

**Starting State****Queue: 0**

Node	0	1	2	3	4	5	6	7	8	9	10	11
Distance	0	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Backedge	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

**Visit Node 0: Append 2 and 11****Queue: 2, 11**

Node	0	1	2	3	4	5	6	7	8	9	10	11
Distance	0	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	1
Backedge	NULL	NULL	(0,2)	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	(0,11)

**Visit Node 2: Append 9, Skip 0****Queue: 11, 9**

Node	0	1	2	3	4	5	6	7	8	9	10	11
Distance	0	-1	1	-1	-1	-1	-1	-1	-1	2	-1	1
Backedge	NULL	NULL	(0,2)	NULL	NULL	NULL	NULL	NULL	NULL	(2,9)	NULL	(0,11)

**Visit Node 11: Append 1 and 4, Skip 0****Queue: 9, 1, 4**

Node	0	1	2	3	4	5	6	7	8	9	10	11
Distance	0	2	1	-1	2	-1	-1	-1	-1	2	-1	1
Backedge	NULL	(11,1)	(0,2)	NULL	(11,4)	NULL	NULL	NULL	NULL	(2,9)	NULL	(0,11)

**Visit Node 9: Append 8 and 3, Skip 2****Queue: 1, 4, 8, 3**

Node	0	1	2	3	4	5	6	7	8	9	10	11
Distance	0	2	1	3	2	-1	-1	-1	3	2	-1	1
Backedge	NULL	(11,1)	(0,2)	(9,3)	(11,4)	NULL	NULL	NULL	(9,8)	(2,9)	NULL	(0,11)

**Visit Node 1: Skip 11****Queue: 4, 8, 3**

Node	0	1	2	3	4	5	6	7	8	9	10	11
Distance	0	2	1	3	2	-1	-1	-1	3	2	-1	1
Backedge	NULL	(11,1)	(0,2)	(9,3)	(11,4)	NULL	NULL	NULL	(9,8)	(2,9)	NULL	(0,11)

Visit Node 4: Append 6, Skip 8 and 11

Queue: 8, 3, 6

Node	0	1	2	3	4	5	6	7	8	9	10	11
Distance	0	2	1	3	2	-1	3	-1	3	2	-1	1
Backedge	NULL	(11,1)	(0,2)	(9,3)	(11,4)	NULL	(4,6)	NULL	(9,8)	(2,9)	NULL	(0,11)

Visit Node 8: Append 10, Skip 9, 3, 6 and 4

Queue: 3, 6, 10

Node	0	1	2	3	4	5	6	7	8	9	10	11
Distance	0	2	1	3	2	-1	3	-1	3	2	4	1
Backedge	NULL	(11,1)	(0,2)	(9,3)	(11,4)	NULL	(4,6)	NULL	(9,8)	(2,9)	(8,10)	(0,11)

Visit Node 3: Append 7, Skip 9, and 8

Queue: 6, 10, 7

Node	0	1	2	3	4	5	6	7	8	9	10	11
Distance	0	2	1	3	2	-1	3	4	3	2	4	1
Backedge	NULL	(11,1)	(0,2)	(9,3)	(11,4)	NULL	(4,6)	(3,7)	(9,8)	(2,9)	(8,10)	(0,11)

Visit Node 6: Append 5, Skip 8, 4 and 7

Queue: 10, 7, 5

Node	0	1	2	3	4	5	6	7	8	9	10	11
Distance	0	2	1	3	2	4	3	4	3	2	4	1
Backedge	NULL	(11,1)	(0,2)	(9,3)	(11,4)	(6,5)	(4,6)	(3,7)	(9,8)	(2,9)	(8,10)	(0,11)

Visit nodes 10, 7 and 5 – no changes.