ARTIFICIAL INTELLIGENCE

Report Lab3

March 22, 2018

Entry No: 2015csb1004
Name: Aditya Ranjan

KAKURO USING CSP

In this part, the goal is to solve kakuro using constraints satisfaction problem. There are two standard algorithms to solve this problem.

CAMPARISION

There are two algorithms:
BS: In this algorithm, standard backtracking is used.
BS_MAC: This is just and extenstion of previous. In this algo, we call arc consistency every-time we assign any value to a variable.
Below is a comparision of both algorithms on some files given in samples folder.First row is for BS_MAC second row is BS
On Input file "inputfile2.txt":

time	memory	#of backtracks
7.9	1.84	1504
5.16	2.6	6801

On Input file "inputfile9.txt":

time	memory	#of backtracks
0.016	.97	0
0.078	1.04	2

On Input file "inputfile13.txt":

time	memory	#of backtracks
4.98	1.89	1310
10.04	2.25	14398

I have collected these data using the codeblocks.
As we can see that BS_MAC is better in all aspects than BS algorithm. The reason is that we applying the arc consistency which further reduces the domain of all the neighour variables, that prevents it to deeper unnecessarily.