DATABASE/SQL

ME

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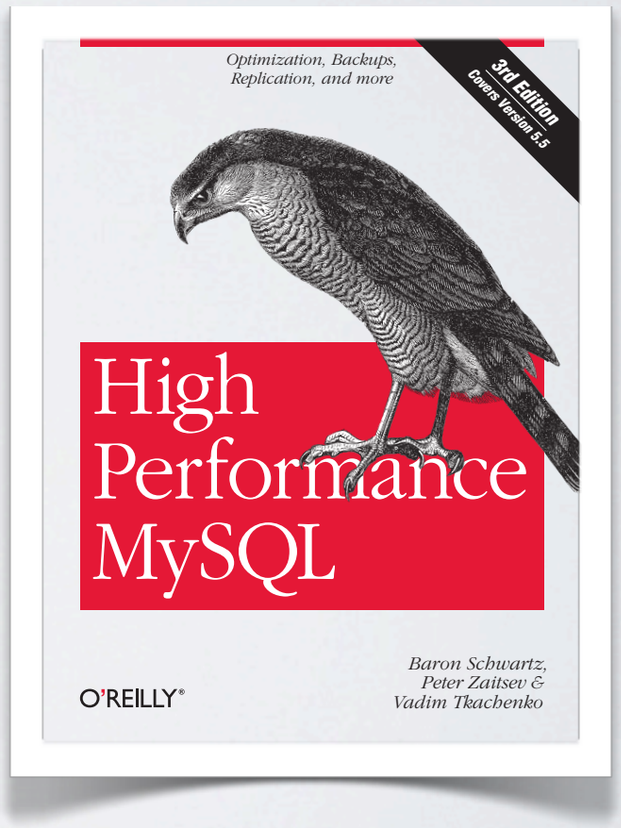


RESOURCES

- Docs: golang.org/pkg/database/sql/
- Tutorial: go-database-sql.org/
- MySQL Driver: github.com/go-sql-driver/mysql/

