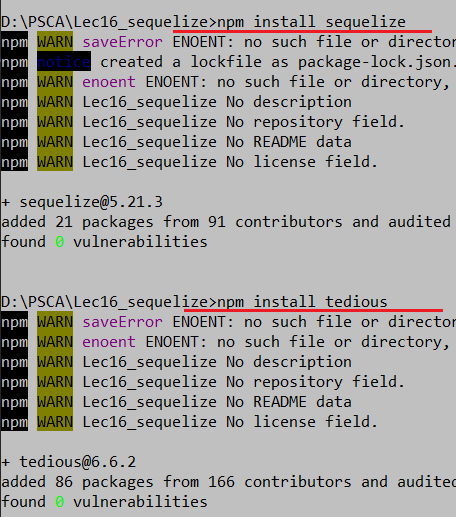
Лекция 16

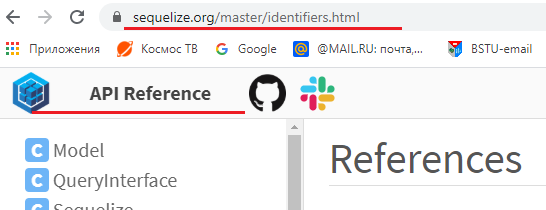
ПСКП, ПОИТ-3

**Node.js: Sequelize**

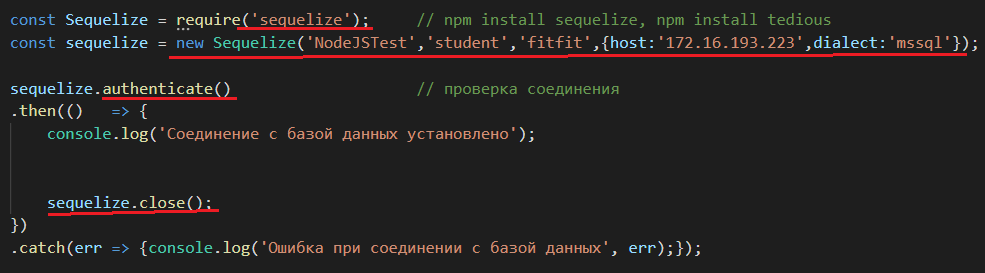
1. **ORM: Object-Relational Mapping** - технология программирования, которая позволяет работать с SQL-базой данных, как с набором программных объектов. **Mapping**: база данных – объект контекста, таблица – коллекция объектов, строка в таблице – объект, структура таблицы – класс.
2. **Sequelize:** npm-пакет, реализующий ORM-технологию. Может применяться для: Postgres, MySQL, MariaDB, SQLite, Microsoft SQL Server, Oracle, DB2, Snowflake.

****

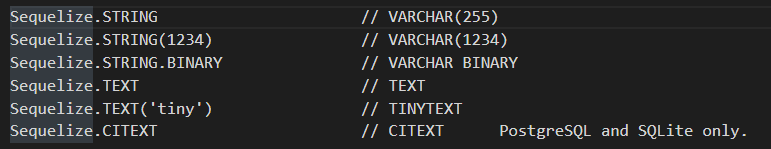
1. **Sequelize:** <https://www.npmjs.com/package/sequelize>
2. **Sequelize:** <https://sequelize.org/docs/v6/getting-started/>
3. **Sequelize:** <https://metanit.com/web/nodejs/9.1.php>
4. **Sequelize:** документация API

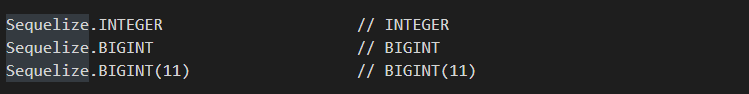
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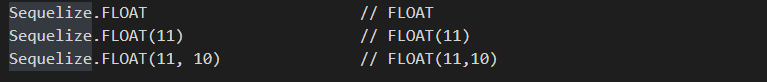
1. **Sequelize:** соединение с БД, проверка соединения, закрытие соединения.

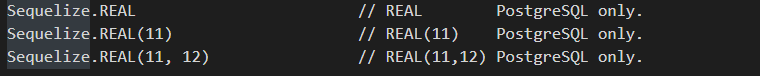
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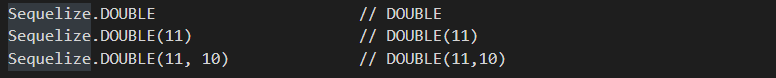
1. **Sequelize:** типы данных

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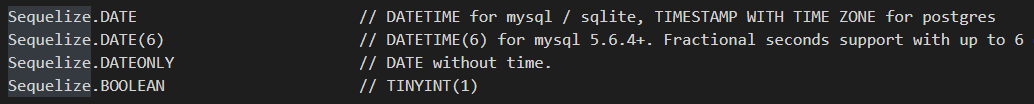
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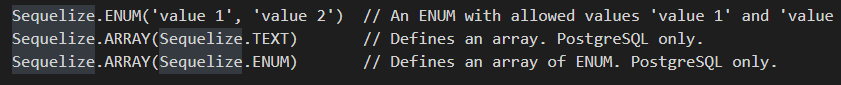
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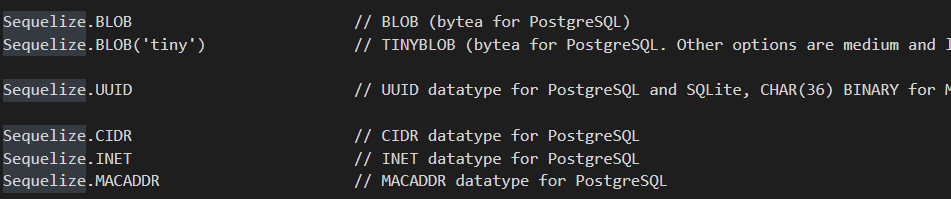
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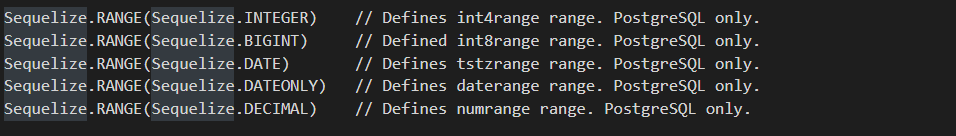
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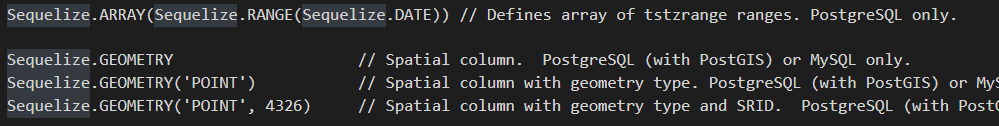
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1. **Sequelize:** пакет для выбранной СУБД

