In [1]:
```
row1='|_|_|_|'
row2='|_|_|_|'
row3='|_|_|_|'


def display_board():

    print('The current board is:')

    print(row1)
    print(row2)
    print(row3)
```

In [2]:
```
display_board()
```

```
The current board is:
|_|_|_|
|_|_|_|
|_|_|_|
```

In [3]:
```
a=list(row1)
b=list(row2)
c=list(row3)
```

In [4]:
```
def player1():

    print("Player 1 is assigned with 'X' value\n")



    row=''
    position=''

    while row.isdigit()==False or row not in [1,2,3]:



        row=input("Enter a row of choice between 1,2 and 3: ")


        if row.isdigit()==False:

             print("Hey! That's not a digit.")

        if row.isdigit()==True:

            if int(row) in [1,2,3]:


                while position.isdigit()==False or position not in [0,1,2]:

                   position=input("Enter the position of insertion between 0,1 and

                   if position.isdigit()==False:

                         print("Hey! That's not a digit.")

                   if position.isdigit()==True:

                         if int(position) not in [0,1,2]:
```

```
                            print('Please enter a value within range.')

                        else:

                            return row,position




            else:

                print('Please enter a value within range.')
```

In [5]:
```
value=player1()
```

```
Player 1 is assigned with 'X' value

Enter a row of choice between 1,2 and 3: 1
Enter the position of insertion between 0,1 and 2: 2
```

In [6]:
```
value
```

Out[6]:
```
('1', '2')
```

In [7]:
```
def replacement1():

    x=int(value[0])

    y=int(value[1])

    if x==1:

        if y==0:

            a[1]='X'
        if y==1:

            a[3]='X'

        if y==2:

            a[5]='X'

    if x==2:

        if y==0:

            b[1]='X'
        if y==1:

            b[3]='X'

        if y==2:

            b[5]='X'

    if x==3:

        if y==0:
```

```
            c[1]='X'
        if y==1:

            c[3]='X'

        if y==2:

            c[5]='X'
```

In [8]:
```
replacement1()
```

In [9]:
```
d=''.join(a)
e=''.join(b)
f=''.join(c)

def new_display():

    print(d)
    print(e)
    print(f)
```

In [10]:
```
new_display()
```

```
|_|_|X|
|_|_|_|
|_|_|_|
```

In [11]:
```
def player2():



    row=''
    position=''

    print("Player 2 is assigned with 'O' value")

    while row.isdigit()==False or row not in [1,2,3]:



        row=input("Enter a row of choice between 1,2 and 3: ")


        if row.isdigit()==False:

             print("Hey! That's not a digit.")

        if row.isdigit()==True:

            if int(row) in [1,2,3]:


                while position.isdigit()==False or position not in [0,1,2]:

                   position=input("Enter the position of insertion between 0,1 and

                   if position.isdigit()==False:

                         print("Hey! That's not a digit.")

                   if position.isdigit()==True:
```

```
                        if int(position) not in [0,1,2]:


                            print('Please enter a value within range.')

                        else:

                            return row,position




            else:

                print('Please enter a value within range.')
```

In [12]:
```
value=player2()
```

```
Player 2 is assigned with 'O' value
Enter a row of choice between 1,2 and 3: 2
Enter the position of insertion between 0,1 and 2: 1
```

In [13]:
```
value
```

Out[13]:
```
('2', '1')
```

In [14]:
```
def replacement2():

    x=int(value[0])

    y=int(value[1])

    if x==1:

        if y==0:

            a[1]='O'
        if y==1:

            a[3]='O'

        if y==2:

            a[5]='O'

    if x==2:

        if y==0:

            b[1]='O'
        if y==1:

            b[3]='O'

        if y==2:

            b[5]='O'

    if x==3:

        if y==0:
```

```
            c[1]='O'
        if y==1:

            c[3]='O'

        if y==2:

            c[5]='O'
```

In [15]:
```
replacement2()
```

In [16]:
```
d=''.join(a)
e=''.join(b)
f=''.join(c)

def new_display():

    print(d)
    print(e)
    print(f)
```