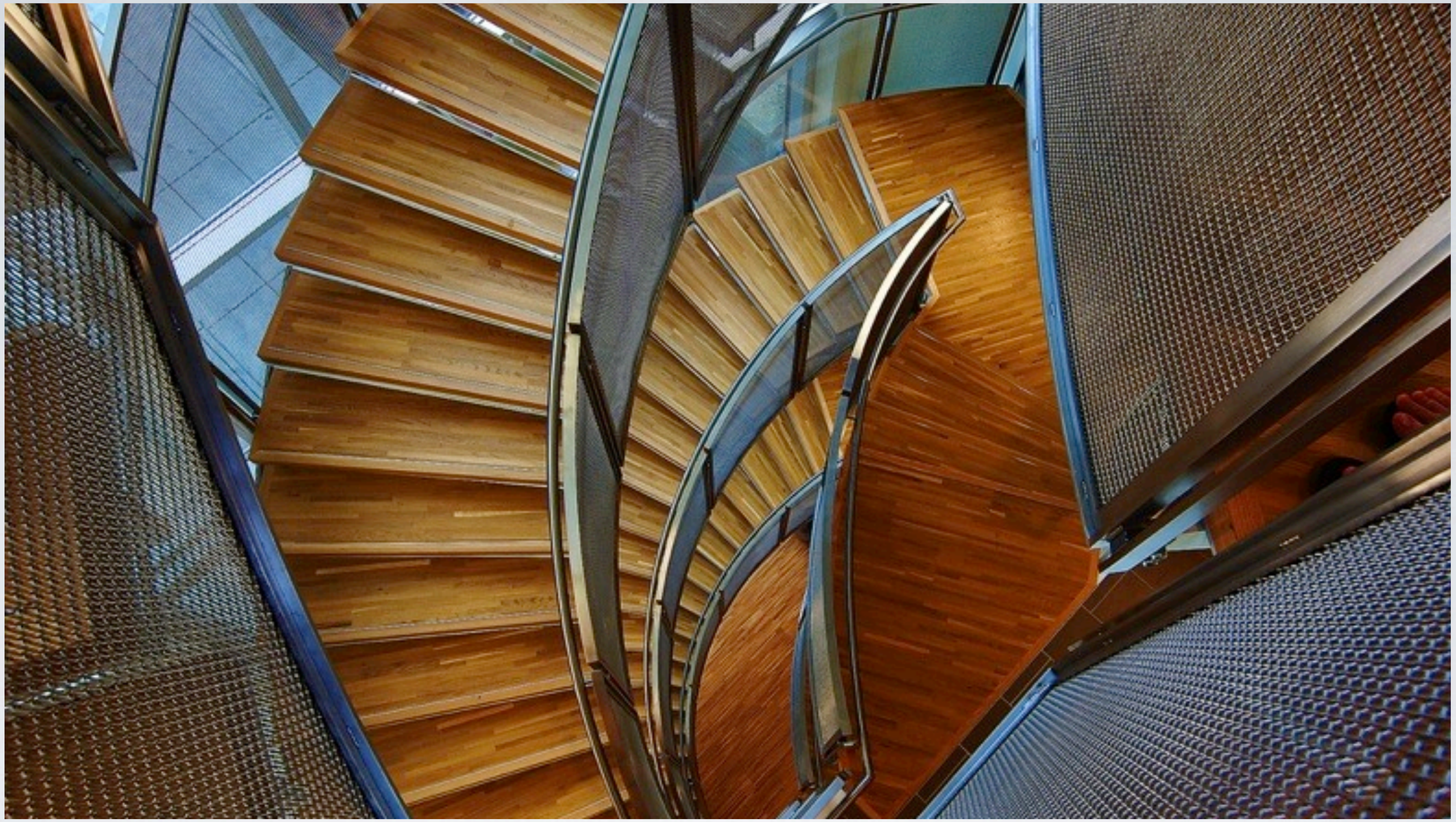
THINGS

DB

- Not a connection.
- Open() Close()
- Query() QueryRow() Exec()

ROWS

- Next()
- Scan()



PATTERNS

```
package main

import (
   _ "github.com/go-sql-driver/mysql"
   "database/sql"
   "log"
)

func main() {
   db, err := sql.Open("mysql",
      "user:password@tcp(127.0.0.1:3306)/test")
   if err != nil {
      log.Println(err)
   }

   // What do we have here?

   defer db.Close()
}
```