$ npm install --save pg pg-hstore *# Postgres*

$ npm install --save mysql2

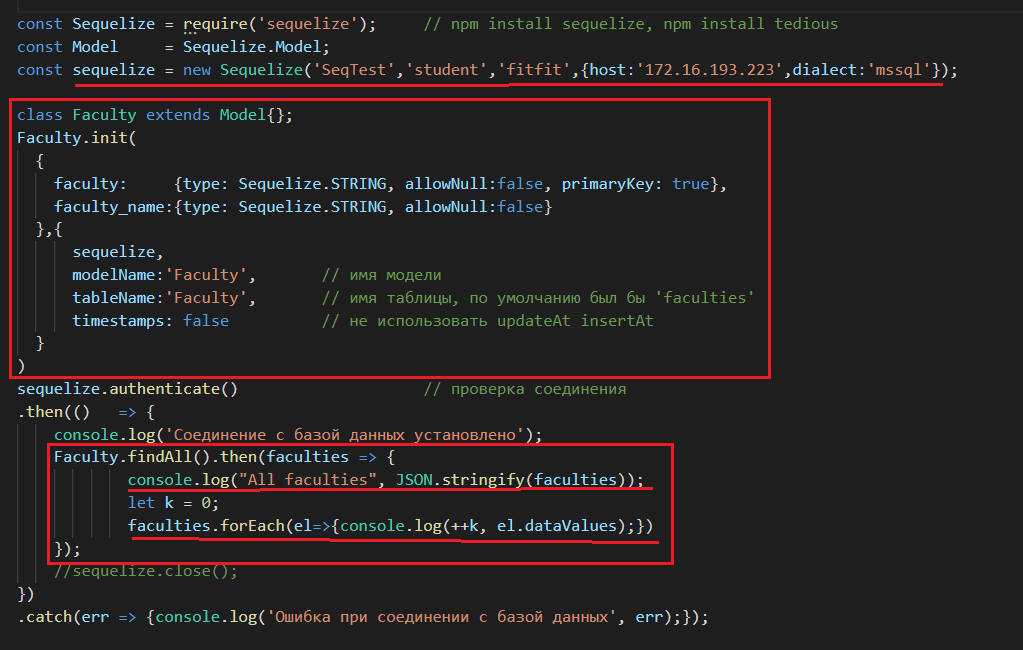
$ npm install --save mariadb

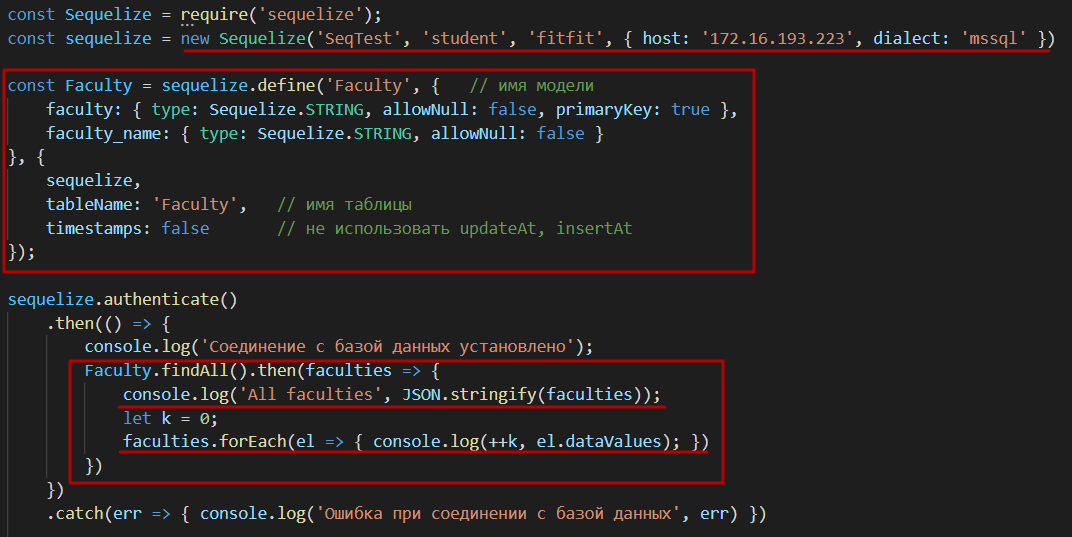
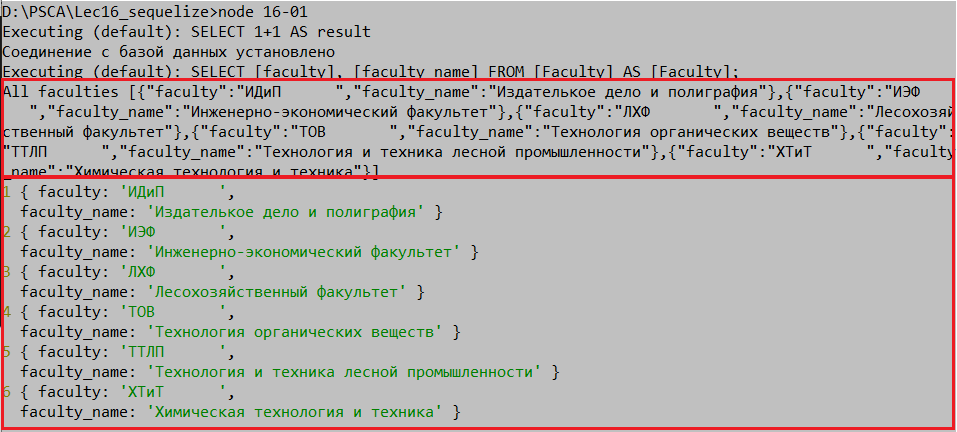
$ npm install --save sqlite3

$ npm install --save tedious *# Microsoft SQL Server*

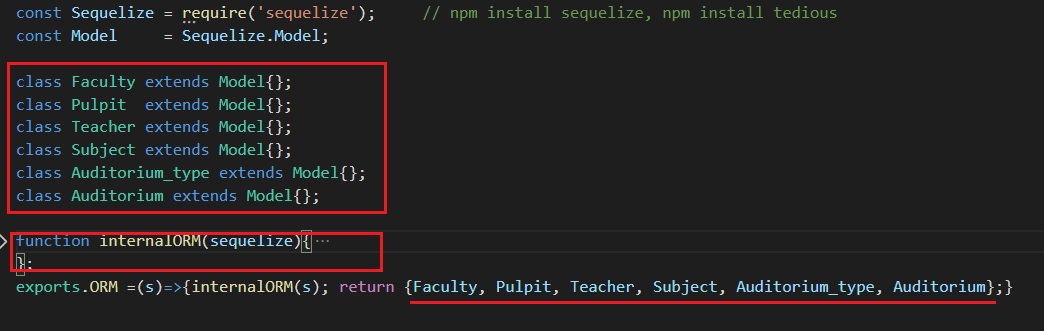


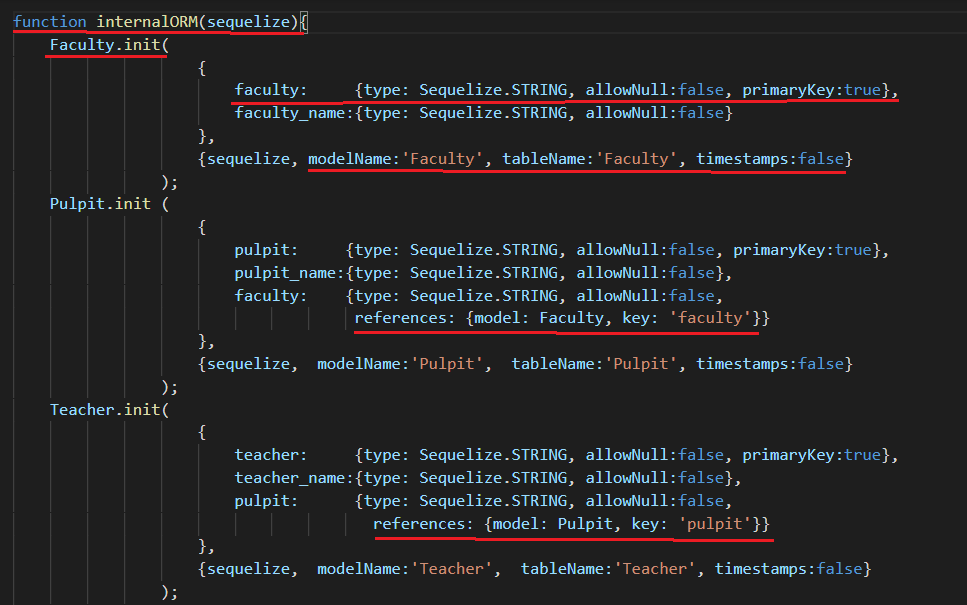
1. **Sequelize:** модель данных

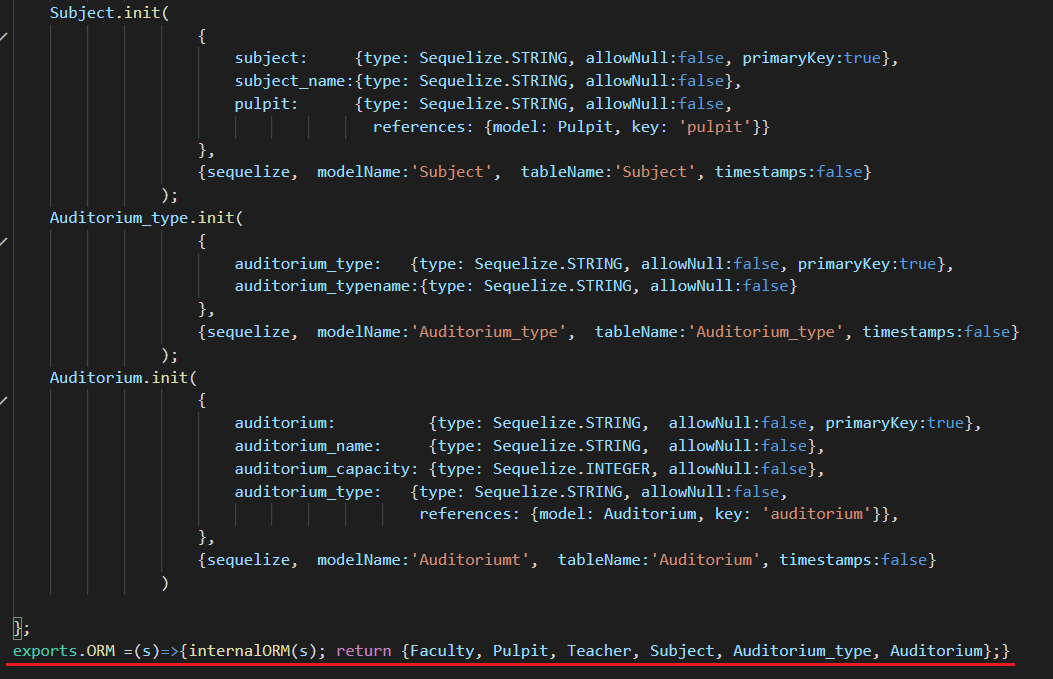
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 ****

