

(i) Missionaries and Cannibals		
	DFS	BFS
Length of Path	9 edges	7 edges
Number of Nodes Expanded	10 states expanded	10 states expanded
Path from Start to Goal	<p>M on left:3 C on left:3 M on right:0 C on right:0 boat is on the left.</p> <p>M on left:2 C on left:2 M on right:1 C on right:1 boat is on the right.</p> <p>M on left:3 C on left:2 M on right:0 C on right:1 boat is on the left.</p> <p>M on left:0 C on left:2 M on right:3 C on right:1 boat is on the right.</p> <p>M on left:2 C on left:2 M on right:1 C on right:1 boat is on the left.</p> <p>M on left:1 C on left:1 M on right:2 C on right:2 boat is on the right.</p> <p>M on left:3 C on left:1</p>	<p>M on left:3 C on left:3 M on right:0 C on right:0 boat is on the left.</p> <p>M on left:2 C on left:2 M on right:1 C on right:1 boat is on the right.</p> <p>M on left:3 C on left:2 M on right:0 C on right:1 boat is on the left.</p> <p>M on left:1 C on left:1 M on right:2 C on right:2 boat is on the right.</p> <p>M on left:3 C on left:1 M on right:0 C on right:2 boat is on the left.</p> <p>M on left:0 C on left:1 M on right:3 C on right:2 boat is on the right.</p> <p>M on left:1 C on left:1</p>

	<p>M on right:0 C on right:2 boat is on the left.</p> <p>M on left:0 C on left:1 M on right:3 C on right:2 boat is on the right.</p> <p>M on left:1 C on left:1 M on right:2 C on right:2 boat is on the left.</p> <p>M on left:0 C on left:0 M on right:3 C on right:3 boat is on the right.</p>	<p>M on right:2 C on right:2 boat is on the left.</p> <p>M on left:0 C on left:0 M on right:3 C on right:3 boat is on the right.</p>
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(ii) Farmer, Fox, Chicken, Grain		
	DFS	BFS
Length of Path	7 edges	7 edges
Number of Nodes Expanded	7 states expanded	9 states expanded
Path from Start to Goal	Chicken Farmer Fox Grain Fox Grain Chicken Farmer Farmer Fox Grain Chicken Grain Chicken Farmer Fox Chicken Farmer Grain Fox Chicken Farmer Fox Grain Chicken Farmer Fox Grain Chicken Farmer Fox Grain	Chicken Farmer Fox Grain Fox Grain Chicken Farmer Farmer Fox Grain Chicken Fox Chicken Farmer Grain Chicken Farmer Fox Grain Chicken Farmer Fox Grain Chicken Farmer Fox Grain Chicken Farmer Fox Grain

(iii) Towers of Hanoi		
	DFS	BFS
Length of Path	40 edges	18 edges
Number of Nodes Expanded	40 states expanded	70 states expanded
Path from Start to Goal	[[4, 3, 2, 1], [], []] [[4, 3, 2], [1], []] [[4, 3], [1], [2]] [[4, 3, 1], [], [2]] [[4, 3], [], [2, 1]] [[4], [3], [2, 1]] [[4, 1], [3], [2]] [[4], [3, 1], [2]] [[4, 2], [3, 1], []] [[4, 2, 1], [3], []] [[4, 2], [3], [1]] [[4], [3, 2], [1]] [[4, 1], [3, 2], []] [[4], [3, 2, 1], []] [[], [3, 2, 1], [4]] [[1], [3, 2], [4]] [[], [3, 2], [4, 1]] [[2], [3], [4, 1]] [[2, 1], [3], [4]] [[2], [3, 1], [4]] [[], [3, 1], [4, 2]] [[1], [3], [4, 2]] [[], [3], [4, 2, 1]] [[3], [], [4, 2, 1]] [[3, 1], [], [4, 2]] [[3], [1], [4, 2]] [[3, 2], [1], [4]] [[3, 2, 1], [], [4]] [[3, 2], [], [4, 1]] [[3], [2], [4, 1]] [[3, 1], [2], [4]] [[3], [2, 1], [4]] [[], [2, 1], [4, 3]] [[1], [2], [4, 3]] [[], [2], [4, 3, 1]] [[2], [], [4, 3, 1]] [[2, 1], [], [4, 3]] [[2], [1], [4, 3]] [[], [1], [4, 3, 2]] [[1], [], [4, 3, 2]] [[], [], [4, 3, 2, 1]]	[[4, 3, 2, 1], [], []] [[4, 3, 2], [1], []] [[4, 3], [1], [2]] [[4, 3, 1], [], [2]] [[4, 3], [], [2, 1]] [[4], [3], [2, 1]] [[4, 1], [3], [2]] [[4, 1], [3, 2], []] [[4], [3, 2, 1], []] [[], [3, 2, 1], [4]] [[1], [3, 2], [4]] [[], [3, 2], [4, 1]] [[2], [3], [4, 1]] [[2, 1], [3], [4]] [[2, 1], [], [4, 3]] [[2], [1], [4, 3]] [[], [1], [4, 3, 2]] [[1], [], [4, 3, 2]] [[], [], [4, 3, 2, 1]]