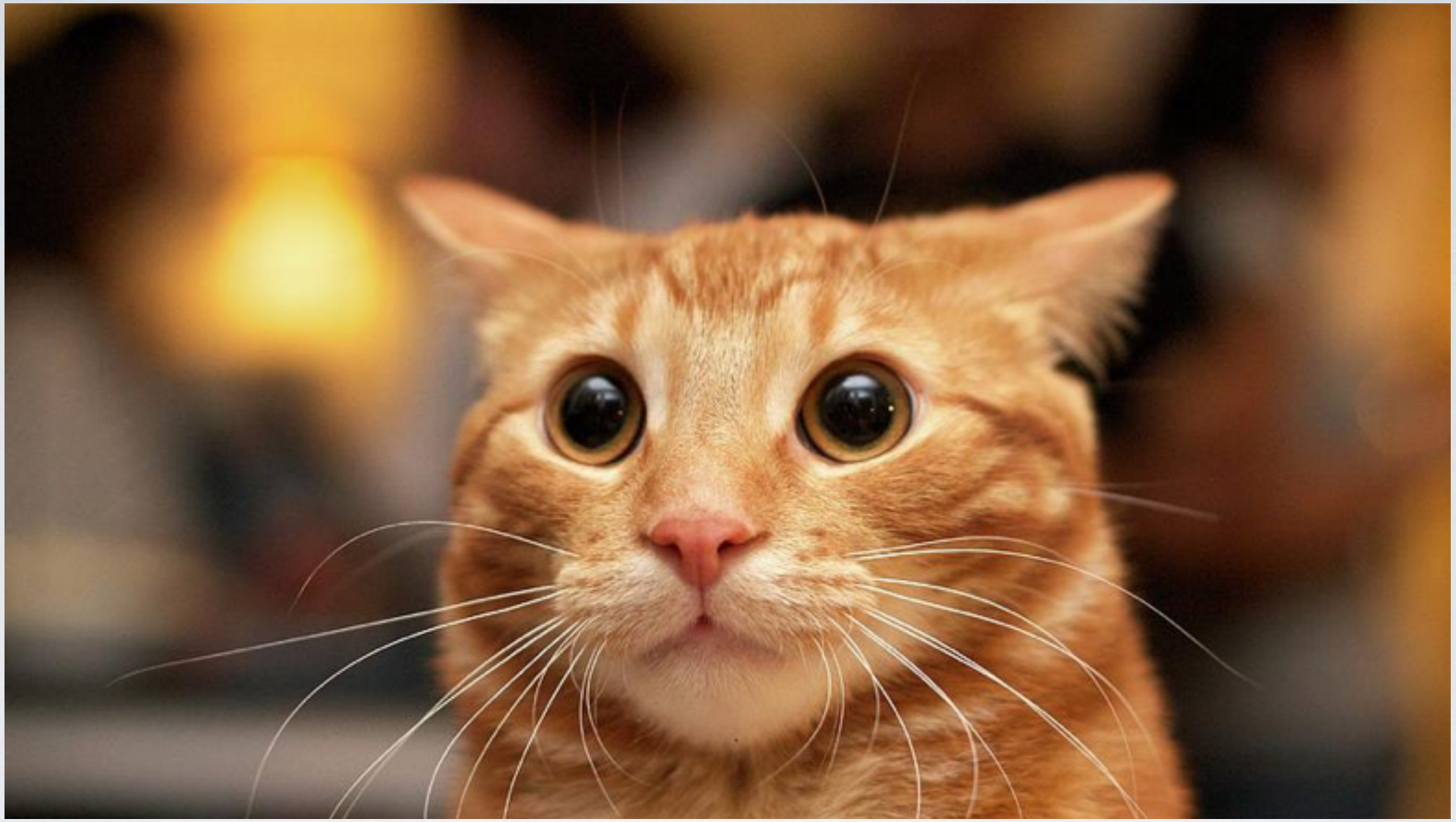
```
var str string
err = db.QueryRow(
    "select hello from world where id = 1").
    Scan(&str)
if err != nil && err != sql.ErrNoRows {
    log.Println(err)
}
log.Println(str)
```

```
q := "select id, hello from world where id = ?"

rows, err := db.Query(q, 1)
if err != nil {
   log.Fatal(err)
}
defer rows.Close()

var id int
var str string
for rows.Next() {
   err = rows.Scan(&id, &str)
   if err != nil {
      log.Fatal(err)
   }
   // Use the variables scanned from the row
}
```

```
for rows.Next() {
   // scan
}

if err = rows.Err(); err != nil {
   rows.Close()
   log.Fatal(err)
}
```

```
stmt, err := db.Prepare(
   "select id, hello from world where id = ?")
if err != nil {
   log.Fatal(err)
}
defer stmt.Close()


rows, err := stmt.Query(1)
if err != nil {
   log.Fatal(err)
}
defer rows.Close()


for rows.Next() {
   // ...
}
```