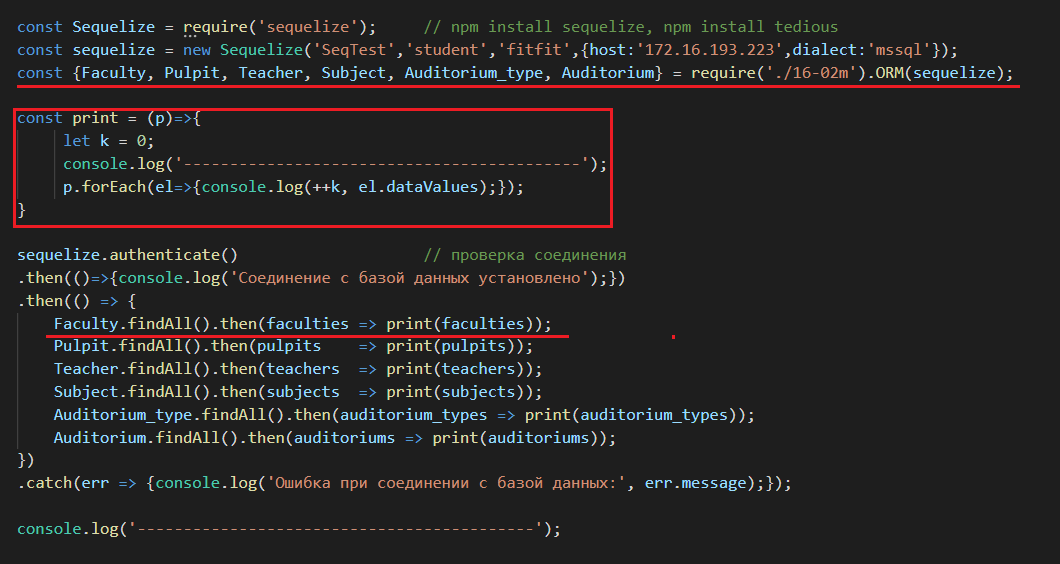
1. **Sequelize:** модель данных, reference

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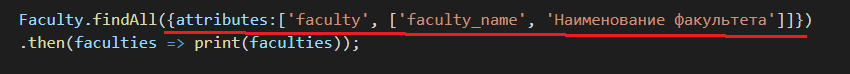
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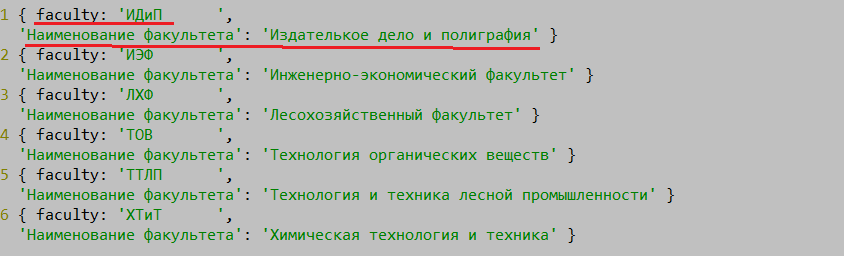
****

1. **Sequelize:** select

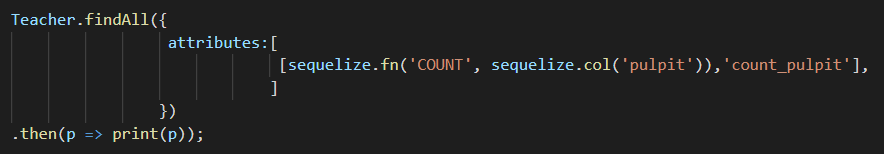
****

1. **Sequelize:** select XX, YY as ’VVV’

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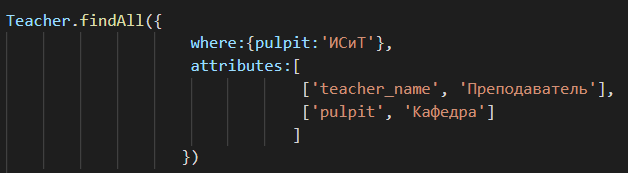
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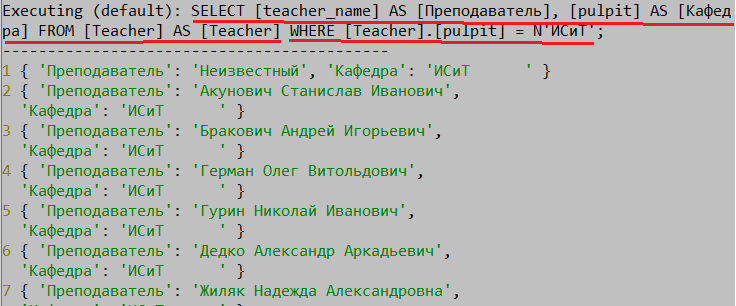
1. **Sequelize:** select COUNT(XX) as ’VVV’

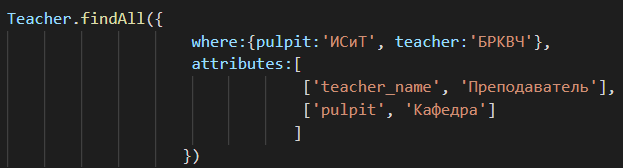
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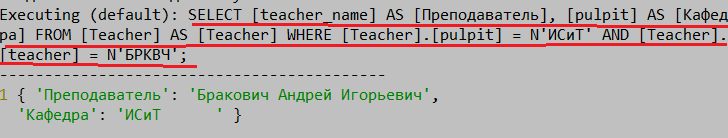
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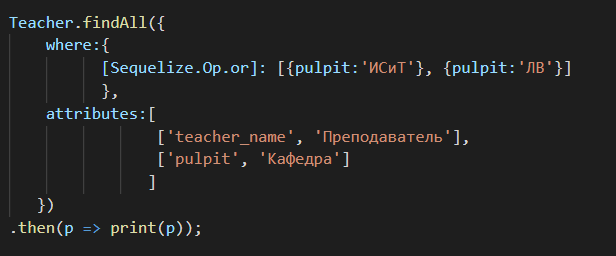
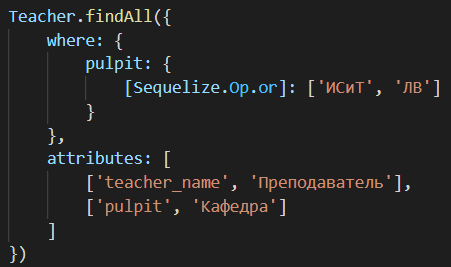
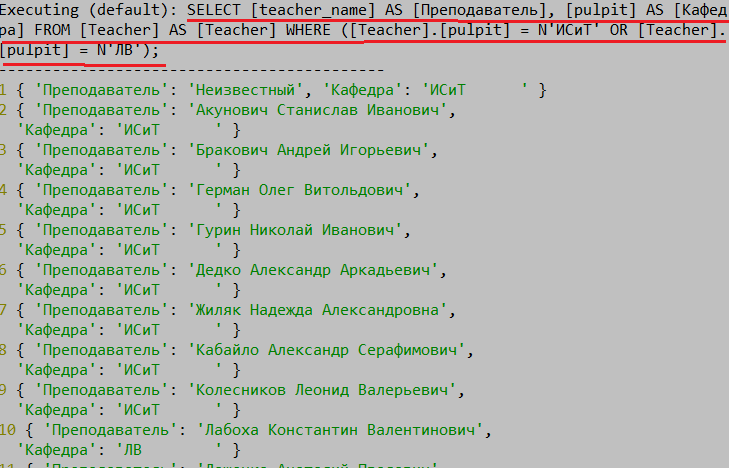
1. **Sequelize:** select …where

