Q.1 Assignment 1 - Write a Python Program to roll a die 6 times and displaying the outcome.

**Program:**

import random

for i in range(6):

d1 = random.randint(1,6)

print("outcome:")

print(d1)

Assignment2 - Write a Python Program to use a 52-deck of cards between two players. Each player must receive 10 cards and the player with the most pairs win. Run the game 10 times and display the number of wins per player.

**Program:**

from random import choice

from re import match

from re import search

# 52-deck of cards

deck\_head = ['Club','Diamond','Heart','Spade']

deck = {'Club': ["2\_C", "3\_C", "4\_C", "5\_C", "6\_C", "7\_C", "8\_C", "9\_C", "10\_C", "J\_C", "Q\_C", "K\_C", "A\_C"],

'Diamond': ["2\_D", "3\_D", "4\_D", "5\_D", "6\_D", "7\_D", "8\_D", "9\_D", "10\_D", "J\_D", "Q\_D", "K\_D", "A\_D"],

'Heart': ["2\_H", "3\_H", "4\_H", "5\_H", "6\_H", "7\_H", "8\_H", "9\_H", "10\_H", "J\_H", "Q\_H", "K\_H", "A\_H"],

'Spade': ["2\_S", "3\_S", "4\_S", "5\_S", "6\_S", "7\_S", "8\_S", "9\_S", "10\_S", "J\_S", "Q\_S", "K\_S", "A\_S"]}

# A Card Selection

def select\_card(deck\_head, deck):

head = choice(deck\_head)

card = choice(deck[head])

return card

# Cards to Numbers

def cards\_to\_num(A):

new\_A = []

for n in A:

if 'K' or 'Q' or 'J' or 'A' in n:

matched = search('K', n)

if matched: new\_A.append('13')

matched = search('Q', n)

if matched: new\_A.append('12')

matched = search('J', n)

if matched: new\_A.append('11')

matched = search('A', n)

if matched: new\_A.append('1')

matched = match(r"([0-9]+)", n)

if matched:

matched = match(r"([0-9]+)", n)

new\_A.append(matched.group(0))

return new\_A

# Count Pairs in Player's Set

def count\_pairs(A):

pairs, count = {}, 0

for n in A:

count\_n = A.count(n)

if n not in pairs: pairs[n] = count\_n

for k in pairs:

if pairs[k] - 2 >= 0: count += 1

return count

# Cards assignment to Players 1 and 2

def assign\_card(deck\_head, deck):

A,B = [],[]

[ A.append(select\_card(deck\_head, deck)) for c in range(11) ]

[ B.append(select\_card(deck\_head, deck)) for c in range(11) ]

print('Player1 cards:',A); print('Player2 cards:',B)

A\_cards\_in\_num = cards\_to\_num(A)

B\_cards\_in\_num = cards\_to\_num(B)

A\_pairs = count\_pairs(A\_cards\_in\_num)

B\_pairs = count\_pairs(B\_cards\_in\_num)

print('Player1 pairs:',A\_pairs); print('Player2 pairs:',B\_pairs)

return A\_pairs, B\_pairs

# Winners in 10 games

def winner(deck\_head, deck):

A\_wins, B\_wins, Both\_wins = 0, 0, 0

for turn in range(10):

print("\nTurn :",turn+1)

A, B = assign\_card(deck\_head, deck)

if A > B: A\_wins += 1; print('Player1 is the winner')

elif A < B: B\_wins += 1; print('Player2 is the winner')

else: Both\_wins += 1; print('Tie!')

print("\nPlayer1 won:",A\_wins,"times"); print("Player2 won:",B\_wins,"times"); print("Player1 and Player2 tied:",Both\_wins,"times\n")

winner(deck\_head, deck)