**Problem**

Answer the relationship queries, a superset of graph reachability queries, efficiently.

**Example Query:** finding relevant diseases for a given disease in a disease-citation graph.

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**Method**

**GQ-Fast**

- Use an efficient index, which consists of one lookup table and several compressed byte-arrays.
- Employ a bottom-up pipelining execution model to avoid large intermediate results.
- Use a code generator to generate query-aware executable C++ codes.

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**Results**

- **Performance**:
  - GQ-Fast outperforms existing databases 1-4 orders of magnitude and uses less space.

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**System**

GQ-Fast uses a new fragment-based data structure and a new, coordinated bottom-up pipelining execution strategy to answer relationship queries.

GQ-Fast allows more data compression schemes than existing databases.

GQ-Fast outperforms existing databases 1-4 orders of magnitude and uses less space.