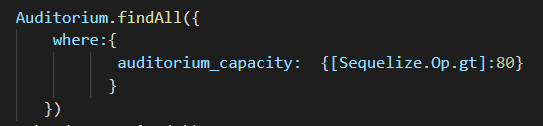
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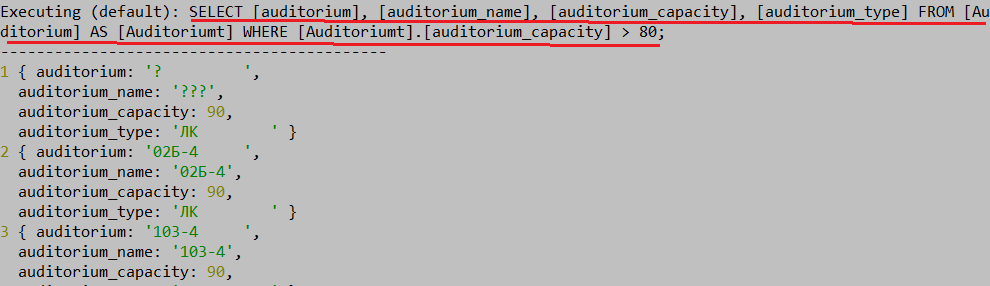
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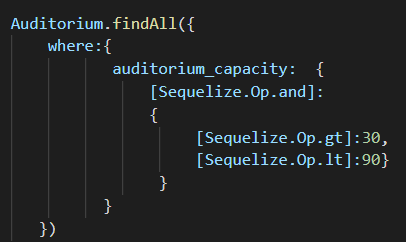
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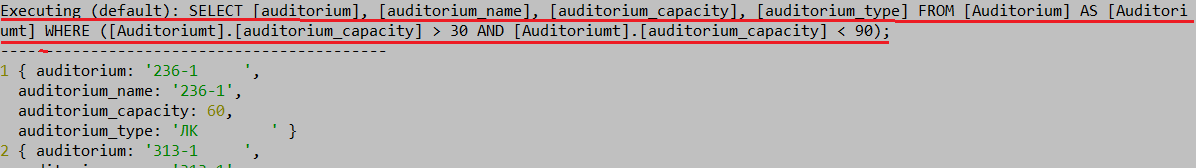
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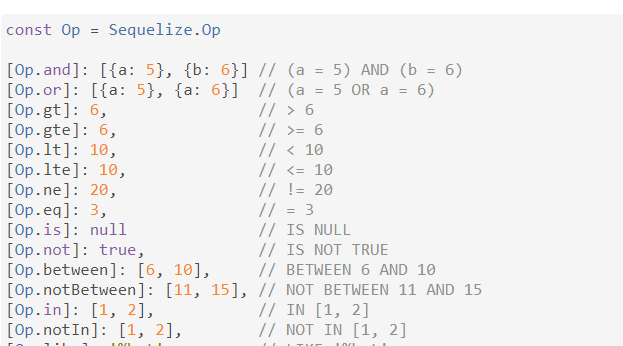
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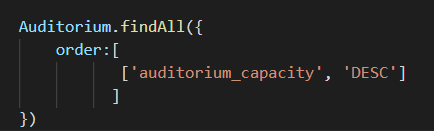
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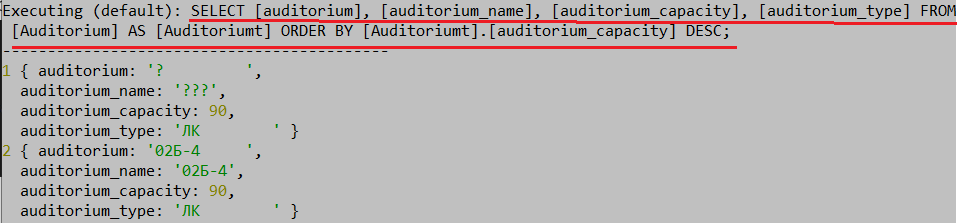
1. **Sequelize:** Sequelize.Op

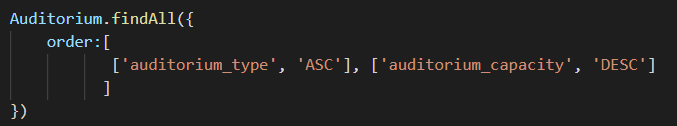


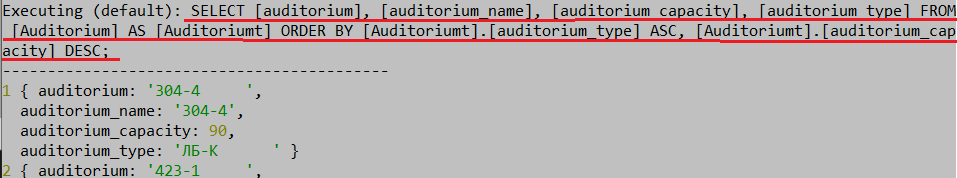
См. <https://sequelize.org/master/manual/querying.html>

1. **Sequelize:** select … order by

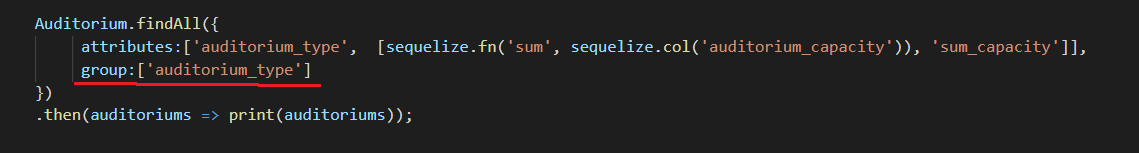
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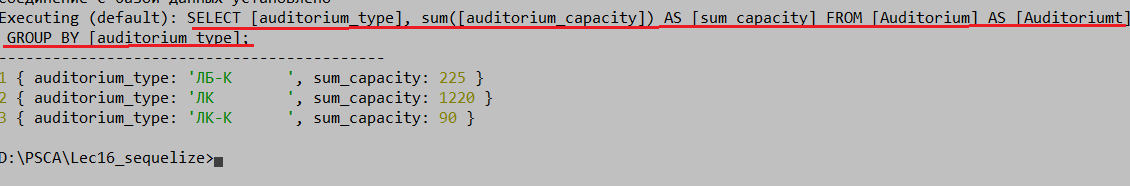
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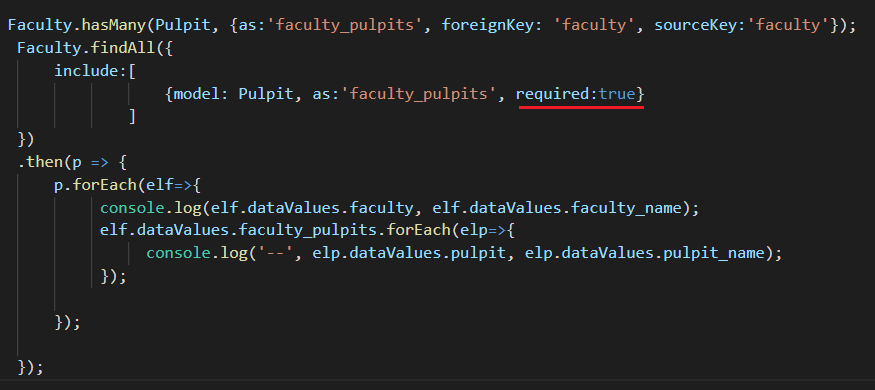
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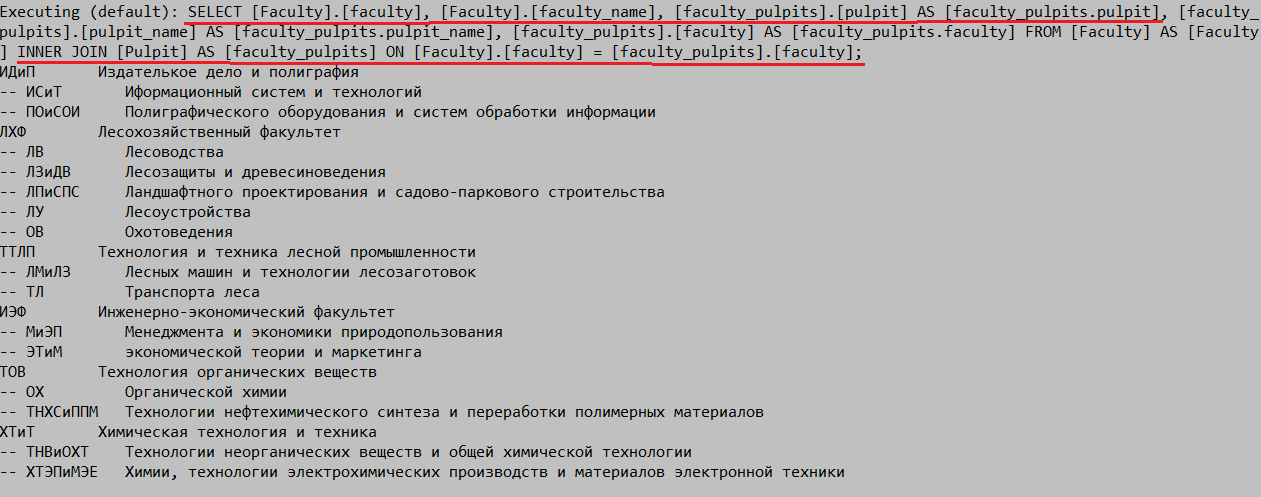
1. **Sequelize:** select … group by



