

## Supplemental Material: SMS-primary-study-dataset

### GraphQL: A Systematic Mapping Study

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#### Primary study dataset selected to conduct the SMS<sup>1</sup>.

NO.	TITLE	REF.
1	An empirical analysis of GraphQL API schemas in open code repositories and package registries	[1]
2	An initial analysis of facebook's GraphQL language	[2]
3	Advanced Data Fetching with GraphQL: Case Bakery Service	[3]
4	API Design in Distributed Systems: A Comparison between GraphQL and REST	[4]
5	Bioactivity-explorer: a web application for interactive visualization and exploration of bioactivity data	[5]
6	Bridges between GraphQL and RDF	[6]
7	Context-Aware Access to Heterogeneous Resources Through On-the-Fly Mashups	[7]
8	Defining Schemas for Property Graphs by Using the GraphQL Schema Definition Language	[8]
9	Design and Implementation of Real-Time Management System Architecture based on GraphQL	[9]
10	Detecting Cycles in GraphQL Schemas	[10]
11	Efficient Architecture Design for Software as a Service in Cloud Environments	[11]
12	Experiences on Migrating RESTful Web Services to GraphQL	[12]
13	Generating GraphQL-Wrappers for REST(-like) APIs	[13]
14	GraphQL and DC-WSN-Based Cloud of Things	[14]
15	GraphQL for archival metadata: An overview of the EHRI GraphQL API	[15]
16	A model-driven framework for data-driven applications in serverless cloud computing	[16]
17	Implementing GraphQL as a query language for deductive databases in SWI-Prolog using DCGs, quasi quotations, and dicts	[17]
18	Improving the OEEU's Data-driven Technological Ecosystem's Interoperability with GraphQL	[18]
19	On the Role of Context in the Design of Mobile Mashups	[19]
20	QL4MDR: a GraphQL query language for ISO 11179-based metadata repositories	[20]
21	Towards a UML and IFML Mapping to GraphQL	[21]
22	Using GraphQL for Content Delivery in Kentico Cloud	[22]

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<sup>1</sup> SMS: Systematic Mapping Study

<b>23</b>	Lion: listen online. Using GraphQL as a mediator for data integration and ingestion	[23]
<b>24</b>	Migrating to GraphQL: A Practical Assessment	[24]
<b>25</b>	morph-GraphQL: GraphQL Servers Generation from R2RML Mappings (Sese).	[25]
<b>26</b>	Querying heterogeneous linked building data with context-expanded GraphQL queries	[26]
<b>27</b>	Rendering real-time dashboards using a GraphQL- based UI Architecture	[27]
<b>28</b>	Semantics and Complexity of GraphQL	[28]
<b>29</b>	Performance analysis of Web Services: Comparison between RESTful & GraphQL web services	[29]
<b>30</b>	An Empirical Study of GraphQL Schemas	[30]
<b>31</b>	A GraphQL approach to Healthcare Information Exchange with HL7 FHIR	[31]
<b>32</b>	A Link Generator for Increasing the Utility of OpenAPI-to-GraphQL Translations	[32]
<b>33</b>	A mechanized formalization of GraphQL	[33]
<b>34</b>	Analysis of GraphQL performance: a case study	[34]
<b>35</b>	Block Affordances for GraphQL in MIT App Inventor	[35]
<b>36</b>	Build a GraphQL application with Node. js and React	[36]
<b>37</b>	Comparative Analysis Between Standards Oriented to Web Services: SOAP, REST and GRAPHQL	[37]
<b>38</b>	Design of Hybrid Application Based on GraphQL for Efficient Query for PHR	[38]
<b>39</b>	Deviation testing: A test case generation technique for GraphQL APIs	[39]
<b>40</b>	Empirical study on the usage of graph query languages in open source Java projects	[40]
<b>41</b>	Evaluating execution strategies of GraphQL queries	[41]
<b>42</b>	Exploiting Declarative Mapping Rules for Generating GraphQL Servers with Morph-GraphQL	[42]
<b>43</b>	Exploring the quality attribute and performance implications of using GraphQL in a data-fetching API	[43]
<b>44</b>	A Performance Comparison of Auto-Generated GraphQL Server Implementations	[44]
<b>45</b>	GraphQL as modern access to jBPM process engine	[45]
<b>46</b>	GraphQL Federation: A Model-Based Approach	[46]
<b>47</b>	A principled approach to GraphQL query cost analysis	[47]
<b>48</b>	GraphQL Schema Generation for Data-Intensive Web APIs	[48]
<b>49</b>	GraphQL: The API Design Revolution	[49]
<b>50</b>	How fast GraphQL is compared to REST APIs	[50]
<b>51</b>	Implementation and evaluation of a graphql-based web application for project follow up	[51]
<b>52</b>	Implementing graphql in existing REST api	[52]
<b>53</b>	Microservice architecture patterns with GraphQL	[53]
<b>54</b>	News API implementation with serverless GraphQL	[54]
<b>55</b>	Performance Analysis of GraphQL and RESTful in SIM LP2M of the Hasanuddin University	[55]
<b>56</b>	REST vs GraphQL: A Controlled Experiment	[56]
<b>57</b>	Social Media Intelligence and Learning Environment: an Open Source Framework for Social Media Data Collection, Analysis and Curation	[57]

