

Game Of 21

By James Su, Matthew Wong, Stephanie Lum, Collin Jia



The Game Rules - 21

Aka "BlackJack"

- Card values:
 - Cards 2-10 have their face value
 - All royal cards have value of 10
 - Aces can be 1 or 11
- All players are dealt two cards
- The second card is shown
- If the player gets a card with a value of 10 and an ace
 - They get a blackjack
 - The game ends and they automatically win
- During a players turn, they can choose to do the following
 - Stop (stop getting dealt more cards and keep the sum that the have currently)
 - Deal (Get dealt another card, all cards except the first card is shown)
- If at anypoint, the player gets over 21,
 - The other player wins automatically
- The sum of the cards are compared at the end, the one that is closer to 21 without being over is the winner
 - If its a tie, the dealer(computer) wins



Algorithm



Initialize variables

Loop(for entire game)

Set up deck

Deal 2 cards to user and computer

If computer or user gets “blackjack” (an ace and a face card), they automatically win

Loop(for round)

If sum of user’s cards are greater than or equal to 21

Exit loop and go to computer’s turn

Ask user if they want another card

If user wants another card

Give user another card (output)

If user does not want another card

Exit loop and go to computer’s turn

Loop(for computer turn)

Computer analyzes its chances of winning and makes choices (to get another card or not) accordingly

Compare final sum of each player’s card

Declare winner

Ask user if they want to play again, exit loop containing entire game if they say no



Our Code

<https://codeshare.io/adNg0y>



Test cases

Test Cases #1: Valid Input

Test Cases #2: Invalid Input

Test Cases #3: Gameplay Scenarios
(As this game does not require a lot of user input, we tested the logic of the game by hard coding certain values to see the outcome of the game in different scenarios)



Expected
Outcome ✓

The image features a solid orange background. In the top-left corner, there are three vertical bars of varying heights, each composed of several overlapping semi-transparent circles. In the bottom-right corner, there are four vertical bars of varying heights, also composed of overlapping semi-transparent circles. The text "THANK YOU FOR LISTENING!" is centered in the middle of the page in a bold, white, sans-serif font.

**THANK YOU FOR
LISTENING!**