

Project Overview

Develop a software application for the card game called Tunk.

Project Terms

The following terms and acronyms are defined and used within this document.

Term/Acronym	Definition
card	A single playing card that has both a rank and a suit.
card rank	Ace, 2, 3, 4, 5, 6, 7, 8, 9, 10, Jack, Queen, or King.
card suit	One of spade, heart, club, or diamond.
deck	A standard collection of 52 playing cards, where each card has a distinct value.
discard pile	A pile of cards face up.
game total	A player's total score.
hand total	A player's score for a single hand. This is added to the player's game total at the end of each hand.
matched set	A set of three or four cards with the same rank OR a run of three or four cards in sequence and in the same suit. A matched set can contain only three of four cards (i.e., a sequence of five or more cards is not a matched set) AND must contain at least two natural cards.
stock pile	A pile of cards face down.
unmatched card	A player's card that is not part of a matched set.

Project Requirements

The project requirements include a description of the way in which the game is played and processing requirements. Please note that all of the project requirements are numbered so they can be referenced in your project plan (more on this after increment 3 is completed).

Tunk Game Description

Equipment

1. A standard 52-card deck of playing cards. The ranking from low to high is Ace-2-3-4-5-6-7-8-9-10-Jack-Queen-King.

Rules

2. Tunk is played by two or more players, with each player in succession having a turn. Each player's turn may result in the player calling out "tunk" (see *Scoring* below). Each player that reaches 100 or more points is dropped from the game, until only one player remains. The player that does not reach 100 points is the winner.
3. Each hand begins by the dealer shuffling the deck and dealing seven cards to each player. The dealer then places the remaining cards face down as the stock pile and flips over the top card in the stock pile to create the discard pile. The player to the left of the dealer begins play. The dealer rotates to the left after each hand.
4. The basic game strategy is to improve one's hand by forming matched sets, eliminating unmatched cards, and deciding when to call out "tunk". There are two types of matched sets:
 - a. Sets of 3 or 4 cards sharing the same rank, e.g. three 8's.

- b. A sequence of 3 or 4 cards in the same suit. e.g., 3-4-5-6 of heart.
 - c. Each card with a rank of 2 is a wild card. It may participate in any matched set.
 - d. A matched set cannot contain more than four cards AND must contain at least two natural cards.
5. On each turn, a player must do two things, in order:
- a. Draw either the top card from the discard pile or the top card from the stock pile.
 - b. Then the player may either:
 - i. Discard one card from their hand onto the discard pile.
 - ii. Or call out “tunk” if they have five or fewer unmatched cards in their hand.
6. Player’s alternate taking turns until either:
- a. The stock pile is empty.
 - i. In this case, the hand ends and no points are added to players’ game totals.
 - b. A player calls out “tunk”.
 - i. This player then spreads out their hand, separating matched and unmatched cards.
 - ii. Each *other* player then has one turn to draw from the stock or discard pile, spread out their hand (separating matched and unmatched cards), and discarding one card.
 - iii. When each of these *other* players spreads out their hand, they can add to the tunker’s matched sets as long as the rules for a matched set are upheld. Note that if all of the tunker’s cards were matched, no *other* player one may add to the tunker’s matched sets.
 - iv. After each of these *other* players has had their turn, the hand ends and scoring takes place.

Scoring

7. After each hand, a player’s hand total is added to their game total.
- a. The only exception to this is when the hand ends because the stock pile is empty. In this case, there are no hand totals and thus a player’s game total is not affected.
8. A player’s hand total is the count of each player's unmatched cards. The point value for each card rank is as follows:
- a. Aces are scored at 1 point.
 - b. Face cards at 10.
 - c. All other cards, including a 2, have a point value that matches their numerical rank.
 - d. If the tunker does not have the lowest hand total, s/he is charged double their hand total.
9. At the end of each hand, any player that has a game total of 100 or more points is dropped from the game. When one player remains, this player is the winner. If all remaining players are dropped from the game at the end of a hand, the player with the lowest game total is the winner.