

In [1]: **import** random

```
def checkBoard(board):
    for player in range(1,3):
        if player==1:
            symbol="X"
        else:
            symbol="O"
        for i in range(0,3):
            if (board[i][0]==symbol) and (board[i][1]==symbol) and (board[i][2]==symbol):
                return player+1
        for i in range(0,3):
            if (board[0][i]==symbol) and (board[1][i]==symbol) and (board[2][i]==symbol):
                return player+1

        if (board[0][0]==symbol) and (board[1][1]==symbol) and (board[2][2]==symbol):
            return player+1

        if (board[0][2]==symbol) and (board[1][1]==symbol) and (board[2][0]==symbol):
            return player+1
    for i in range(0,3):
        for j in range(0,3):
            if board[i][j]==" ":
                return 0
    return 1

def initializeBoard(board):
    for i in range(0,3):
        for j in range(0,3):
            board[i][j]=" "

def printBoard(board):
    #write code to print the current board of the game
    cellstr=""
    for i in range(0,3):
        for j in range(0,3):
            if board[i][j]==" ":
                cellstr=" "
            elif board[i][j]=="X":
                cellstr="X"
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        else:
            cellstr="O"
            print("|",cellstr,end=" ")
        print("|")
        if i<2:
            print("|---|---|---|")
    print()

def whoWillStart():
    #returns who will start the game
    return random.randint(1,2)

def startGame(board,players,player):
    initializeBoard(board)
    players[1]=input("Enter name of the Player 1 (symbol X): ")
    players[2]=input("Enter name of the Player 2 (symbol O): ")
    print(players[player],"has won the toss. So,",players[player]," will start first.")
    print()

def playMove(board,players, player):

    print(players[player]," will take move now.")
    row=int(input("Choose the row where you want to put your bet: "))
    column=int(input("Choose the column where you want to put your bet: "))
    if player==1:
        board[row-1][column-1]="X"
    else:
        board[row-1][column-1]="O"
    printBoard(board)

def togglePlayer(playerInGame):
    if playerInGame==1:
        return 2
    else:
        return 1

def announceResult(state,states,players):
    if states[state]=="DRAW":
        print("Game results in a draw.")

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        elif states[state]=="P1-WIN":
            print(players[1], "has won the game. Congratulations!!")
        elif states[state]=="P2-WIN":
            print(players[2], "has won the game. Congratulations!!")
        print()
        return int(input("Do you want to play again? (Enter 1 for YES, 0 for NO) "))

def restartGame(board,players,whoStarted):
    initializeBoard(board)
    whoStarted=togglePlayer(whoStarted)
    print("In this game", players[whoStarted], "will start the game")
    return whoStarted

#Main Program
# Variables
board=[["O", "X", "O"],["X", "X", "O"],["O", "", "X"]]
players=["", "P1", "P2"]
states=["PLAY", "DRAW", "P1-WIN", "P2-WIN"]
playerInGame=0
state=0
whoStarted=0

# Main Program
playerInGame=whoWillStart()
whoStarted=playerInGame
startGame(board,players,whoStarted)

# Game Loop
while True:
    playMove(board,players, playerInGame)
    state=checkBoard(board)
    if states[state]=="PLAY":
        playerInGame=togglePlayer(playerInGame)
    else:
        playMore=announceResult(state,states,players)
        if playMore==1:
            playerInGame=restartGame(board,players,whoStarted)
            whoStarted=playerInGame
        else:
            print("Thanks for playing game! Hope you enjoyed it. :):)")

```

break

Enter name of the Player 1 (symbol X): Bashu
Enter name of the Player 2 (symbol O): Arshu
Bashu has won the toss. So, Bashu will start first.

Bashu will take move now.
Choose the row where you want to put your bet: 1
Choose the column where you want to put your bet: 1

X		

Arshu will take move now.
Choose the row where you want to put your bet: 1
Choose the column where you want to put your bet: 2

X	O	

Bashu will take move now.
Choose the row where you want to put your bet: 1
Choose the column where you want to put your bet: 3

X	O	X

Arshu will take move now.
Choose the row where you want to put your bet: 2
Choose the column where you want to put your bet: 1

X	O	X
O		

Bashu will take move now.

Choose the row where you want to put your bet: 2

Choose the column where you want to put your bet: 2

X	O	X
---	---	---
O	X	
---	---	---

Arshu will take move now.

Choose the row where you want to put your bet: 3

Choose the column where you want to put your bet: 3

X	O	X
---	---	---
O	X	
---	---	---
		O

Bashu will take move now.

Choose the row where you want to put your bet: 2

Choose the column where you want to put your bet: 3

X	O	X
---	---	---
O	X	X
---	---	---
		O

Arshu will take move now.

Choose the row where you want to put your bet: 3

Choose the column where you want to put your bet: 1

X	O	X
---	---	---
O	X	X
---	---	---
O		O

Bashu will take move now.

Choose the row where you want to put your bet: 3

Choose the column where you want to put your bet: 2

X	O	X
---	---	---
O	X	X

	---		---		---	
	0		X		0	

Game results in a draw.

Do you want to play again? (Enter 1 for YES, 0 for NO) 0
Thanks for playing game! Hope you enjoyed it. :):)