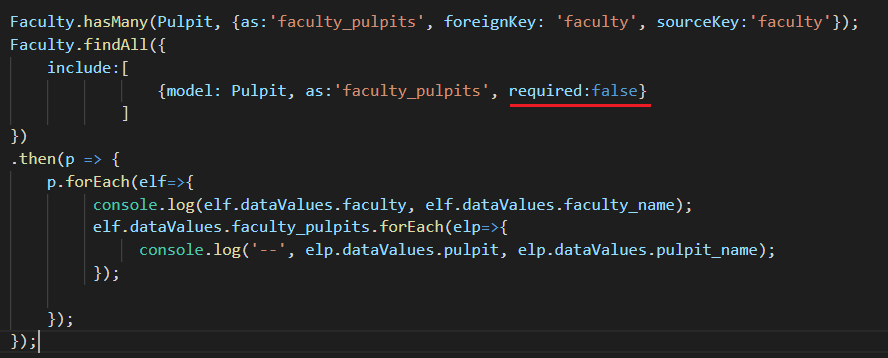


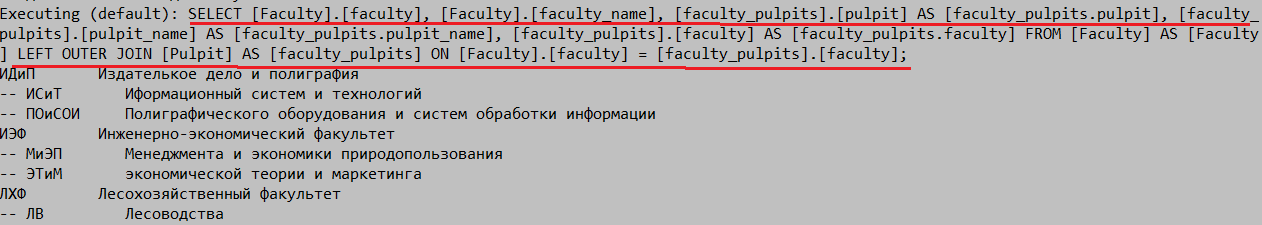
1. **Sequelize:** select … inner join

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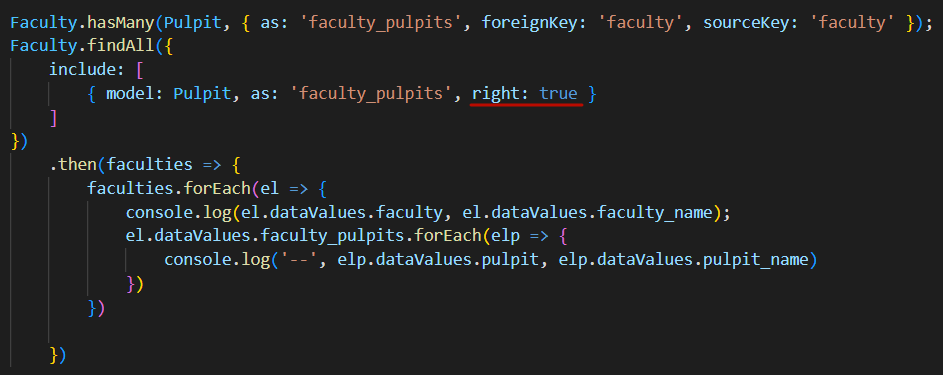
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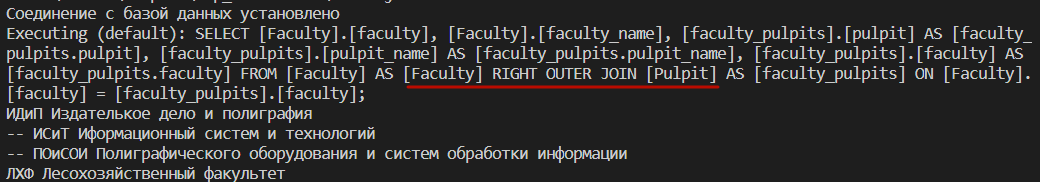
1. **Sequelize:** select … left outer join



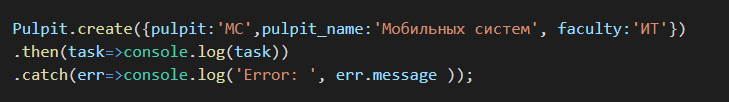


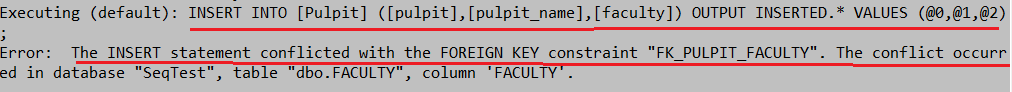
1. **Sequelize:** select … right outer join

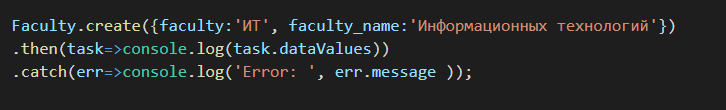




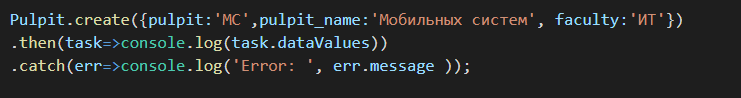
1. **Sequelize:** select, findByPk – получение одного объекта по ключу, findOne – получение одного объекта по критерию выборки.
2. **Sequelize:** insert…

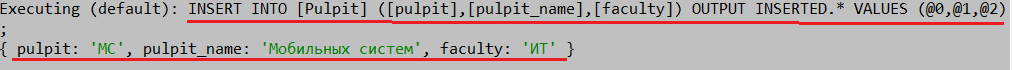
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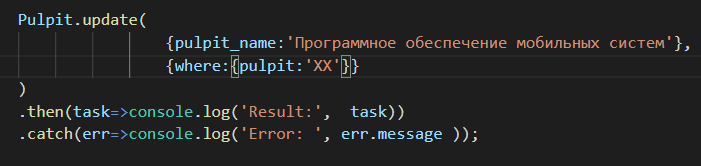
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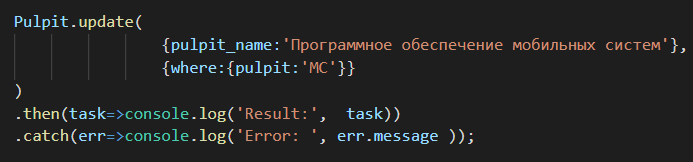
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1. **Sequelize:** update…

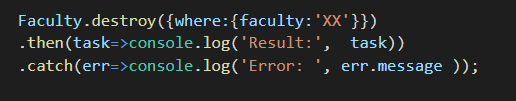
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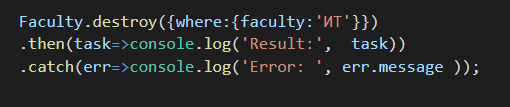
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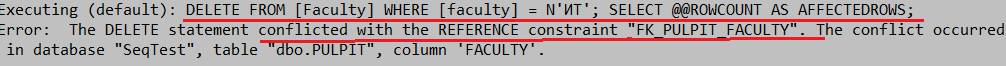
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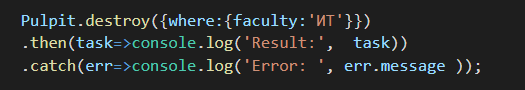
1. **Sequelize:** delete…

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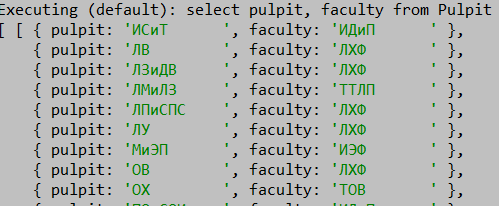
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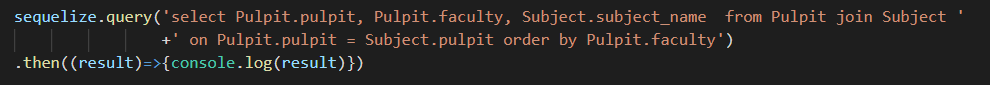
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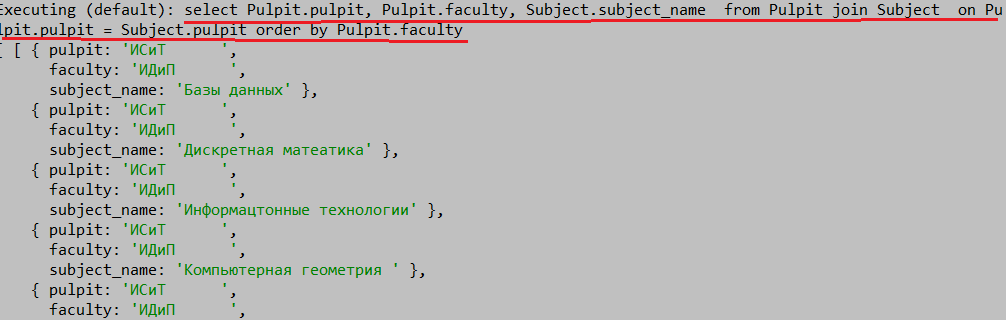
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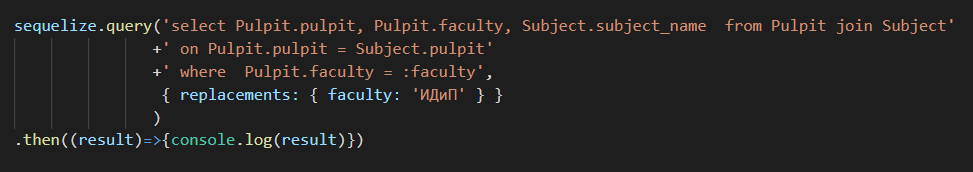
1. **Sequelize:** raw query…

