COMP111 - Tutorial 2 Answers

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10. Starting with a in the frontier all children are expanded. This removes a from the frontier and adds all the children paths to the frontier. As a only has one child, b, the path ab is added to the frontier. As this is a breadth first search the first node to have been put in the frontier is the next to be expanded. This continues in table 1:

Expanded Path	Frontiers
	a
a, not goal state	ab
ab, not goal state	aba, abc
aba, not goal state	abc, abab
abc is goal	abab

Table 1

11. The sequence of events is the same as with a breadth-first search however instead of taking the first node the last node is used. For successor states that are added in the same expansion, the order of their expansion doesn't matter. I will take advantage of this to create the two sequences in tables 2 and 3:

Expanded Path	Frontiers
	a
a, not goal state	ab
ab, not goal state	aba, abc
abc is goal	aba

Table 2

Expanded Path	Frontiers
	a
a, not goal state	ab
ab, not goal state	abc, aba
aba, not goal state	abc, abab
abab, not goal state	abc, ababa, ababc
ababc is goal	abc, ababa

Table 3