<b>58</b>	Sustainable IoT sensing applications development through graphQL-based abstraction layer	[58]
<b>59</b>	Transformation of REST API to GraphQL for OpenTOSCA	[59]
<b>60</b>	An ontological metamodel for cyber-physical system safety, security, and resilience coengineering	[60]
<b>61</b>	An Overview of GraphQL: Core Features and Architecture	[61]
<b>62</b>	Automatic bootstrapping of GraphQL endpoints for RDF triple stores	[62]
<b>63</b>	Automatic Property-based Testing of GraphQL APIs	[63]
<b>64</b>	Building a modern data archive with React, GraphQL, and friends	[64]
<b>65</b>	Combination of CityJSON with PostgreSQL, MongoDB and GraphQL	[65]
<b>66</b>	Comparative Analysis of Rest and GraphQL Technology on Nodejs-Based Api Development	[66]
<b>67</b>	Comparative analysis of web application performance in case of using Rest versus GraphQL	[67]
<b>68</b>	Development of a centralized system for data storage and processing on operation modes and reliability indicators of power equipment	[68]
<b>69</b>	FGPE Gamification Service: A GraphQL Service to Gamify Online Education	[69]
<b>70</b>	GraphQL for building microservices	[70]
<b>71</b>	GraphQL Interface for OPC UA	[71]
<b>72</b>	GraphQL-based generic and domain specific query interfaces for the JValue ODS	[72]
<b>73</b>	Guaranteeing Type Consistency in Collective Adaptive Systems	[73]
<b>74</b>	Identification and Evaluation of a Process for Transitioning from REST APIs to GraphQL APIs in the Context of Microservices Architecture	[74]
<b>75</b>	Migrating from REST to GraphQL having long-term supported clients	[75]
<b>76</b>	MVP Architecture Model with Single Endpoint Access for Displaying COVID 19 Patients Information Dynamically	[76]
<b>77</b>	Performance comparison: Between GraphQL, REST & SOAP	[77]
<b>78</b>	Performance Measurement of GraphQL API in Home ESS Data Server	[78]
<b>79</b>	RCSB Protein Data Bank: Architectural Advances Towards Integrated Searching and Efficient Access to Macromolecular Structure Data from the PDB Archive	[79]
<b>80</b>	REST API vs GraphQL: A literature and experimental study	[80]
<b>81</b>	Student Behavior Report Management System on Somsri.IO	[81]
<b>82</b>	The Web service development with React, GraphQL and Apollo	[82]
<b>83</b>	Tokocabai marketplace application based on web using extreme programming method	[83]
<b>84</b>	Zincbindpredict—prediction of zinc binding sites in proteins	[84]

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