SQL Test Case Generation Using Multi-Objective Optimization

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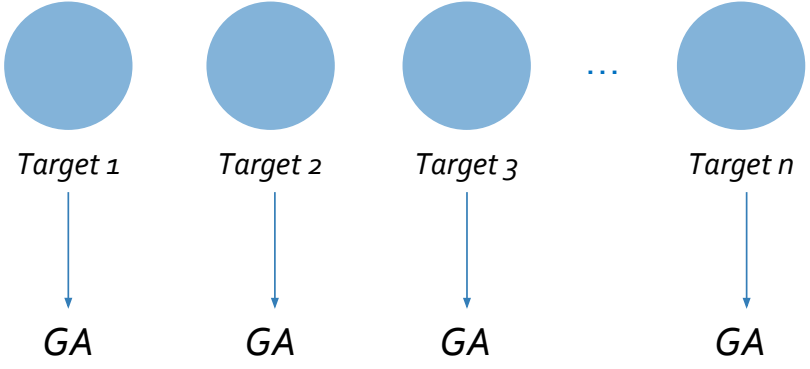
Multi-Objective Optimization

The order of each coverage target being executed is not optimized



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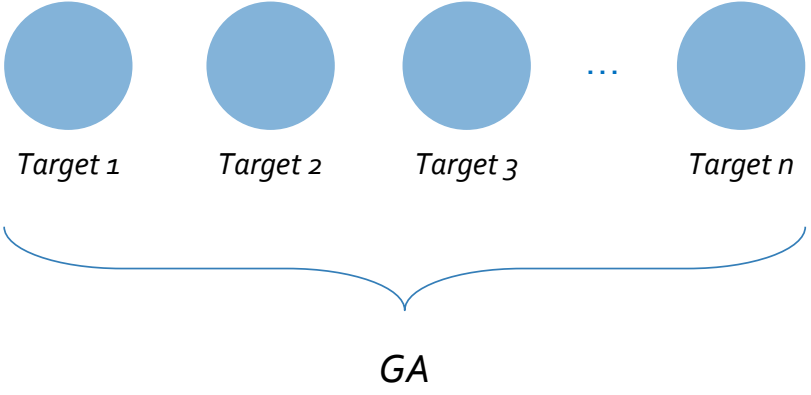
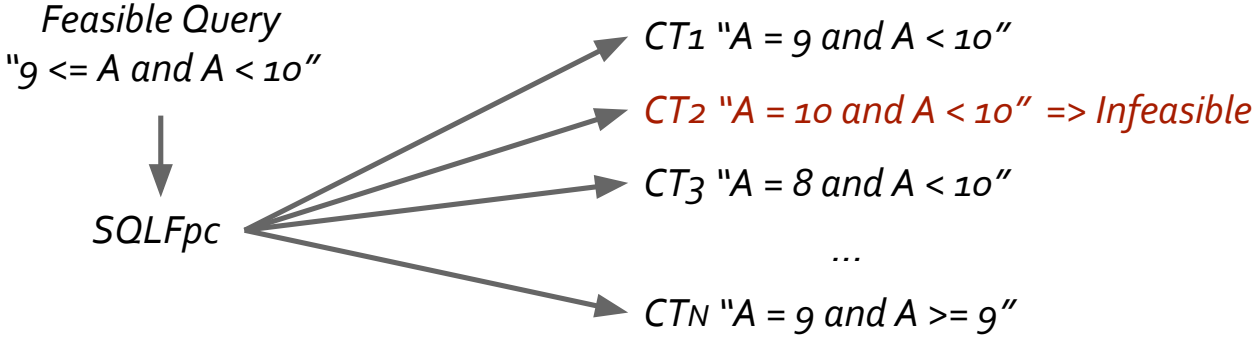


Infeasible Coverage Targets in MOOP

Inefficient allocation of the budget might happen, such as infeasible coverage targets.



Issues we solved

- SQLfpc-website was not available from Korea

  → VPN to Germany

- Poor README on the Github page/No-out-of-the-box support

  → need to touch gradle.build-system

  → lose a lot of time compiling the program

Issues we solved

- Evaluation data was serialized with different version of the code

  → Deserialization issue

  → Re-serialization of whole data set

Plan

- EvoSQL baseline code analysis *(Done)*
- NSGA-II for MOOP *(In progress)*
- Infeasible targets
  - Early stop or detection of infeasible targets
  - by theoretically analyzing tendencies of infeasible targets
- Evaluate speed and coverage compared to EvoSQL

Issues we might face

- Existing code base clustered/some parts unmaintained
  → hard to add code
  → They have copy-paste-artifacts from online tutorials
- Lack of computational resources : could be hard to achieve the evaluation level of the paper
  → 10 (evaluations) * ~2000 (queries) * ~30 (min)
  = ~600,000 mins = ~10,000 hours = ~416 days
- Unsure if we can detect infeasible targets