set of cards, sorted by suit then rank (lower rank to the left; lower suit to the left). The number of cards in a hand varies according to the game play. The player’s hand is always face up. The opponent’s hand can be either face-up (for debugging) or face-down. When the game is delivered the opponent’s hand is face-down.
* meld area: a rectangular area containing 3 rows and 5 columns of card stacks. The number of cards in a card stack varies according to game play. A card stack can be empty (no cards).
* knock button: this applies only to Gin Rummy.
* text area 1: for the display of step-by-step instructions.
* text area 2: for display of the score.

Game sequence for Rummy:

|  |  |  |
| --- | --- | --- |
| **precondition** | **action allowed** | **Instructions displayed in text area 1** |
| player’s turn starts | draw | Click on the card you wish to draw (from the stock or discard pile). |
| after player draws | meld or  lay off or discard | To meld, select the cards from your hand that you wish to meld (by clicking on each card), then click on an empty spot in the meld area.  To lay off, select a card in your hand, then click on the meld you wish to move it to.  To discard, select a card in your hand, then click on the discard pile. |
| after first meld or first lay off | lay off or discard | To lay off, select a card in your hand, then click on the meld you wish to move it to.  To discard, select a card in your hand, then click on the discard pile. |
| after subsequent lay off | lay off or discard | To lay off, select a card in your hand, then click on the meld you wish to move it to.  To discard, select a card in your hand, then click on the discard pile. |
| after discard, if player still has one or more cards | opponent’s turn | Opponent’s turn. |
| after discard, if player has no cards | game over | Game over. |
| Notes:  At each player move, check for legal move.  Opponent follows same sequence as player. | | |

Game sequence for Gin Rummy:

|  |  |  |
| --- | --- | --- |
| **precondition** | **action allowed** | **Instructions displayed in text area 1** |
| player’s turn starts | draw | Click on the card you wish to draw (from the stock or discard pile). |
| after player draws | knock or discard | To knock, click the “Knock” button.  To discard, select a card in your hand, then click on the discard pile. |
| if player discards | opponent’s turn | Opponent’s turn. |
| if player knocks | follow end game sequence |  |
| Notes:  At each player move, check for legal move.  Opponent follows same sequence as player, except the opponent does not knock (a simplifying assumption). | | |

End Game sequence for player in Gin Rummy:

|  |  |  |
| --- | --- | --- |
| **precondition** | **action allowed** | **Instructions displayed in text area 1** |
| player knocks | meld or discard | To meld, select the cards from your hand that you wish to meld (by clicking on each card), then click on an empty spot in the meld area.  To discard, select a card in your hand, then click on the discard pile. |
| after player melds | meld or discard | To meld, select the cards from your hand that you wish to meld (by clicking on each card), then click on an empty spot in the meld area.  To discard, select a card in your hand, then click on the discard pile. |
| if player discards | opponent’s turn | Opponent’s turn. |
| Notes:  At each player move, check for legal move. | | |

End Game sequence for opponent in Gin Rummy:

|  |  |
| --- | --- |
| **precondition** | **sequence of actions** |
| after player discards, if player has no deadwood | Meld all possible sets/runs.  Discard. |
| after player discards, if player has deadwood | Meld all possible sets/runs.  Lay off all possible cards on player’s melds.  Discard. |
| after opponent discards | Game over. Score game. |

Rummy

or

Gin Rummy

stock

discard

opponent’s hand

meld area

Knock

Save Game

text area 1

player’s hand

text area 2

New Game

Note: “Knock” button is only for Gin Rummy.