

MODULE 2: DATABASE PROGRAMMING

DAO Part 2



Yesterday

- What is the DAO Pattern?
- Why do we use interfaces in the design?
- What is SQL Injection?
- How do we stop it?



What's wrong with this code?

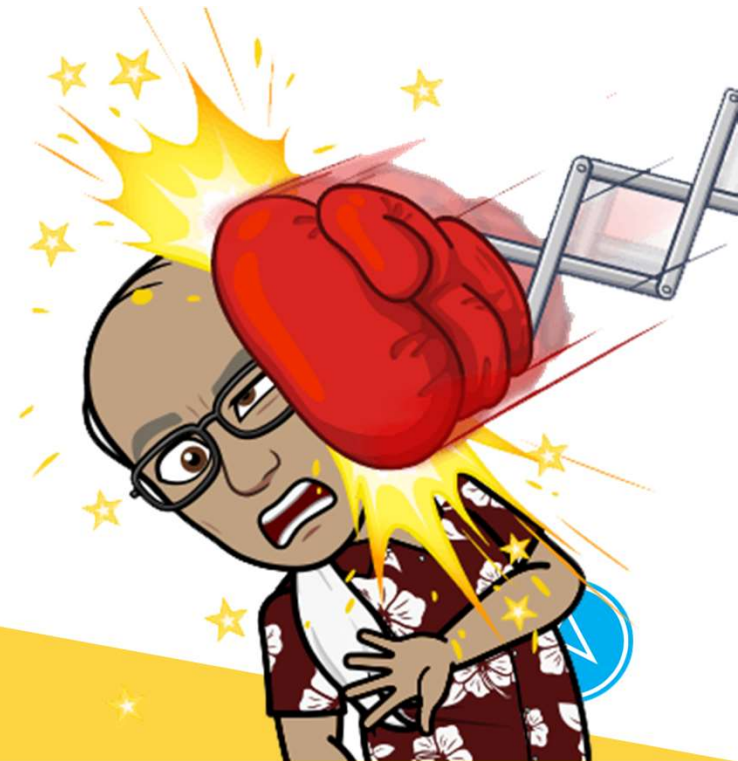
```
public int getParkCount() {  
    int parkCount = 0;  
    String sql = "SELECT COUNT(*) AS count FROM park;";  
    SqlRowSet results = jdbcTemplate.queryForRowSet(sql);  
    if (results.next()) {  
        parkCount = results.getInt("count");  
    }  
    return parkCount;  
}
```



External Resources

Any time we do something outside our control, we worry about exceptions.

```
public int getParkCount() {  
    int parkCount = 0;  
    String sql = "SELECT COUNT(*) AS count FROM park;";  
    try {  
        SqlResultSet results = jdbcTemplate.queryForRowSet(sql);  
        if (results.next()) {  
            parkCount = results.getInt("count");  
        }  
    } catch (CannotGetJdbcConnectionException e) {  
  
    }  
    return parkCount;  
}
```



Loosely Coupled Code

- Calling object should not know that the DAO is JDBC
- Create a generic exception:

```
} catch (CannotGetJdbcConnectionException e) {  
    throw new DaoException("Unable to connect to server or database", e);  
}
```

Let's Code



More CRUD

- How do we insert data into the database?
- What is returned from PostgreSQL when we insert?

Changing the Database: Update()

- When changing data in the database, you can use **Update()**
- This will execute your SQL statement (with any parameters)
- Returns number of rows affected

Changing the Database: Update()

- When changing data in the database, you can use **Update()**
- This will execute your SQL statement (with any parameters)
- Returns number of rows affected
 - updating
 - deleting
 - inserting

Adding a new Park



queryForObject

- Base method for all others
- Used when you want data back from CRUD
- Handy with the **RETURNING** clause.

queryForObject

- Base method for all others
- Used when you want data back from CRUD
- Handy with the **RETURNING** clause.

```
String sql = "INSERT INTO city (city_name, state_abbreviation, population, area)  
VALUES (?, ?, ?, ?)  
RETURNING city_id;";
```

queryForObject

- Base method for all others
- Used when you want data back from CRUD
- Handy with the **RETURNING** clause.

```
String sql = "INSERT INTO city (city_name, state_abbreviation, population, area)  
VALUES (?, ?, ?, ?)  
RETURNING city_id;";
```

```
int newCityId = jdbcTemplate.queryForObject(sql, int.class, city.getCityName(),  
city.getStateAbbreviation(), city.getPopulation(), city.getArea());
```

Let's Code



What questions do you have?



Reading: **DAO Testing**

