

Program 1 - 8 Puzzle Problem

AIM :

To Create a python program to find a solution to the 8 Puzzle Problem.

PROGRAM :

```
D={{1,2,3,4,5,6,7,8,0}:0}
```

```
E=D.copy()
```

```
def Z(a,d):
```

```
    b=list(a)
```

```
    b[i],b[i+d]=b[i+d],0
```

```
    b=tuple(b)
```

```
    if b not in E:
```

```
        E[b]=a
```

```
        D[b]=D[a]+1
```

```
for x in range(32):
```

```
    for a in E.copy():
```

```
        i=list(a).index(0)
```

```
        if i>2:
```

```
            Z(a,-3)
```

```
        if i%3:
```

```
            Z(a,-1)
```

```
        if i%3<2:
```

```
            Z(a,1)
```

```
        if i<6:
```

```
            Z(a,3)
```

```
g=[]
```

```
for x in range(3):
```

```
    g+=map(int,input().split())
```

```
g=tuple(g)
```

```
if g in E:
```

```
    print(D[g])
```

```
while g:
```

```
    for i in (0,3,6):
```

```
        print('%d %d %d'%g[i:i+3])
```

```
    g=E[g]
```

```
    print()
```

```
else:  
    print( -1)
```

OUTPUT:

```
= RESTART: C:\Users\Welcome\Downloads\8puzzle.py  
1 2 3  
... 0 4 6  
... 7 5 8  
3  
1 2 3  
0 4 6  
7 5 8  
  
1 2 3  
4 0 6  
7 5 8  
  
1 2 3  
4 5 6  
7 0 8  
  
1 2 3  
4 5 6  
7 8 0
```

RESULT:

The Program has successfully been executed.