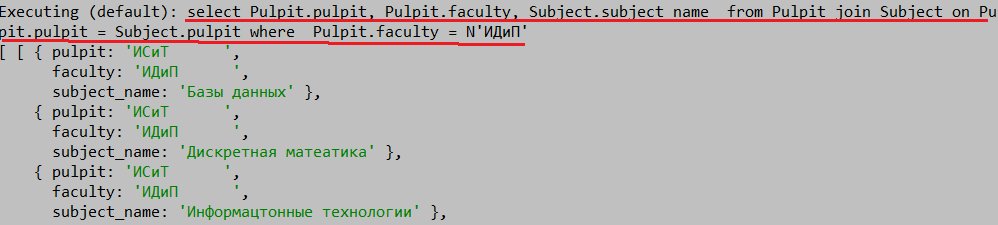
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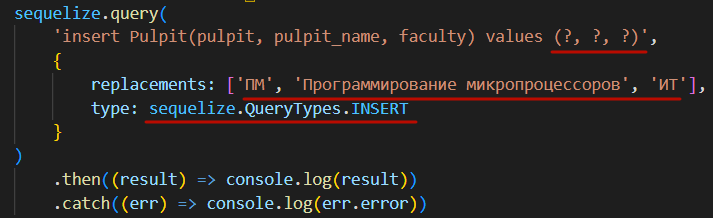
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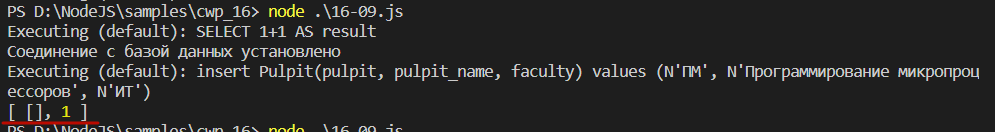
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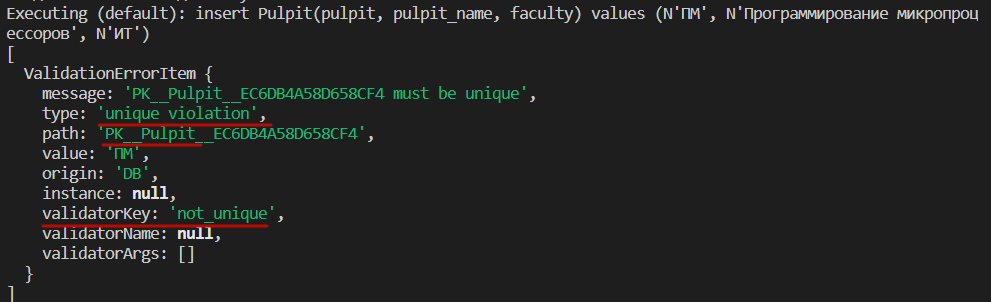
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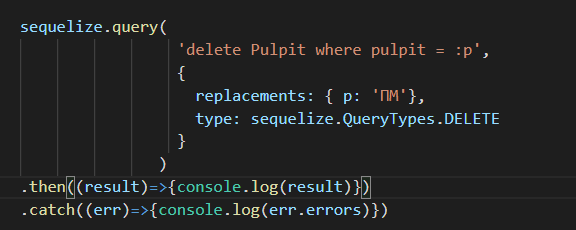
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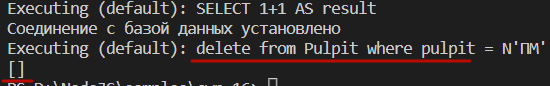
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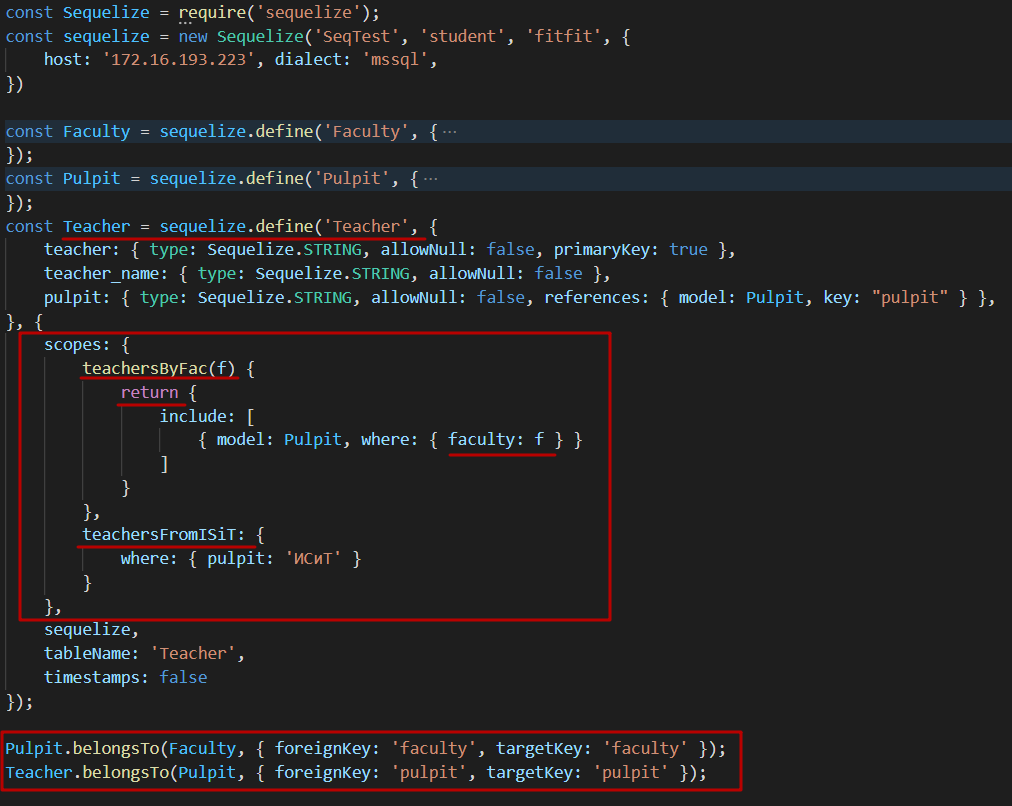


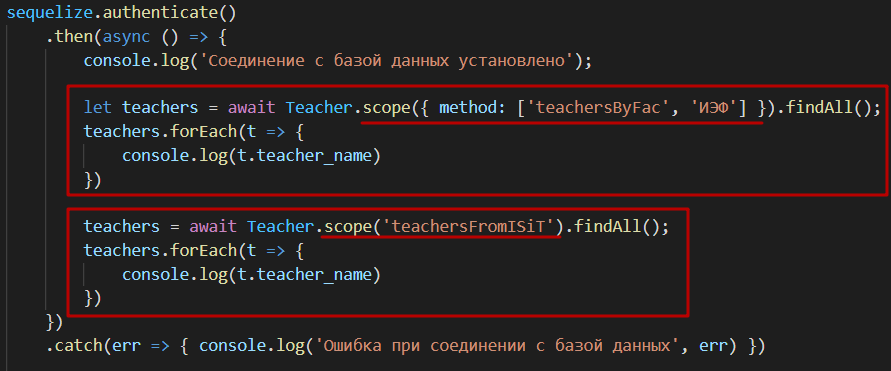


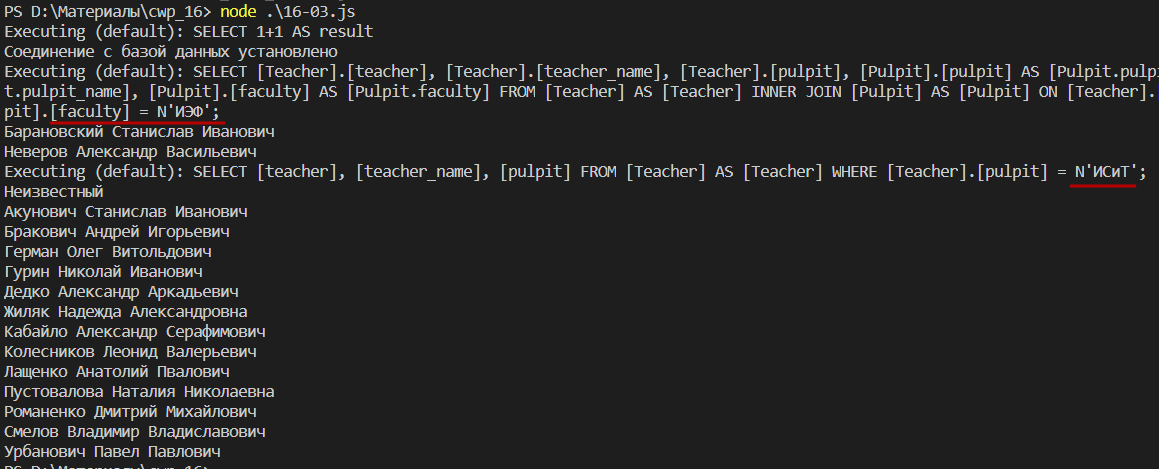
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1. **Sequelize:** scopes, можно применить к find, findAll, count, increment, destroy,…

