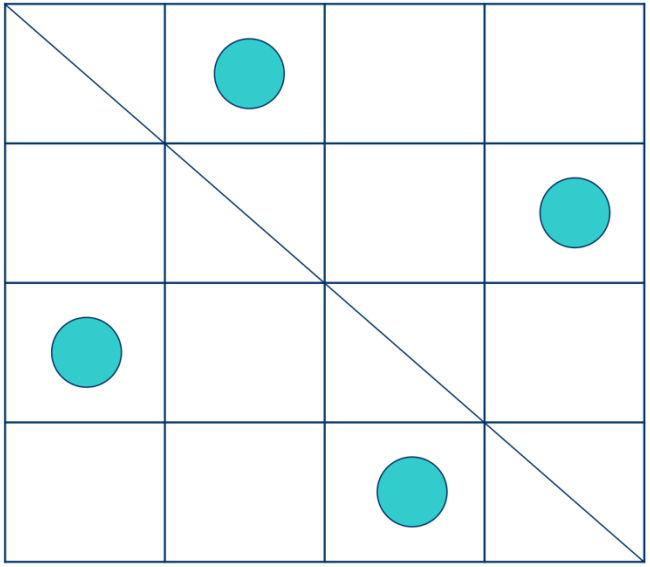
Attention

- LNS in MiniZinc
  - Find the LNS search annotation in Reference Manual.
  - Kicks in with restarting, so need to use it together with restarting.
- Configure the solver to obtain the solution statistics and to set a time limit (300 seconds).
- Use commas when reporting big numbers. E.g., 976474 instead of 976,474.
- Submit one single zip file.

Optimal N-Queens

- Add an objective to the alldiff model:
  - Minimize the total distance of the queens to the main diagonal



Optimal N-Queens

- Search for the optimal solution to the 50-queens problem using Gecode, with a time limit of 5 mins (300 secs).
- Experiment with the following search strategies:
  - the default search
  - the domWdeg-random heuristic
  - by adding restarting (Luby strategy with L = 250) to the previous.
  - by adding LNS (fixing the 85% of the variables) to the previous.
- Output the explored solutions.
- Record the number of failures (f), the number of explored solutions (#s) and the objective value (obj) reached within the time limit in each experiment.
  - Note that none of them can return the optimal solution.

Optimal N-Queens

- Report f, #s and obj in a table and observe the results.

search	f	#s	obj
def			
dWd-rand			
dWd-rand + restart			
dWd-rand + restart + lns			

- Compare briefly the different search strategies going from the first to the last, paying attention to the following points:
  - How slowly/quickly they explore better solutions.
  - Does any search strategy (s1) return a better solution than another s2, while having more failures than s2? What could be the reason?