	Date: Page:
	8 Przzle problem using DFS
	A Species Alf I a prove the same species of
	Algorithm:
	start
Step 2.	Assign initial state and goal states:
oty.	Totales.
	material was a military to the property of the second
	$i_{-\infty} = \left[\left[1, 2, 3 \right], \right]$
	[4,0,5], $[7,8,6])$
)
	the of a world war with the backer
	9-8=
-	[4,5,6),
	[7,8,6]
	J. American John S. J. Commission of the Commiss
Step 3	: Cala-manhantlan distance
	international desired and a section
311	initial-pos = 21, y, goal-pos = 22, y2
	Jost i in grange (3):
	for j in ran (3): title = self-state [i][j]
	fittle = self. stale (IJI). if title + =0:
	tolal-dist = (2/2-71) + (4/2-4.)

step 4:	gd possible moves.
	swap up, down, left, night
	first find the position of empty space and return the portion.
	for dn, dy in directions: new_r, new-y = empty-n+dx, emptyy thu
	rew_r, new-y = empty_n + dx, emptyy +dy if $0 <= n\alpha v_{-} x < 3$ and $0 <= n\alpha v_{-} y < 3$:
	rution nows.
<u>Stop</u>	: df8 - with _ manhantlan function:
	Implement DFS approach using a stack.
	while stack: hode:= stack.pop()
	if node state = = goal - state: netwern construct solution (node)
	risited, add (typle (map (typle, node, state))
	Intern None
	The second of th

	Loais. Yaga.
step6	Repeale the dial
Big	and with the angle function
	Repeale the find empty-space function and until the Joal of site is nearbol.
step7.	Construct solution function.
	Backtrack from the goal node to the
	DIAM hock
	Code:
	Code and a second as the second as
	class Node:
	def_init (self, state, parent = None,
	move = Nove, olepth = 0):
	self. State = state.
	Self. parent = purcht
	self. parent = purcht self. move = move
,	set alepth - digth.
	all the letter sell calculate
	Self-manhattan-distance = Self-calculate- m-dist ().
-	Line Day - North Line & March - March
	def cal-man-dist (self):
- 1	to tal_dit = 0
· '	(Charles from from from the bar of the first
	90-pos-{ 1: (0,0), 2: (0,1), 3: (0,2),
	8:(1,1),6:(1,2),
	20:(2,0), 9:(2,1), 4:(2,0)
10011	7
J. 13.	at the second than a significant
	And the second of the second o
11	Diffin are July

for i in narge (3) for j in range (3):

ditte = self-s[i][j] 12, y, = g (t) t-dyt == abs (x,-1) +abs(y,-j) def is sol dfs - with - man (initial-st, g-st): stack = [N (in st)] while stock: node = stark, pgp() if hode. Starte == goal-state: netwer const- sol (node) virited add (tuple (map (tuple, note state)) for new-s, more in g-p-m (node. stat)!

if dryle (map & tuple, new-st)) not in new-node = Node (n-st, parent = n, move = more if new-node manhatlan <= node a manhatt Stack append (new- Mod):

	def. find empty space(s)
	for i in range (3):
	for j in range (3):
	if s (i)(j) = =0!
	ndwin i , j
	outurn stone
-	def construct sol" (n):
	path = c
	while node parent is not None:
	nohile node garent is not None: path append (n) node = node parent
	node = node parent
	path. reverse ()
	v
	for step in path: point = pwyzle (step. state) print()
	point a puzzele (step. state)
	print (90
	output:
	solution found!
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