

# **AUTOMATING THE PROCESS OF GENERATING GRAPHQL SCHEMA BASED ON AN ER DIAGRAM MODEL**

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# ABSTRACT

GraphQL, a query language for APIs, has gained significant popularity in recent years for its flexibility in managing data interactions between clients and servers. At the core of GraphQL is the schema, a type system that defines the data structure, relationships, and operations available to clients. The process of generating GraphQL schemas, however, is often manual, error-prone, and time-consuming. Automating this process, particularly from Entity-Relationship (ER) diagrams, could streamline application development and improve the overall quality of the resulting schemas.

This thesis presents an implementation study of a novel tool designed to automate the generation of GraphQL schemas from ER diagrams. The proposed solution offers a platform for visualize ER diagrams and subsequently generating a GraphQL schema. By leveraging the Database Markup Language (DBML), a user-friendly language for defining databases, the proposed method parses ER diagrams into an intermediate DBML representation. Subsequently, the algorithm extracts the essential schema components such as types, relationships, and operations, and translates them into GraphQL schema definition language (SDL), resulting in an automatically generated schema tailored to the input ER diagram. This automation not only reduces the time and effort required for schema generation but also improves the quality and consistency of the schemas produced, ultimately facilitating more efficient and robust application development using GraphQL.

## **Keywords:**

GraphQL, GraphQL Schema, GraphQL Schema Generation, Entity Relationship

## **Subject Descriptors:**

- Information systems → Information systems applications → Enterprise information systems → Enterprise applications
- Information systems → World Wide Web → Web services → Service discovery and interfaces
- Information systems → Information retrieval → Information retrieval query processing → Query representation
- Computing methodologies → Modelling and simulation → Model development and analysis → Model verification and validation
- Applied computing → Enterprise computing → Enterprise modelling