KAVI ARORA

11- D

Modern school vasant vihar

Computer Science

Project Work



**About The Game:**

**Introduction to the Game:**

Welcome to Blackjack! In this classic card game, your objective is simple: get as close to a total of 21 as possible without going over. If your total surpasses 21, the dealer automatically wins. Each card holds a value, with face cards (Kings, Queens, and Jacks) counting as 10, and Aces as either 1 or 11, depending on what benefits you the most.

**Rules and Objective:**

Your goal is to build a hand whose total value is closer to 21 than the dealer's hand, without exceeding it. At the beginning of the game, you and the dealer are dealt two cards each, with only one of the dealer's cards being visible. You have the option to 'hit', receiving an additional card to improve your hand, or 'stay', indicating that you're satisfied with your current total. Once you decide to stay, the dealer reveals their hidden card and proceeds to draw cards until their total is at least 17. If the dealer's total exceeds 21, you win!

**How to Play:**

1. **Dealing:** Two cards are initially dealt to both you and the dealer.

2. **Taking Turns:** You begin by deciding whether to hit or stay. If you choose to hit, another card is dealt to you. If you're content with your total, you stay.

3. **Dealer's Turn:** Once you stay, the dealer reveals their hidden card, and the dealer's turn begins. The dealer will continue to draw cards until their total is at least 17.

4. **Outcome:** After the dealer's turn, the totals are compared. If your total is closer to 21 without exceeding it, you win! If the dealer's total is closer or you both tie, the dealer wins.

Press any key to start the game! Let's see if you can beat the dealer at Blackjack!

**Code:**

import random

ace = ['AD', 'AS', 'AC', 'AH']

king = ['KD', 'KS', 'KC', 'KH']

queen = ['QD', 'QS', 'QC', 'QH']

jack = ['JD', 'JS', 'JC', 'JH']

two = ['2D', '2S', '2C', '2H']

three = ['3D', '3S', '3C', '3H']

four = ['4D', '4S', '4C', '4H']

five = ['5D', '5S', '5C', '5H']

six = ['6D', '6S', '6C', '6H']

seven = ['7D', '7S', '7C', '7H']

eight = ['8D', '8S', '8C', '8H']

nine = ['9D', '9S', '9C', '9H']

ten = ['10D', '10S', '10C', '10H']

deck = [ace, king, queen, jack, two, three, four, five, six, seven, eight, nine, ten]

def calculate\_total(cards):

total = 0

num\_aces = 0

for card in cards:

if card in king or card in queen or card in jack:

total += 10

elif card in two:

total += 2

elif card in three:

total += 3

elif card in four:

total += 4

elif card in five:

total += 5

elif card in six:

total += 6

elif card in seven:

total += 7

elif card in eight:

total += 8

elif card in nine:

total += 9

elif card in ten:

total += 10

elif card in ace:

total += 11

num\_aces += 1

#Logic for using ace as 1 or 11

while total > 21 and num\_aces > 0:

total -= 10

num\_aces -= 1

return total

def game():

i = 0

k = 0

player = []

dealer = []

hidden = []

reveal = []

total = 0

dealer\_total = 0

while True:

if i == 0:

for j in range(2):

player\_card = deck[random.randint(0, 12)][random.randint(0, 3)]

if player\_card not in player and player\_card not in dealer:

player.append(player\_card)

i += 1

print("Your cards: ", player)

total = calculate\_total(player)

print("Your total: ", total)

print()

else:

player\_card = deck[random.randint(0, 12)][random.randint(0, 3)]

if player\_card not in player and player\_card not in dealer:

player.append(player\_card)

print("Your cards: ", player)

total = calculate\_total(player)

print("Your total: ", total)

print()

print("Dealer cards: ", hidden)

dealer\_total = calculate\_total(dealer)

print("Dealer total: ", dealer\_total)

print()

if total > 21:

print("BUST! Dealer wins!")

print()

break

if k == 0:

l = 0

while True:

if l == 0:

dealer\_card = deck[random.randint(0, 12)][random.randint(0, 3)]

if dealer\_card not in player and dealer\_card not in dealer:

dealer.append(dealer\_card)

hidden.append(dealer\_card)

dealer\_total = calculate\_total(dealer)

else:

dealer\_card = deck[random.randint(0, 12)][random.randint(0, 3)]

if dealer\_card not in player and dealer\_card not in dealer:

dealer.append(dealer\_card)

hidden.append("X")

dealer\_total = calculate\_total(dealer)

print()

l += 1

if l > 1:

break

print("Dealer cards: ", hidden)

k += 1

else:

if dealer\_total <= total:

dealer\_card = deck[random.randint(0,12)][random.randint(0,3)]

if dealer\_card not in player and dealer\_card not in dealer:

dealer.append(dealer\_card)

else:

continue

elif dealer\_total > total and dealer\_total < 21:

dealer\_card = deck[random.randint(0,12)][random.randint(0,3)]

if dealer\_card not in player and dealer\_card not in dealer:

dealer.append(dealer\_card)

else:

continue

if dealer\_total > 21:

print("DEALER BUST! You win!")

break

elif dealer\_total < 21:

choice = input("Would you like to hit or stay?: ")

print()

if choice.upper() == "HIT":

continue

else:

print("Dealer hits.")

print("Dealer cards: ", dealer)

print()

while True:

if dealer\_total <= total:

dealer\_card = deck[random.randint(0,12)][random.randint(0,3)]

if dealer\_card not in player and dealer\_card not in dealer:

dealer.append(dealer\_card)

else:

continue

print("Dealer cards: ", dealer)

dealer\_total = calculate\_total(dealer)

print("Dealer total: ", dealer\_total)

print()

if dealer\_total > total or dealer\_total == 21:

break

if dealer\_total > 21:

print("DEALER BUST! You win!")

else:

print("Dealer stays.")

print()

if dealer\_total == total:

print("You tie!")

elif dealer\_total > total and dealer\_total <= 21:

print("Dealer wins!")

else:

print("You win!")

break

print("Your total: ", total)

print("Dealer total: ", dealer\_total)

print()

print("Thanks for playing!")

print()

print("Welcome to black jack!")

print("Objective: get as close to a total of 21 as possible.")

print("If your total crosses 21, dealer automatically wins.")

print("Value of all face cards is 10, for ace it can be 1 or 11.")

print()

print("How to play: ")

print("In the first turn, 2 cards are dealed to you and to the dealer.")

print("Only one of the dealer's cards are revealed.")

print("The hidden card is revealed after you STAY. ")

print("hit - you want another card to be dealed to you.")

print("stay - you are satisfied with your total and want to stop.")

print()

start = input("Enter any key to begin: ")

print()

if start != '':

game()

**Output:**

Welcome to black jack!

Objective: get as close to a total of 21 as possible.

If your total crosses 21, dealer automatically wins.

Value of all face cards is 10, for ace it can be 1 or 11.

How to play:

In the first turn, 2 cards are dealed to you and to the dealer.

Only one of the dealer's cards are revealed.

The hidden card is revealed after you STAY.

hit - you want another card to be dealed to you.

stay - you are satisfied with your total and want to stop.

Enter any key to begin: k

Your cards: ['10D', 'KH']

Your total: 20

Dealer cards: ['2S', 'X']

Would you like to hit or stay?: stay

Dealer hits.

Dealer cards: ['2S', '6D']

Dealer cards: ['2S', '6D', 'KD']

Dealer total: 18

Dealer cards: ['2S', '6D', 'KD', 'JD']

Dealer total: 28

DEALER BUST! You win!

You win!

Your total: 20

Dealer total: 28

Thanks for playing!