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Tic Tac Toe

Algorithm:-

1. In the main function initialize a board \rightarrow nested list with space & Initialize a variable player = 'X'
When player = 'X' \rightarrow user input
" = 'O' \rightarrow computer
2. ~~for~~ Make a loop to run 9 times which is no. of turns.
3. Ask user input for row & col and enter 'X' in the ~~space~~ specified space if not taken already.
If taken print "Spot is taken" & prompt the user again.
4. When player = 'O' call another function ~~computes~~ \rightarrow computes(board). This function must ~~also~~ generate a random number [0-2] for row & another random number [0-2] for column.

\rightarrow If taken, generate again.

5. After each turn call function check winner(board)

This function specifies the winner when pattern is achieved

6. We have another function to print board.

Code:- import random

```
def printboard(board):
    for row in board:
        print(" | ".join(row))
        print("-" * 9)
```

```
def checkwinner(board):
    for row in board:
        if row.count(row[0]) == len(row) and row[0] != '':
            return True
```

```
for col in range(len(board[0])):
    if board[0][col] == board[1][col] == board[2][col] != '':
        return True
```

```
if board[0][0] == board[1][1] == board[2][2] != '':
    return True
if board[0][2] == board[1][1] == board[2][0] != '':
    return True
```

return False

```
def computermove(board):
    while True:
        row = random.randint(0, 2)
        col = random.randint(0, 2)
        if board[row][col] == '':
            return row, col
```

```
board = [[' ' for _ in range(3)] for _ in range(3)]
```

```
printboard(board)
```

```
while True:
    row = int(input("Enter row (0, 1, 2)"))
    if board[row][col] == '':
        board[row][col] = 'X'
        printboard(board)
```

```
if checkwinner(board):
    print("Congratulation!")
```

```
break
```

```
comp_row, comp_col = computermove(board)
board[comp_row][comp_col] = 'O'
```

```
board[comp_row][comp_col] = 'O'
```

```
print("Computer's move")
```

```
printboard(board)
```

```
if checkwinner(board):
```

```
print("Computer wins! Better luck next time.")
break
```

```
else:
```

```
print("That spot is already taken!")
```

```
if all(board[i][j] != ' ' for i in range(3) for j in range(3)):
```

```
print("It's a tie!")
break
```

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would you like to go first or second? (1/2):

1

```
| | |
---+---+---
| | |
---+---+---
| | |
```

Player move: (0-8):

0

```
0 | | |
---+---+---
| | |
---+---+---
| | |
```

```
0 | | |
---+---+---
| x |
---+---+---
| | |
```

Player move: (0-8):

3

```
0 | | |
---+---+---
0 | x |
---+---+---
| | |
```