Embedded TDD

For Cambridge Software Crafters
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Logistics and Wifi

🚽 Behind the main screen to the right of the corridor.

🛜 Wifi is **The Bradfield Centre** password is **Ca3Br1d5e**

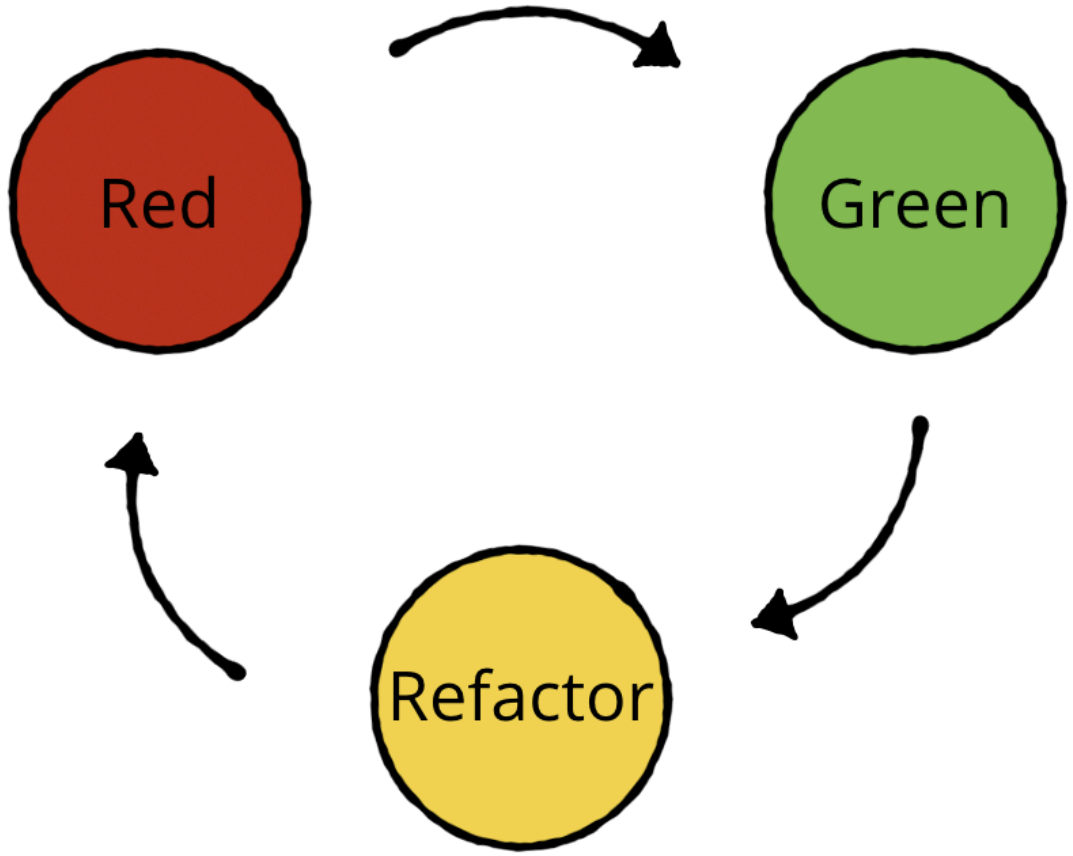
🚨 We do not expect alarms. Assume a fire alarm is real and make your way to the car park.

Plan for this evening

1. Intro
2. What we mean by embedded
3. Embeded craftsmanship practices
4. The Katas
    1. LED Driver Kata
    2. Interrupt Kata
5. Recap

Intro

Why this talk?



TDD Refresh - Red- Green- Refcator

Write a failing test

Make the test pass

Refactor the code

Four phase tests

1. Setup
2. Exercise
3. Verify
4. Cleanup

Ping Pong TDD

What I mean by Embedded

Embedded systems constraints

- Resource constraints
- Lack of standard libraries
- No or limited filesystem
- Limited Interface (serial? UART, SWI)

Craftsmanship for Embedded

Dual targeting

- Dual targeting
  - Target bottleneck
  - Running the test suite on the target

Nested Testing Cycles

CI and automated HW tests

Advanced Mocking

Advanced Mocking

1. Mock the clock
2. Test doubles

1. Code structure & Link time substitution
2. Function pointer substitution
3. Syntactic substitution (preprocessor)

Simulators

SOLID

1. Single Responsibility Principle
2. Open Closed Principle
3. Liskov Substitution Principle
4. Interface Segregation Principle
5. Dependency Inversion Priciple

The Katas

LED Driver Kata

Interrupt Kata

Recap

What we learnt

Recommend ed Reading

Thank you