

(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	10 states expanded
Path from Start to Goal	[Farmer Fox Chicken 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]	[Farmer Fox Chicken 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]]