Session 7: Heuristic and Measurements

My heuristic was: supposed that we fin dan incremental operation such as multiplication or division, if some of the operands are greater than the final solution of the row or column, probably we won't find a solution there. For decremental (division and subtraction) if one of the operands was lower yet than the final solution, probably again we won't find a solution there but taking also into account that in divisions with integers we cannot have a divisor equal to 0, the dividend must be equal or greater than the divisor and that the reminder of the operation must be 0.

I only made it work with the division heuristic part. It is a poor one, but it works. The other part of the heuristic is commented in my code. Uncomment it if you want to see how badly it works.

Test case	Time for first solution (*backtracking*)	Number of developed nodes (*backtracking*)	Time for first solution (*BaB*)	Number of developed nodes (*BaB*)
Test00	LoR	12	LoR	12
Test01	LoR	3478	LoR	1130
Test02	LoR	1022	LoR	1022
Test03	63	235496	66	306056
Test04	231	1992065	400	2363555
Test05	LoR	12994	LoR	8017
Test06	LoR	6260	LoR	5021
Test07	Oot	unknown	416	2312424

The delay in time regarding those cases in which the traversed nodes for BaB are less than in Backtracking is probably due to the check of the heuristic. In some cases, the solution is found with less traversal but in others no. I am not sure why this happens to be honest.