

QSqlRelationalTableModel Lab Exercises

Qt Database Module

Duration: 1 hour

Exercise 1: Basic Relational Model Setup (30 minutes)

Create a Qt application that:

1. Sets up an in-memory SQLite database with two tables:
 - `departments` (`id`, `name`)
 - `employees` (`id`, `name`, `dept_id`) with foreign key to `departments`
2. Populates the tables with sample data:
 - At least 2 departments
 - At least 3 employees with department assignments
3. Displays the employee data in a `QTableView` with department names instead of IDs
4. **Bonus:** Make the department column sortable

Exercise 2: Editable Relations (30 minutes)

Extend the first exercise to:

1. Allow editing of employee records
2. Implement combobox selection for department assignments

3. Verify that changes persist when:
 - Editing existing records
 - Adding new employees
4. **Bonus:** Add validation to prevent assigning non-existent departments

Requirements

- Use `QSqlRelationalTableModel`
- No raw SQL queries for displaying relations
- Proper error handling
- Clean object lifecycle management

Note: Solutions must demonstrate understanding of:

- Model-view architecture
- Foreign key relationships
- Qt's relational delegate system