In [17]:
```
new_display()
```

```
|_|_|X|
|_|O|_|
|_|_|_|
```

In [18]:
```
def condition_check():
    if d[1]=='X':
        if d[3]==d[5]=='X':
            return ('Player 1 wins!')
        if e[1]==f[1]=='X':
            return ('Player 1 wins!')
        if e[3]==f[5]=='X':
            return ('Player 1 wins!')
    if d[3]=='X':
        if e[3]==f[3]=='X':
            return ('Player 1 wins!')
    if d[5]=='X':
        if e[5]==f[5]=='X':
            return ('Player 1 wins!')
        if e[3]==f[1]=='X':
            return ('Player 1 wins!')
    if e[1]==e[3]==e[5]=='X':
        return ('Player 1 wins!')
    if f[1]==f[3]==f[5]=='X':
        return ('Player 1 wins!')


    if d[1]=='O':
        if d[3]==d[5]=='O':
            return ('Player 2 wins!')
        if e[1]==f[1]=='O':
            return ('Player 2 wins!')
        if e[3]==f[5]=='O':
            return ('Player 2 wins!')
    if d[3]=='O':
        if e[3]==f[3]=='O':
            return ('Player 2 wins!')
    if d[5]=='O':
        if e[5]==f[5]=='O':
            return ('Player 2 wins!')
```

```
        if e[3]==f[1]=='O':
            return ('Player 2 wins!')
    if e[1]==e[3]==e[5]=='O':
        return ('Player 2 wins!')
    if f[1]==f[3]==f[5]=='O':
        return ('Player 2 wins!')
```

In [19]:
```
result=condition_check()
```

In [20]:
```
result
```

In [21]:
```
def gameon_choice():

    choice=''

    while choice not in ['yes','no']:

        choice=input('Do you want to continue?(yes or no): ')

        if choice not in ['yes','no']:

                print('The input is invalid!')

    if choice=='yes':

        return True
    else:

        return False
```

In [22]:
```
gameon_choice()
```

```
Do you want to continue?(yes or no): yes
```
Out[22]:
```
True
```

In [23]:
```
from IPython.display import clear_output
```

In [24]:
```
game_on=True

turn=''


row1='|_|_|_|'
row2='|_|_|_|'
row3='|_|_|_|'

while game_on==True:

    clear_output()
    display_board()

    a=list(row1)
    b=list(row2)
    c=list(row3)


    for turn in range(0,9):

        if turn%2==0:
```

```
            value=player1()

            replacement1()

        else:

            value=player2()

            replacement2()



        d=''.join(a)
        e=''.join(b)
        f=''.join(c)

        result=condition_check()

        new_display()

        if result=='Player 1 wins!' or result=='Player 2 wins!':

            print(result)

            game_on=gameon_choice()

            print(turn)

            break

    if turn>9:


        print("Oops the match is a tie!")

        game_on=gameon_choice()
```

```
The current board is:
|_|_|_|
|_|_|_|
|_|_|_|
Player 1 is assigned with 'X' value

Enter a row of choice between 1,2 and 3: 1
Enter the position of insertion between 0,1 and 2: 2
|_|_|X|
|_|_|_|
|_|_|_|
Player 2 is assigned with 'O' value
Enter a row of choice between 1,2 and 3: 2
Enter the position of insertion between 0,1 and 2: 1
|_|_|X|
|_|O|_|
|_|_|_|
Player 1 is assigned with 'X' value

Enter a row of choice between 1,2 and 3: 2
Enter the position of insertion between 0,1 and 2: 2
|_|_|X|
|_|O|X|
|_|_|_|
Player 2 is assigned with 'O' value
Enter a row of choice between 1,2 and 3: 3
Enter the position of insertion between 0,1 and 2: 2
|_|_|X|
|_|O|X|
|_|_|O|
Player 1 is assigned with 'X' value

Enter a row of choice between 1,2 and 3: 1
Enter the position of insertion between 0,1 and 2: 2
|_|_|X|
|_|O|X|
|_|_|O|
Player 2 is assigned with 'O' value
Enter a row of choice between 1,2 and 3: 1
Enter the position of insertion between 0,1 and 2: 1
|_|O|X|
|_|O|X|
|_|_|O|
Player 1 is assigned with 'X' value

Enter a row of choice between 1,2 and 3: 3
Enter the position of insertion between 0,1 and 2: 0
|_|O|X|
|_|O|X|
|X|_|O|
Player 2 is assigned with 'O' value
Enter a row of choice between 1,2 and 3: 3
Enter the position of insertion between 0,1 and 2: 1
|_|O|X|
|_|O|X|
|X|O|O|
Player 2 wins!
Do you want to continue?(yes or no): no
7
```

In [ ]: