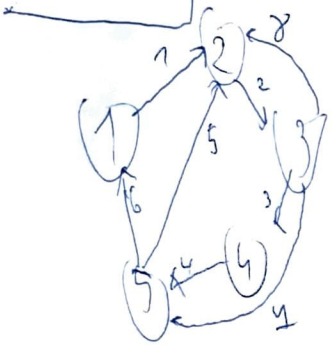
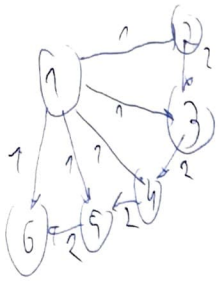
LAB 5



node	cost	path	neighbor	neighbor - cost	
1	0	[1]	2	1	$2 \notin$ path
2	1	[1,2]	3	2	$3 \notin$ path
3	3	[1,2,3]	4	3	$4 \notin$ path
4	6	[1,2,3,4]	5	4	$5 \notin$ path
5	10	[1,2,3,4,5]	2	5	$2 \in$ path
5	10	[1,2,3,4,5]	1	6	path[0]=1, cost(5,1)=6

Path of cost 16 was found: $1 \xrightarrow{1} 2 \xrightarrow{2} 3 \xrightarrow{3} 4 \xrightarrow{4} 5 \xrightarrow{6} 1$. The path was found by backtracking and picking the lowest cost adjacent edge to the current node. On this graph, it is also the lowest-cost hamiltonian cycle.

LABS



There is no hamiltonian path, so the backtracking will find none.

node	cost	path	neighbor	neighbor cost	
1	0	[1]	2	1	2 ∉ path
2	1	[1,2]	3	2	3 ∉ path
3	3	[1,2,3]	4	2	4 ∉ path
4	5	[1,2,3,4]	5	2	5 ∉ path
5	7	[1,2,3,4,5]	6	2	6 ∉ path
6	9	[1,2,3,4,5,6]	—	—	edge 6→1 doesn't exist
1	0	[1]	3	1	backtracking from back to (1,0); 3 ∉ path
3	1	[1,3]	4	2	4 ∉ path
4	3	[1,3,4]	5	2	5 ∉ path
5	5	[1,3,4,5]	6	2	6 ∉ path
6	7	[1,3,4,5,6]	—	—	edge 6→1 doesn't exist.
1	0	[1]	4	1	backtracking back to (1,0); 4 ∉ path
4	1	[1,4]	5	2	5 ∉ path
5	3	[1,4,5]	6	2	6 ∉ path
6	5	[1,4,5,6]	—	—	edge 6→1 doesn't exist.
1	0	[1]	5	1	Backtracking back to (1,0). 5 ∉ path
5	1	[1,5]	6	2	6 ∉ path
6	3	[1,5,6]	—	—	edge 6→1 doesn't exist.
1	0	[1]	6	1	Back to (1,0). 6 ∉ path
6	1	[1,6]	—	—	Edge 6→1 doesn't exist.