

09-04-2020

LAB-2

papergrid

Date: / /

2. 8-puzzle problem pseudocode:-

```
def dfs (src, target, limit, visited-states):  
    if src == target:  
        return True.
```

```
    if limit <= 0
```

```
        return False.
```

```
    visited-states.append (src)
```

```
    adj = possible-moves (src, visited-states)
```

```
    for move in adj:
```

```
        if dfs (move, target, limit-1, visited-states):  
            return True.
```

```
    return False
```

```
def possible-moves (state, visited-states):
```

```
    ind = state.index (-1)
```

```
    d = []
```

```
    if ind + 3 in range (9):
```

```
        d.append ('d')
```

```
    if ind - 3 in range (9):
```

```
        d.append ('u')
```

```
    if ind not in [0, 3, 6]:
```

```
        d.append ('l')
```

```
    if ind not in [2, 5, 8]:
```

```
        d.append ('r')
```

```
    pos-moves = []
```



```
for move in d:
```

```
    pos_moves.append(gen(state, move, ind))
```

```
return [move for move in pos_moves if move not  
        in visited_states]
```

```
def gen(state, m, b):
```

```
    temp = state.copy()
```

```
    if m == 'd':
```

```
        a = temp[b+3]
```

```
        temp[b+3] = temp[b]
```

```
        temp[b] = a
```

```
    elif m == 'u':
```

```
        a = temp[b-3]
```

```
        temp[b-3] = temp[b]
```

```
        temp[b] = a
```

```
    elif m == 'l':
```

```
        a = temp[b-1]
```

```
        temp[b-1] = temp[b]
```

```
        temp[b] = a
```

```
    elif m == 'r':
```

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

```
        temp[b+1] = temp[b]
```

```
        temp[b] = a
```

```
    return temp
```

```
def iddfs(src, target, depth):  
    visited_states = []
```