

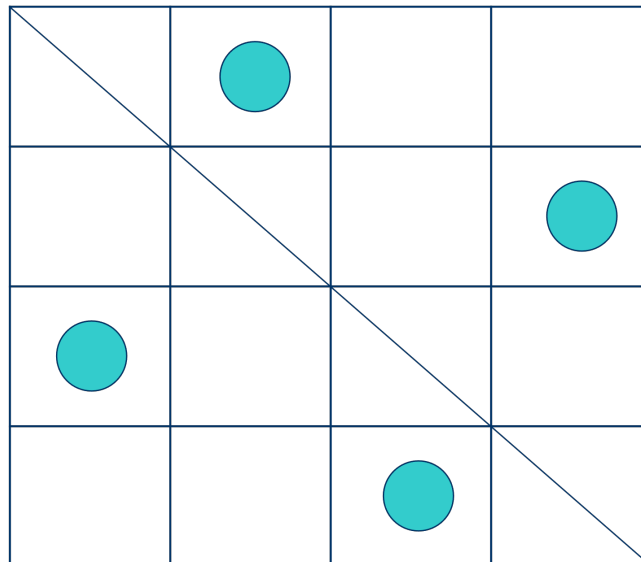
# Attention

- LNS in MiniZinc
  - Available only with Gecode. See Ref. Manual Sec. 4.2.4.
  - Kicks in with restarting
- Use a separate folder for each problem.
- Create a project (.mzp) for each problem.
  - Add the **model** files (\*.mzn) and the **data** files (\*.dzn)
- 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.**
- Indicate the **group partner in the submission comments.**

# Optimal N-Queens

Aggiungere un obiettivo al modello alldiff:

- Add an objective to the alldiff model:
  - Minimize the total distance of the queens to the main diagonal  
Minimizzare la distanza totale delle regine dalla diagonale principale.



# Optimal N-Queens

Cercare la soluzione ottimale del problema delle 50 regine usando Gecode, con un limite di tempo di 5 minuti (300 secondi).

- 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
  - <sup>aggiungendo</sup> by adding restarting (Luby strategy with  $L = 250$ ) to the <sup>precedente</sup> previous
  - by adding LNS (fixing the 85% of the variables) to the previous.
- Record the **number of failures** and the **objective value** in each experiment.

Registrare il numero di fallimenti e il valore obiettivo di ogni esperimento.

# Optimal N-Queens

- Report in a table the number of failures (f) and the objective value (obj) reached by the time limit.

search	f	obj
def		
dWd-rand		
dWd-rand + restart		
dWd-rand + restart + Ins		

- Analyse the results and compare the different search strategies. Note that the obtained solutions may not be optimal. Analizzate i risultati e confrontate le diverse strategie di ricerca. Si noti che le soluzioni ottenute potrebbero non essere ottimali.