Artifial Intelligence
Digital Assignment

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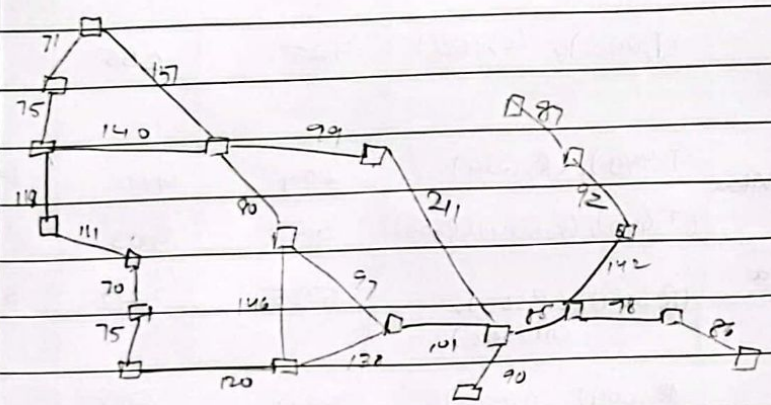
Question 1:



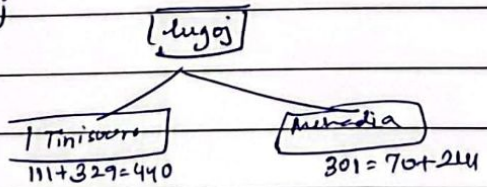
A* search : Buchanest to lugoj using straight line heuristic

- characterize a class of admissible heuristic searches using
  - $f(n) = g(n) + h(n)$
- No need to process any node more them once
- for graph traversal, follow path of lowest known cost
- If at any point, encounter higher cost than another path segement, abandon higher cost
- lower f(n) for a given node n, the higher its priority.
- At each step, lowest f(n) summoned from queue, f and h values of neighbours updated.
- h_{sld} (straight line distance) to Bucharest (0)

- Initial Stage

Lugoj
244+0=244

Expanding lugoj



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Action	open ~~Nodes~~	f(x)	g(n)	h(n)
1) Initial State	(L, 244)	244	0	244
2) Expand Add timisoara Add mehadia	(T, 440) (T, 440), (M, 301)	440 301	111 70	329 241
3) Expand Mehadia Add Drobeta	(T, 440), (D, 387)	387	145	242
4) Expand Drobeta Add Craiova	(T, 440), (C, 435)	425	265	160
5) Expand Craiova ~~Add Rimnicu Vilcea~~ Add Pitesti	(T, 440), (R, 604) (T, 440), (R, 604), (P 503)	604 503	411 403	193 100
6) Expand Timmisoara Add Arad	~~(R, 604), (P, 503),~~ (M, 595)	595	329	366
7) Expand pitesi Add Bucharest	(R, 604), (A, 595), (B, 504).	504	504	0
8) Expand Bucharest At goal state	(R, 604), (M, 595)	–	–	–