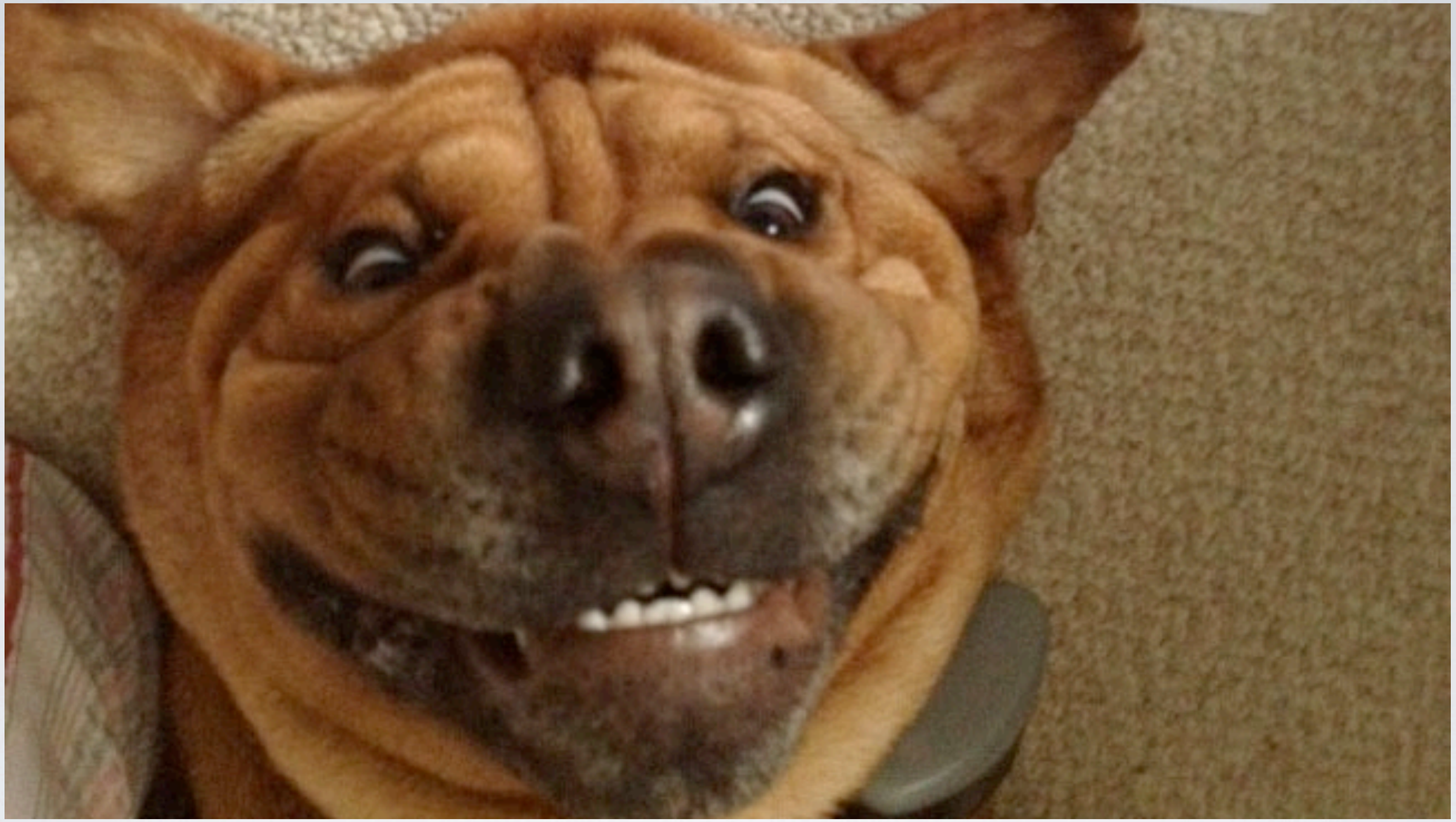
```
stmt, err := db.Prepare(
   "insert into world(hello) values(?)")
if err != nil {
   log.Fatal(err)
}
defer stmt.Close()

res, err := stmt.Exec("hello, Dolly")
if err != nil {
   log.Fatal(err)
}
```



THINGS TO KNOW

THINGS TO KNOW

- There is a connection pool.
- You can't use uint64 with high bit set in parameters.



DON’T BE LAZY

```
// Don’t do this!
for i := 0; i < 50; i++ {
   _, err := db.Query("DELETE FROM hello.world")
}


// Use this instead!
for i := 0; i < 50; i++ {
   _, err := db.Exec("DELETE FROM hello.world")
}
```