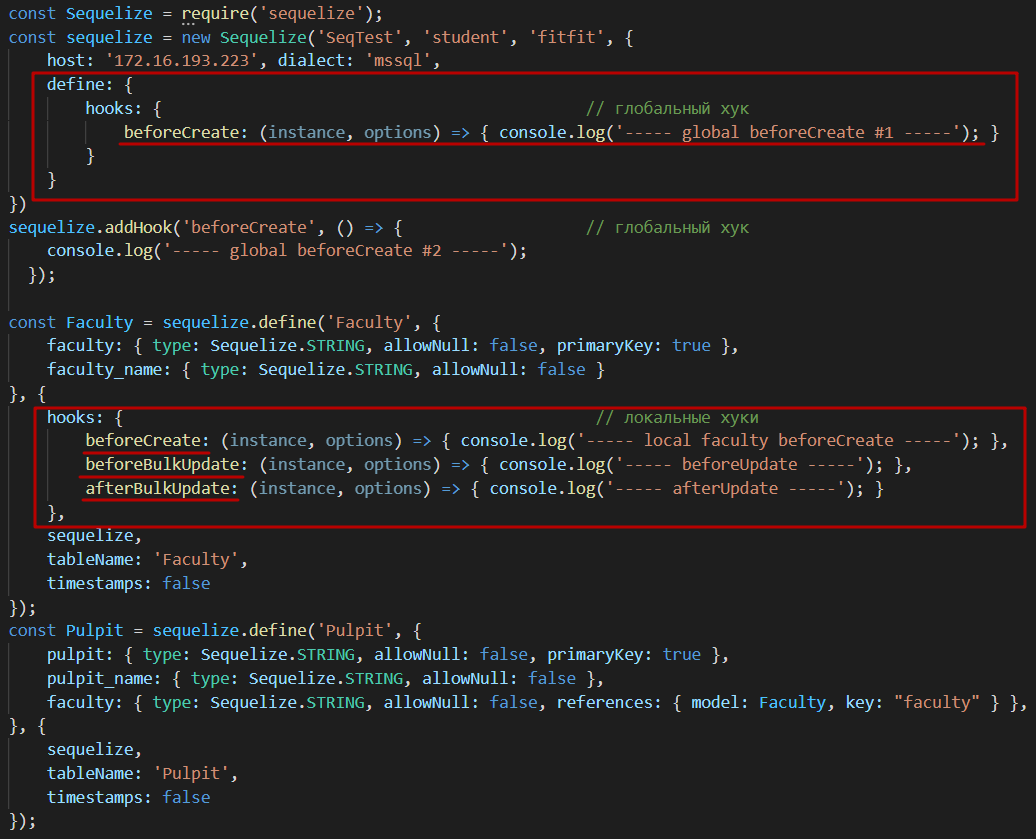


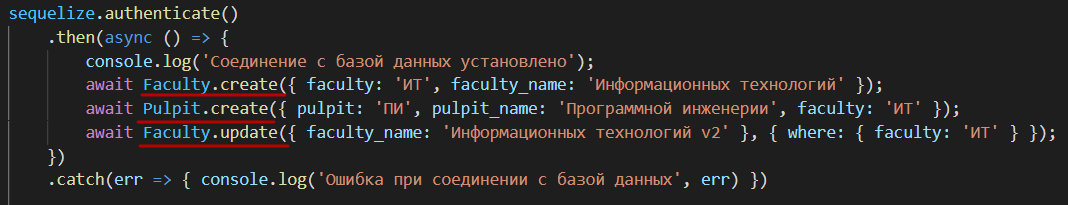


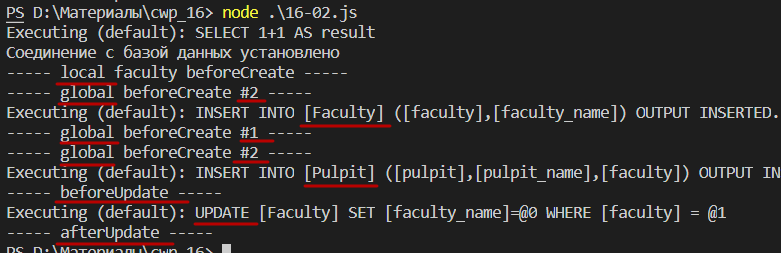


1. **Sequelize:** hooks (Model.addHook(), Model.removeHook()), global hook
2. **Sequelize:** beforeCreate/afterCreate, beforeUpdate/afterUpdate, beforeDestroy/afterDestroy…

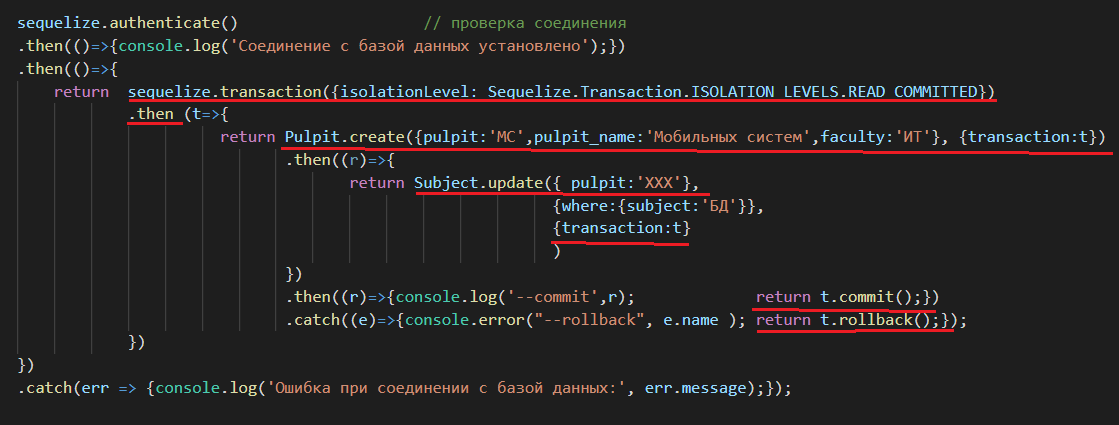
См. <https://github.com/sequelize/sequelize/blob/v6/lib/hooks.js#L7>

