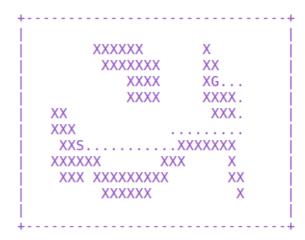
# **COMP316 ASSIGNMENT 2 REPORT**

As expected A\* has lower cost but usually a much higher expansion rate.

This can be seen in almost all of the following pictures of my states after running these algorithms.

Best first search:

A\* search:



Expansions: 35

Cost: 28

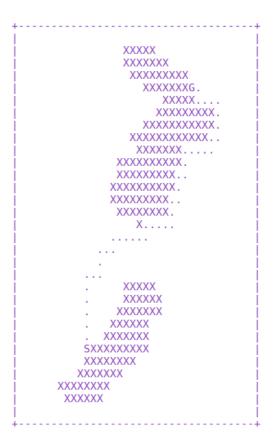
Expansions: 128

Cost: 26

#### Map 2 with best first:

#### Map 2 with A\*:

XXXXX
XXXXXXX
XXXXXXXX
XXXXXXXG.
XXXXX
XXXXXXXXX.
XXXXXXXXXX.
XXXXXXXXXXXX
XXXXXXX
XXXXXXXXX.
XXXXXXXXX
XXXXXXXXX.
XXXXXXXXX
XXXXXXXX.
X
· · · · · · · · · · · · · · · · · · ·
. XXXXX
. XXXXXX
. XXXXXXX
. XXXXXX
. XXXXXXX
SXXXXXXXX
XXXXXXX
XXXXXXX
XXXXXXX
XXXXXX



Expansions: 47 Expansions: 555

Cost: 47 Cost: 45

A surprising factor with this map is that with  $A^*$  it took a lot more expansions, this is because of all of the empty space and the size of the map.

## Map 3 with best first:

## Map 3 with A\*:

XXXXXXXXXXXX	XXXXXXXXXX	XX		
XXXXXXXXXXXXX	XXXXXXXXXXXXX			
XXXX XXXX	XXXX	XXXX		
XXXXX		XXXXX		
XXXXX	i		XXXXX	
XXXX	i		XXXX	
XXXX	XX	XX		
XXXXX	i	XXX	XX	
XXXX X	XXXXG	XXXX	)	XXXXXG
SXXX XXXXXXXXXXXXXXXX		SXXX	XXXX	XXXXXXXXX.
.XXXX XXXX	XXXXX.	.XXXX	XXXX	XXXXX
.XXXXXX XXXXXX	XXXXX.	.XXXX	XX XXXXXX	XXXXX
XXXXXXXX	XX	XXXXXX	XXXXX	
XXXXX	XXXX		.XXXXX	XXXX
			. XXXX	
			.XXXX	

Expansions: 106 Expansions: 338

Cost: 50 Cost: 50

### My map with best first:

## My map with A\*:

+	+ +		
XXSXXG	XXSXXG		
XX.XX X XXXXXXXXXXXXXXXXX	XX.XX X XXXXXXXXXXXXXXXXXXXX		
XXXX XXXXXXXXXXXXXXXXXXXX.	XXXX XXXXXXXXXXXXXXXXXXXXXXXX		
XXXXX	XXXXX		
XXXX.XX. X X	XXXX.XX X. X		
X X . X . X X	X X . X X. X		
X . X. X			
X . X. X X			
X . X. X X X XX X			
X . X.X X X X X			
X . XX X	X . X X. X		
X . X X X X X.X X			
.x xxxxxxxx.x x	i .x xxxxxxxx x. x		
+	+ +		

Expansions: 236 Expansions: 289

Cost: 87 Cost: 71