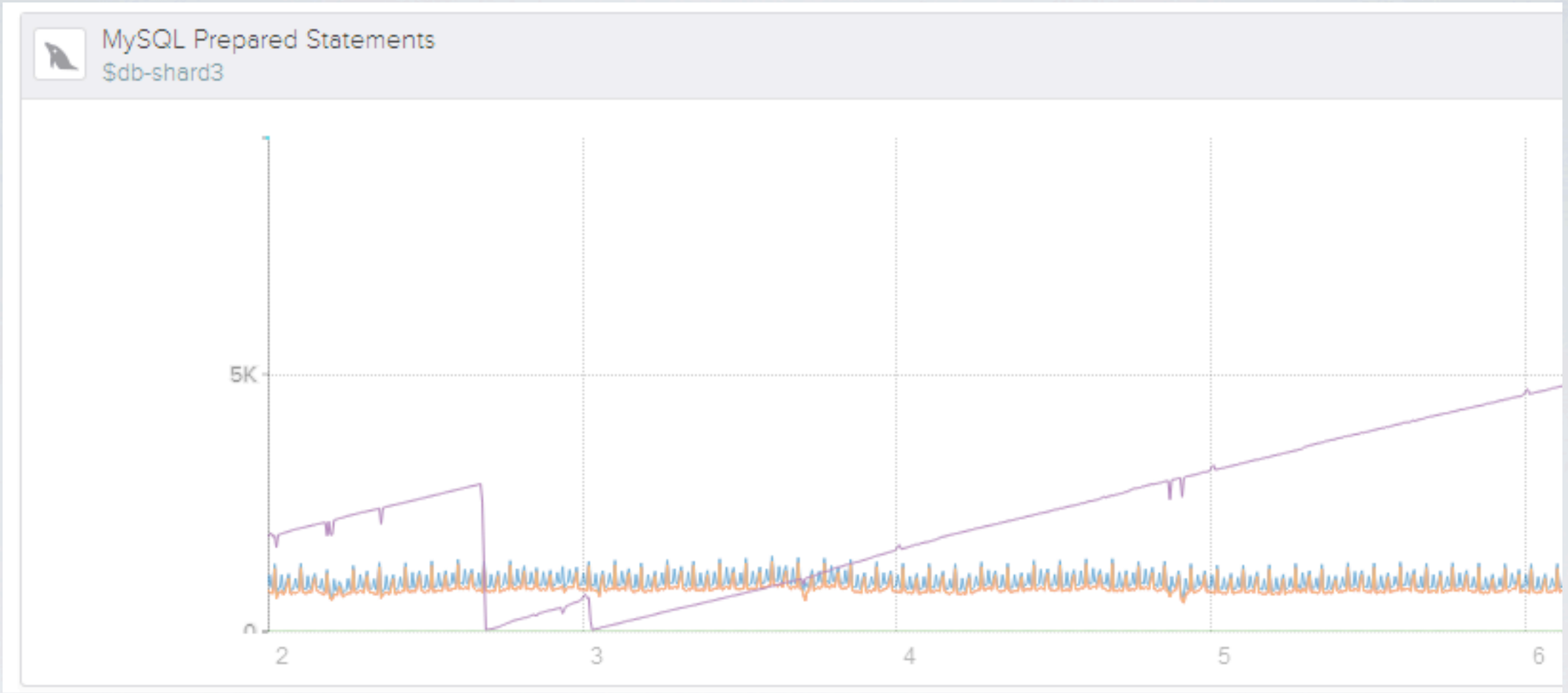
MORE HELPFUL ADVICE

- Don't defer() in long-running functions.
- Don't use cxn state. Use Tx to bind to a connection.
- Don't use BEGIN and COMMIT via SQL.

SURPRISES

RETRY. RETRY. RETRY. RETRY. RETRY.
RETRY. RETRY. RETRY. RETRY. RETRY.

```
// Exec executes a query without returning any
rows.
// The args are for any placeholder parameters in
the query.
func (db *DB) Exec(query string,
args ...interface{}) (Result, error) {
   var res Result
   var err error
   for i := 0; i < 10; i++ {
      res, err = db.exec(query, args)
      if err != driver.ErrBadConn {
         break
      }
   }
   return res, err
}
```



