NATIONAL INSTITUTE OF TECHNOLOGY PUDUCHERRY

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

B.TECH –CYCLE TEST-2-EXAM

Course: CS-307-ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEMS

Time: 90 minutes **Mark: 20 Marks**

Answer All the Questions

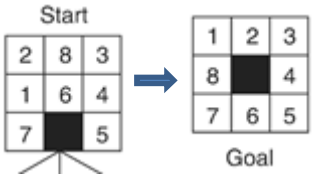
[Solve the questions and upload as single file with register number as name of the File]

https://drive.google.com/drive/u/1/folders/1L3WR6tpYnJwJ45qG5PfrSlhy2bhUy_l0

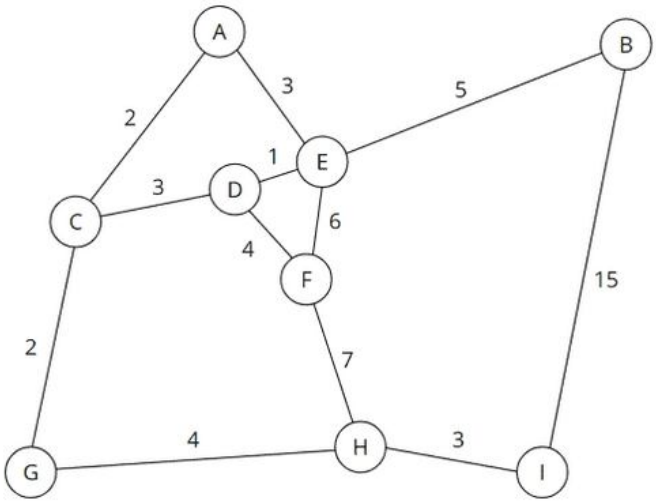
1. Consider the breast cancer data obtained from the University Medical Centre, Institute of Oncology. Identify the patient X has recurrence events or no-recurrence events ,using Naïve Bayes Classification. X={40-49,premeno,20-24,0-2,no,2,right, left_low,yes} [12 marks]

Class,age,menopause,tumor-size,inv-nodes,node-caps,deg-malig,breast,breast-quad,irradiat
no-recurrence-events,30-39,premeno,30-34,0-2,no,3,left,left_low,no
no-recurrence-events,40-49,premeno,20-24,0-2,no,2,right,right_up,no
no-recurrence-events,50-59,premeno,25-29,0-2,no,2,left,left_low,no
no-recurrence-events,30-39,premeno,20-24,3-5,no,2,right,central,no
no-recurrence-events,30-39,premeno,40-44,3-5,no,3,right,right_up,yes
no-recurrence-events,40-49,premeno,5-9,0-2,no,1,left,left_low,yes
no-recurrence-events,30-39,premeno,40-44,0-2,no,2,left,left_low,yes
recurrence-events,50-59,ge40,35-39,0-2,no,2,left,left_low,no
recurrence-events,50-59,premeno,25-29,0-2,no,2,left,right_up,no
recurrence-events,30-39,premeno,0-4,0-2,no,2,right,central,no
recurrence-events,30-39,premeno,25-29,3-5,yes,3,left,left_low,yes
recurrence-events,40-49,ge40,20-24,3-5,no,3,right,left_low,yes
recurrence-events,40-49,premeno,30-34,12-14,yes,3,left,left_up,yes
recurrence-events,30-39,premeno,30-34,9-11,no,2,right,left_up,yes
recurrence-events,30-39,premeno,15-19,6-8,yes,3,left,left_low,yes
recurrence-events,50-59,ge40,30-34,9-11,yes,3,left,right_low,yes

2. What is heuristic function? Show the state space generated in the 8 puzzle problem by applying the heuristics h(n)(the number of tiles out of place) for the following figure [10 marks]



3. When the algorithm is admissible ? Find the optimal path of the given graph using A* Algorithm. Consider start state is A and goal state is H. [8 marks]



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