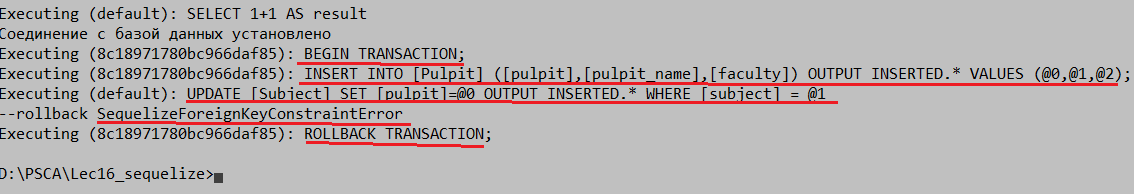


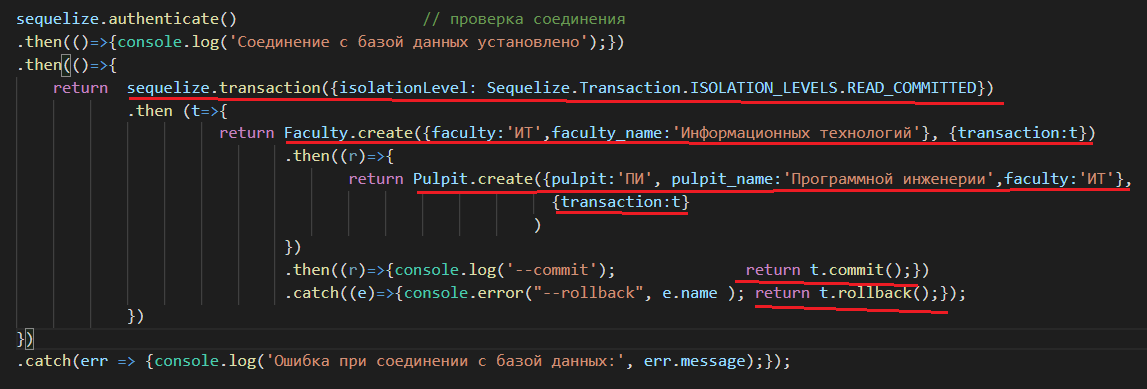


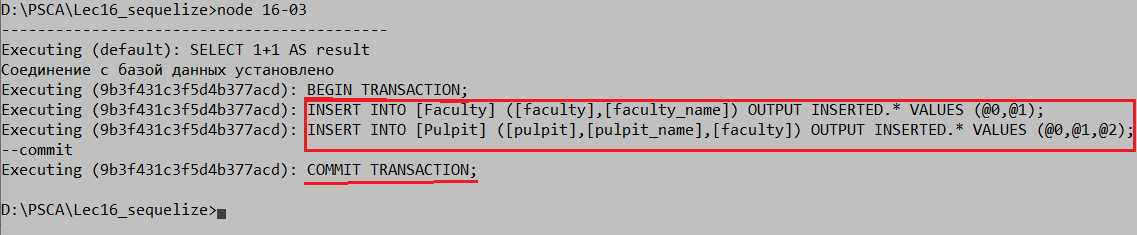


1. **Sequelize:** transaction… (unmanaged)

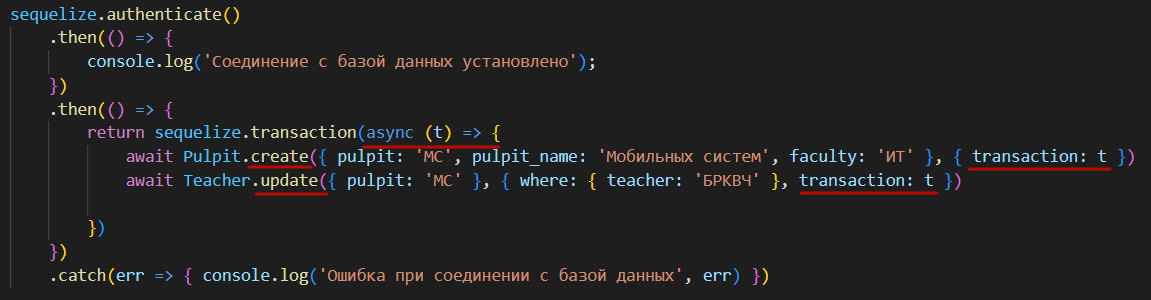
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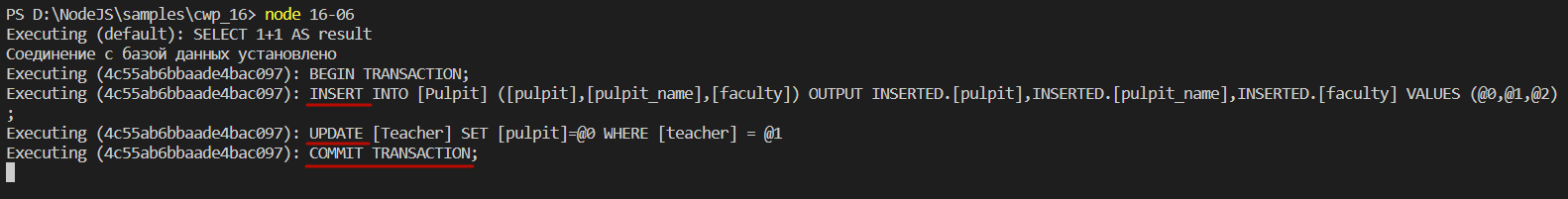
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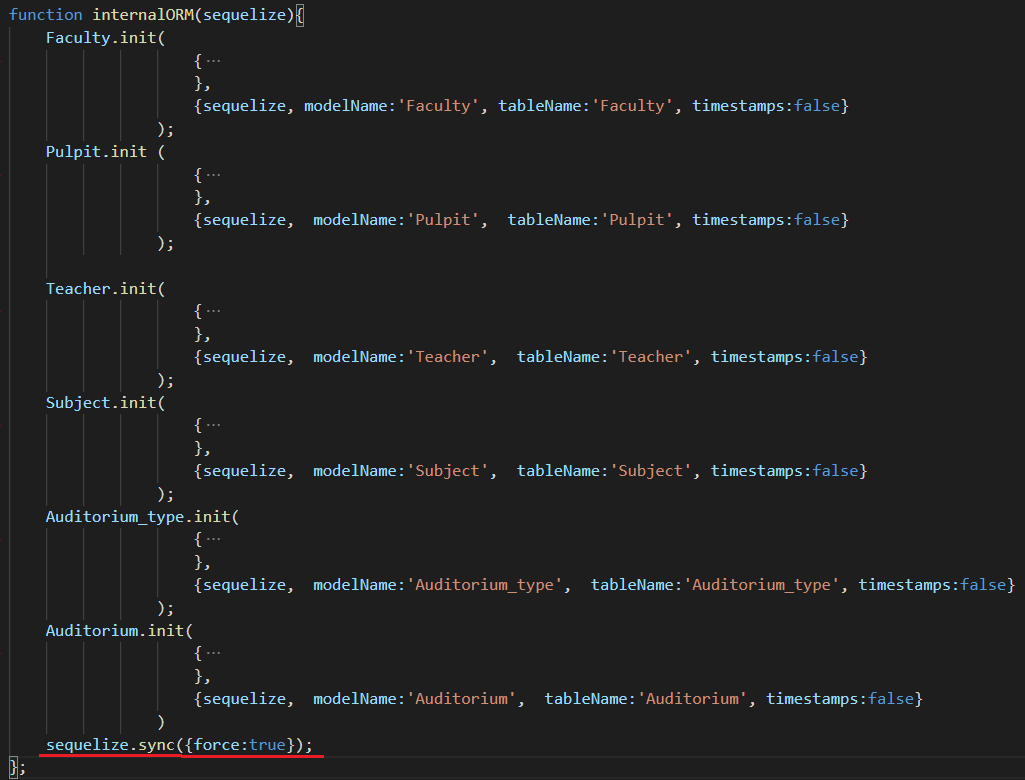
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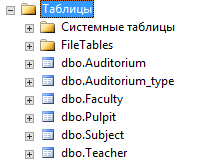
1. **Sequelize:** transaction (managed), autoCallback, autocommit/ autorollback



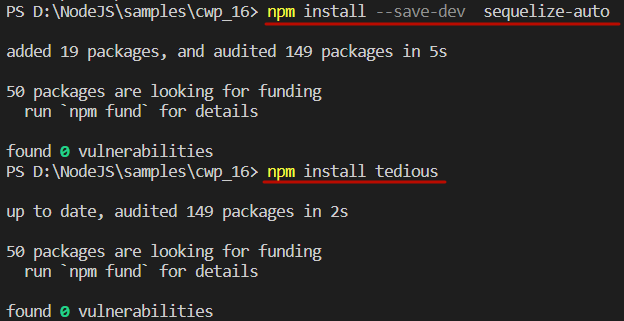


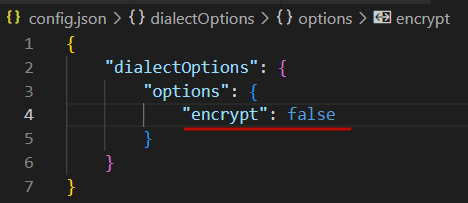
1. **Sequelize:** code first

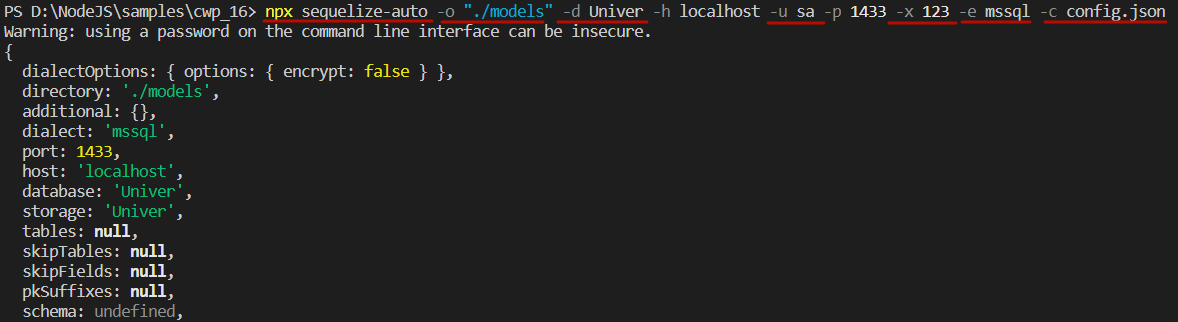
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1. **Sequelize:** database first







**…**

