

# Game Of 21

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# 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 they have currently)
  - Deal (Get dealt another card, all cards except the first card are 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>



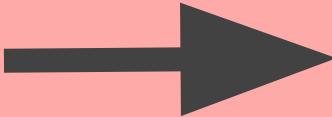
# Test cases

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 ✓

**THANK YOU FOR  
LISTENING!**