PREPARED STATEMENTS

NULL

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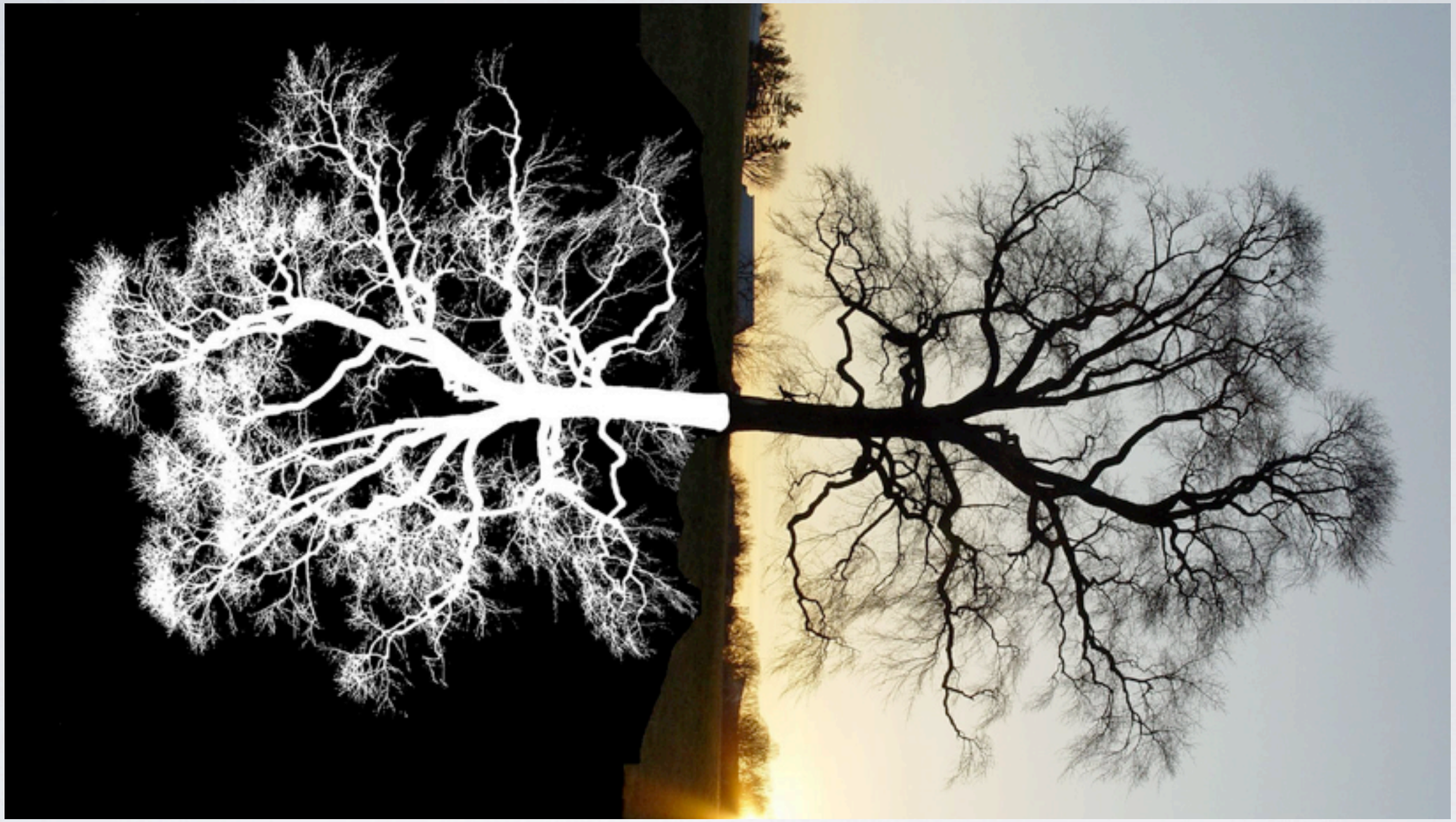
```
var s sql.NullString
err := db.QueryRow(
    "SELECT name FROM foo WHERE id=?",
    id).Scan(&s)

if s.Valid {
    // use s.String
} else {
    // NULL value
}
```



CUSTOM TYPES

CUSTOM TYPES

- You can implement the Valuer and Scanner interfaces.
- Why? Transparently transform data in <=> out of the DB.
  - Compress and uncompress.
  - Marshall/unmarshall JSON or another type.
  - Encrypt and decrypt.
- See e.g. http://jmoiron.net/blog/built-in-interfaces/

RESOURCES

- http://golang.org/pkg/database/sql/
- http://go-database-sql.org/
- https://github.com/go-sql-driver/mysql
- http://jmoiron.net/blog/
- @VividCortex * *not biased, not biased, not biased*

IMAGE CREDITS

- http://www.flickr.com/photos/simens/6306917636/
- http://www.flickr.com/photos/dexxus/5794905716/
- http://www.flickr.com/photos/sebastian_bergmann/202396633/
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