DBS Project 1 Report

Electricity Billing System

H3Art

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Objective

Objective

- Write a Java program to connect, access and update a real DB with JDBC. It should operate both on data and meta-data, work as a simple management tool for DBAs, accept SQL statements and show the results in proper text format.
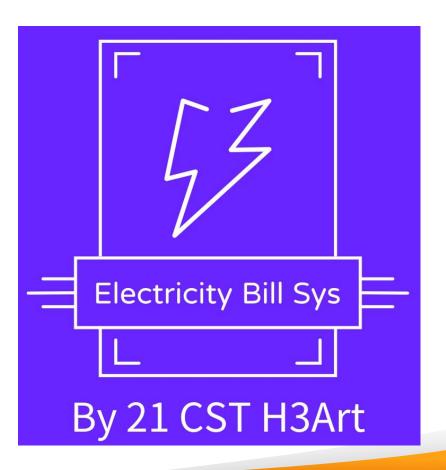
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JDBC Introduction

JDBC Introduction

- The JDBC(Java DataBase Connectivity) API is a Java-based framework that enables the interaction with various types of tabular data, particularly those found in relational databases. This API facilitates three primary programming tasks in Java applications.

- Utilizing JDBC in programming involves several steps:
  - connecting to a data source such as a database
  - sending queries and update statements
  - retrieving and processing the database's responses to these queries

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Project Introduction

Project Introduction

- This Java project is a modern transformation of the classic electricity billing system. The project is developed using JavaFX and JDBC packages. It can operate on electricity billing data. The goal is to automate the entire process to make it seamless, convenient and effective. At the same time, the software can calculate the bill amount based on the electricity consumed in a month.

Electricity Bill Sys

By 21 CST H3Art

The application has the following features:

The database can store login information for different users, and the login information can be used to encrypt the login process

The program can calculate the user's billing information and print the billing data for the corresponding month

User's billing information and address information can be recorded in the application and interact with it using the database

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Project Development Environment

Project Development Environment

JDBC Driver:

Version 8.0.25

Database:

MySQL, Version

8.2.0

IDE:

 IntelliJ IDEA

2023.1.2

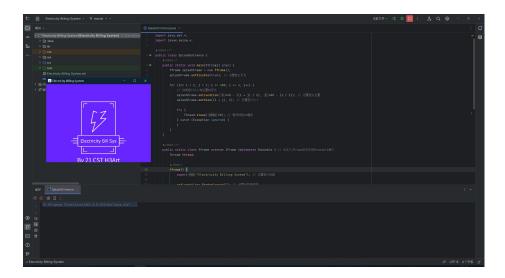JDK:

Oracle JDK, Version

8u361

OS:

 Windows 10(but

also available in

macOS)

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File Structure

File Structure

Electricity-Billing-System [Electricity Billing System]
```
├── .idea
├── lib
├── out
│   ├── production
│   └── test
├── res
├── src
│   ├── BillCalculator
│   ├── BillGenerator
│   ├── BillHistory
│   ├── BillPayment
│   ├── CustomerDetails
│   ├── DataBaseConnector
│   ├── LoginPage
│   ├── MainPage
│   ├── NewCustomer
│   ├── RegisterPage
│   └── SplashEntrance
└── test
    ├── BillCalculatorTest
    ├── LoginPageTest
    └── RegisterPageTest
```

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Usage Guide
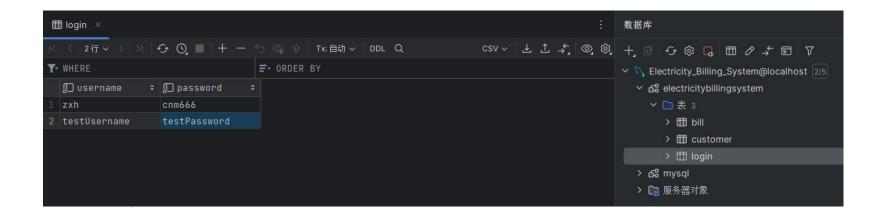
Usage Guide(Login & Register)

User can choose to directly enter the account password to log in, or click the registration option in the lower right corner to register. Both the registration and login verification operations interact with the database:
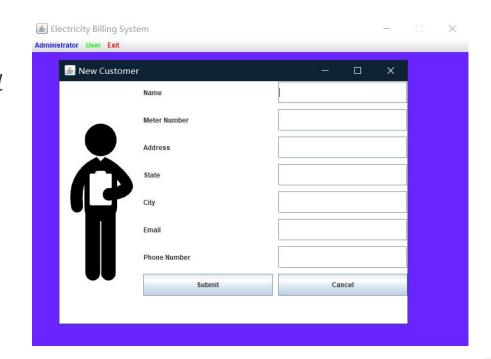
Usage Guide(Login & Register)

