DFS

	Humans, Robots and Ferry	Farmer, Fox, Chicken, and Grain	4-Disk Towers of Hanoi
a. path	H on left:3 R on left:3 H on right:0 R on right:0 ferry is on the left. H on left:2 R on left:2 H on right:1 R on right:1 ferry is on the right. H on left:3 R on left:2 H on right:0 R on right:1 ferry is on the left. H on left:0 R on left:2 H on right:3 R on right:1 ferry is on the right. H on left:2 R on left:2 H on right:1 R on right:1 ferry is on the left. H on left:1 R on left:1 H on right:2 R on right:2 ferry is on the right. H on left:3 R on left:1	H on left:1 F on left:1 C on left:1 G on left:1 H on right:0 F on right:0 C on right:0 G on right:0 boat is on the left. H on left:0 F on left:1 C on left:0 G on left:1 H on right:1 F on right:0 C on right:1 G on right:0 boat is on the right. H on left:1 F on left:1 C on left:0 G on left:1 H on right:0 F on right:0 C on right:1 G on right:0 boat is on the left. H on left:0 F on left:0 C on left:0 G on left:1 H on right:1 F on right:1 C on right:1 G on right:0 boat is on the right. H on left:1 F on left:0 C on left:1 G on left: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] ,[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]]

	H on right:0 R on right:2 ferry is on the left. H on left:0 R on left:1 H on right:3 R on right:2 ferry is on the right. H on left:1 R on left:1 H on right:2 R on right:2 ferry is on the left. H on left:0 R on left:0 H on right:3 R on right:3 ferry is on the right.	H on right:0 F on right:1 C on right:0 G on right:0 boat is on the left. H on left:0 F on left:0 C on left:1 G on left:0 H on right:1 F on right:1 C on right:0 G on right:1 boat is on the right. H on left:1 F on left:0 C on left:1 G on left:0 H on right:0 F on right:1 C on right:0 G on right:1 boat is on the left. H on left:0 F on left:0 C on left:0 G on left:0 H on right:1 F on right:1 C on right:1 G on right:1 boat is on the right.	
b. length of the path	9	7	40
c. number of nodes	10	7	40
Max length of OPEN	2	3	7

BFS

	Humans, Robots and Ferry	Farmer, Fox, Chicken, and Grain	4-Disk Towers of Hanoi
a. path	H on left:3 R on left:3 H on right:0 R on right:0 ferry is on the left. H on left:2 R on left:2 H on right:1 R on right:1 ferry is on the right. H on left:3 R on left:2 H on right:0 R on right:1 ferry is on the left. H on left:0 R on left:2 H on right:3 R on right:1 ferry is on the right. H on left:2 R on left:2 H on right:1 R on right:1 ferry is on the left. H on left:0 R on left:1 H on right:3 R on right:2 ferry is on the right. H on left:1 R on left:1	H on left:1 F on left:1 C on left:1 G on left:1 H on right:0 F on right:0 C on right:0 G on right:0 boat is on the left. H on left:0 F on left:1 C on left:0 G on left:1 H on right:1 F on right:0 C on right:1 G on right:0 boat is on the right. H on left:1 F on left:1 C on left:0 G on left:1 H on right:0 F on right:0 C on right:1 G on right:0 boat is on the left. H on left:0 F on left:0 C on left:0 G on left:1 H on right:1 F on right:1 C on right:1 G on right:0 boat is on the right. H on left:1 F on left:0 C on left:1 G on left:1	[[4, 3, 2, 1] ,[] ,[]] [[4, 3, 2] ,[1] ,[]] [[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]] [[] ,[3, 2] ,[4, 1]] [[2] ,[3] ,[4, 1]] [[2, 1] ,[3] ,[4]] [[2, 1] ,[] ,[4, 3]] [[2] ,[1] ,[4, 3]] [[] ,[1] ,[4, 3, 2]] [[] ,[] ,[4, 3, 2, 1]]

	H on right:2 R on right:2 ferry is on the left. H on left:0 R on left:0 H on right:3 R on right:3 ferry is on the right.	H on right:0 F on right:1 C on right:0 G on right:0 boat is on the left. H on left:0 F on left:0 C on left:1 G on left:0 H on right:1 F on right:1 C on right:0 G on right:1 boat is on the right. H on left:1 F on left:0 C on left:1 G on left:0 H on right:0 F on right:1 C on right:0 G on right:1 boat is on the left. H on left:0 F on left:0 C on left:0 G on left:0 H on right:1 F on right:1 C on right:1 G on right:1 boat is on the right.	
b. length of the path	7	7	15
c. number of nodes	10	9	70
Max length of OPEN	2	2	16

(i). Why the maximum length of the OPEN list is more for one algorithm than the other?

The BFS has larger length of OPEN list because this method explore all the nodes at the same "level" and move on to the descendants, but DFS explore the descendatns first instead.

(ii). Why the solution PATH length is different for one algorithm from that of the other?

The way of exploring for both methods are different, hence the solutions are different.