**Canadian Institute of Technology**

Faculty of Engineering  
Department of Engineering

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**SQL Client**

A project submitted in partial fulfillment   
of the requirements for the **Fundamentals of Programming II course**   
in Software Engineering

**by**

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**ABSTRACT**

This project is an SQL Client which is meant to write queries and display tables like a sql client would, but implemented in JAVA. We used JDBC for connecting the databases using a dependency manager like Maven and for the Graphical User Interface we used Swing a library of Java. The application allows for database file selecting and executing. Displaying SQL Tables and much more. It is open-source for download in GitHub on of the largest repository sharing sites and everyone with a bit of experience in SQL can use this application. In conclusion this was an amazing project to work on, to build something that we are using or might use in the future ourself just puts to show our dedication to programming and software engineering.

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# Introduction

## Purpose

SQLClient is a developer friendly client for SQL queries. Its main purpose is to make a lightweight client in java for database management, an editor for SQL, a display for tables and trees.

## Intended Audience and Reading Suggestions

This application is made with developers in mind. But anyone who can use SQL can use or is able to use this application. It is lightweight and cross-platform meaning you can run in from almost every device.

# Overall Description

## Product Perspective and Scope

This product was born from the passion we have for building lightweight applications in Java, and what better than a database manager. It is feature-rich and responsive. SQLClient was build with developers in mind. Build for developers by developers.

## Product Functionalities

Summarize the major functions the product must perform or must let the user perform. Details will be provided in the next sections, so only a high-level summary (such as a bullet list) is needed here. Organize the functions to make them understandable to any reader of the document.

* Manage data (insert, update, delete) via GUI.
* Editor for SQL with syntax highlighting.
* Adjustable responsive UI.
* Import/export CSV.
* Graphical representation of database as tree.
* Support for SQLite.
* Cross Platform.

## Operating Environment

The software operates on any computer where a Java Runtime Environment is installed and has a working Window Manager/Desktop environment of any kind. The app is very lightweight, so in terms of system hardware specifications it should be able to run on all modern PCs without any stuttering or lag of any kind.

## Design and Implementation Constraints

As we said above this application uses SQLite, due to the fact that its open-source, one of this applications limitation is hard implementation of MySQL, and many other database types due to proprietary software. Other problems we came across is the limited functionality of Swing for GUI and its lack of design layouts.

# Project Development / Method Explanation

## Application Runner

The Main class – Application Runner runs the application.

## Database

This class makes the connection with the database in this case using JDBC we connected to SQLite. Let’s you write queries and execute them. It collects information from said database so we can display it in the table and tree.

## Interface

This class has the Graphical User Interface. It has a intuitive layout and displays a button which opens a file selector and has a display for a table and a tree. It has an input area where you can execute what you write with another button.

# Conclusions / Discussion

In conclusion, while the app is in a pretty good state currently and a lot of good work has been done by our team, there is still room for expansion and addition of features. One of many is the export of different file types like excl and docx. Another feature looking forward to test is the implementation of MySQL and improving the GUI to be more future proof. This application is a great way to see the interconnections of how SQL clients are made and to see how SQL works in general, it is an amazing showing of the inner works it takes to make a client for such things.

# Major Contributions

Emanuel Golaj – Logic, JDBC, SQLite, Maven

Enea Xharau – Interface, GUI and documentation

# References

**<**Citations should be numbered consecutively inside brackets, following any standard style of your choice Failure to cite authors and article accordingly leads to plagiarism.>