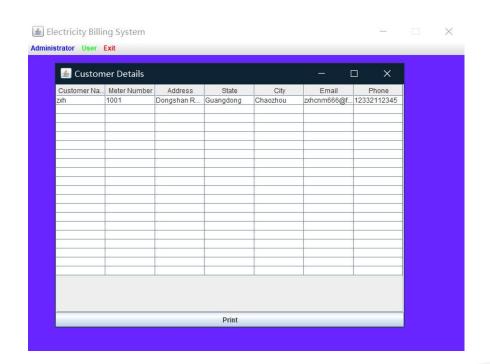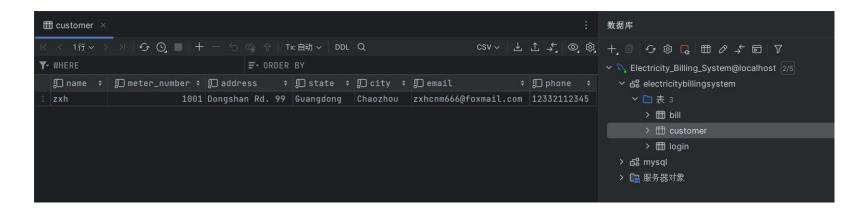The user's login account information can be viewed on the database side:

Usage Guide(Administrator)

In the administrator options, you can add consumer information and view recorded consumer information, which also interacts with the database:

Usage Guide(Administrator)

In the administrator options, you can add consumer information and view recorded consumer information, which also interacts with the database:
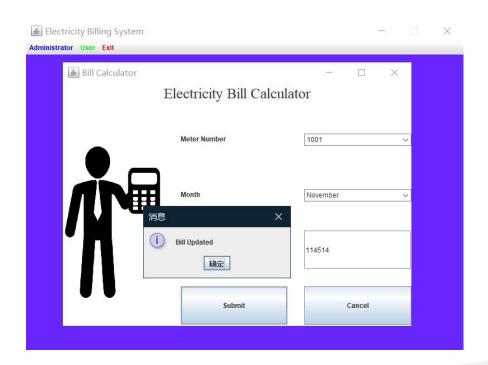
Usage Guide(Administrator)

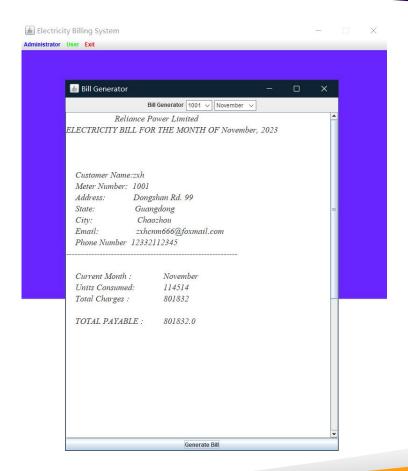The customers information can be viewed on the database side:

Usage Guide(User)

In the user options, you can calculate bill information. The results of calculating billing information will be stored in the billing table items of the database.
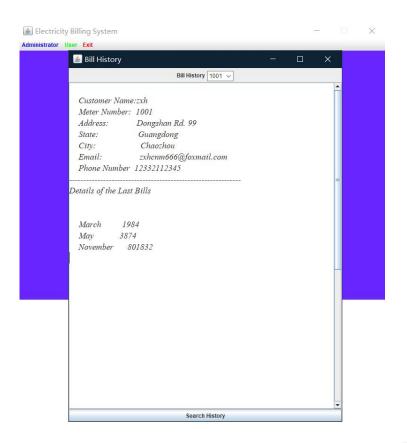
Usage Guide(User)

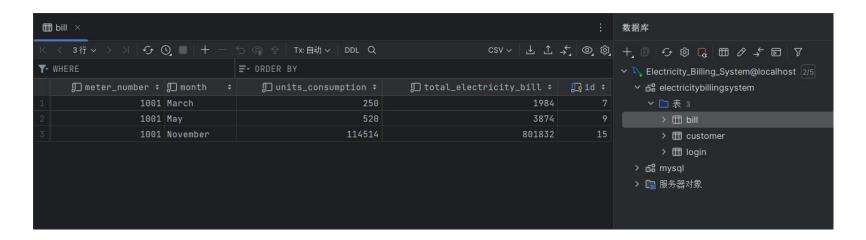You can generate bill information. Generating bills is based on querying the billing table items of the database.

Usage Guide(User)

You can also view historical bill information. Viewing historical billing information is also based on querying the billing table items of the database

Usage Guide(User)

The bills information can be viewed on the database side:

THE END

THANKS