TEST-DRIVEN DEVELOPMENT WITH GO

Conf42: Golang 2023

ABOUT ME
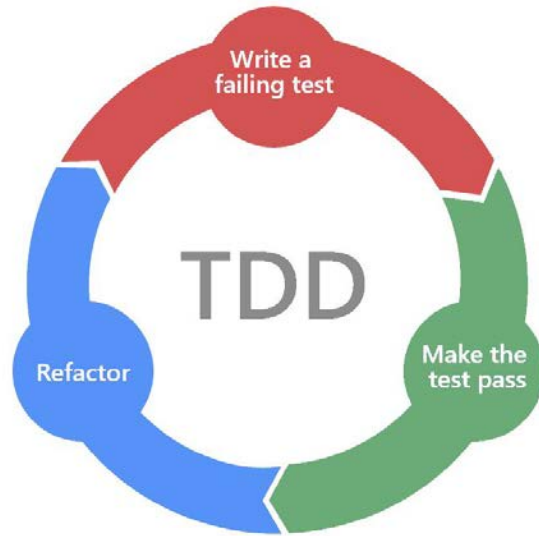
- ❏ Name: Ivan Pesenti
- ❏ Age: 27
- ❏ Country: Italy
- ❏ Job: Software Developer
- ❏ Company: Sorint Lab
- ❏ Values: kindness, sharing, determination
- ❏ Community: speaker, trainer, technical writer
- ❏ Others: course author
- ❏ Hobby: anime, tattoo, football

WHAT YOU WILL LEARN?

- ❏ Basics of Test-Driven Development
- ❏ Theoretical intro on tests and code coverage
- ❏ How to apply TDD to real-life projects
- ❏ How to write good & idiomatic Go code
- ❏ How to write tests in Go
- ❏ How to mock an actual PostgreSQL database

TEST-DRIVEN DEVELOPMENT (aka TDD)

THE MANTRA

❏ We are not allowed to write any production code unless it is to make a failing unit test pass.

❏ We are not allowed to write more of a unit test than is sufficient to fail, and compilation failures are failures.

❏ We are not allowed to write any more production code than is sufficient to pass the one failing unit test.

CLEAN TESTS IN A NUTSHELL

A clean test:

❏ Must obey to the AAA paradigm (Arrange, Act, Assert)
❏ Must not contain code smells
❏ Must not contain magic numbers
❏ Must have a meaningful name
❏ Must follow the F.I.R.S.T principle (Fast, Independent, Repeatable, Self-validating, Thorough

CODE COVERAGE

❑ How much code is covered by tests
❑ Function, statement, and branch coverage
❑ **100% is not mandatory**

Test-Driven-Development is not about *testing* but about *designing*.

REALLY?

THE SCENARIO

Let's use the TODO application to try out Test-Driven Development with Go.

ivan-pesenti-dev

UPDATE TODO

❏ HTTP Method: PUT
❏ Route: todos/:id
❏ Request Payload

```
1  {
2      "description": "description updated",
3      "is_completed": true,
4      "due_date": "2023-05-04"
5  }
```

POSSIBLE SCENARIOS

❏ id (passed as a route param) not an integer number: **400** BadRequest
❏ request payload not valid: **400** BadRequest
❏ db error: **500** InternalServerError
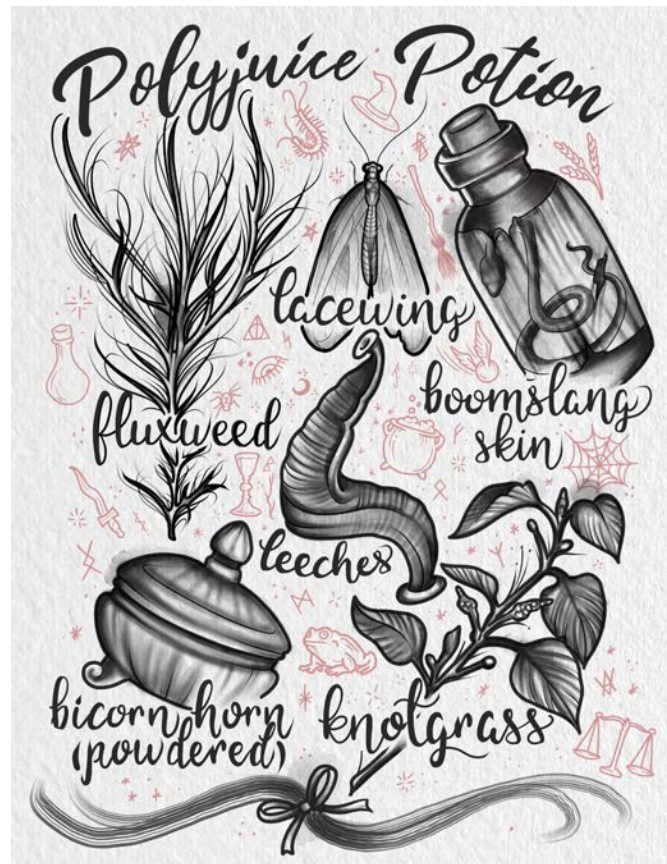❏ todo not found in DB: **404** NotFound
❏ happy path: **202** StatusAccepted

INGREDIENTS

Production Code:

- github.com/gin-gonic/gin
- gorm.io/gorm
- gorm.io/driver/postgres

Test Code:

- testing
- github.com/DATA-DOG/go-sqlmock
- github.com/stretchr/testify/assert
- net/http/httptest

RED GREEN REFACTOR

LET'S CONNECT

📧 ivan.pesenti.dev@gmail.com

🐦 ossandev

📮 ossan

💬 ossan#2971

💬 ossan

💼 Ivan (ossan) Pesenti

DEV ossan

🐙 ossan-dev

📷 ossandev

THANKS TO ALL