

goto;

GOTO Copenhagen 2022


#GOTOcph

An aerial photograph of a vast glacier system flowing through a rugged mountain range. The glacier is a mix of white and grey, with dark sediment lines visible. The surrounding mountains are dark and jagged, with patches of snow or ice. The sky is a clear, pale blue.

How to Stop Testing

... and break your code base

@ClareSudbery

An aerial photograph taken from an airplane window, showing a vast, rugged mountain range stretching across the horizon. The terrain is characterized by deep valleys and sharp peaks, with varying shades of brown and green. The sky is a clear, pale blue. In the top right corner, the wing of the airplane is visible, featuring a small American flag decal.

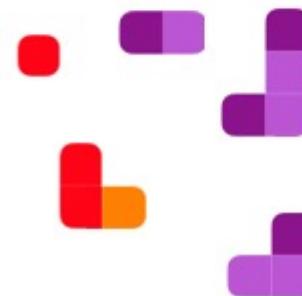
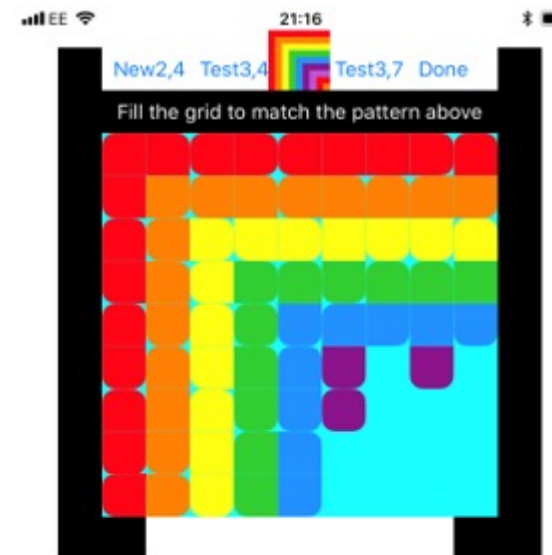
**My name is
Clare and I am
a bad person...**

@ClareSudbery



@ClareSudbery

SquareFill



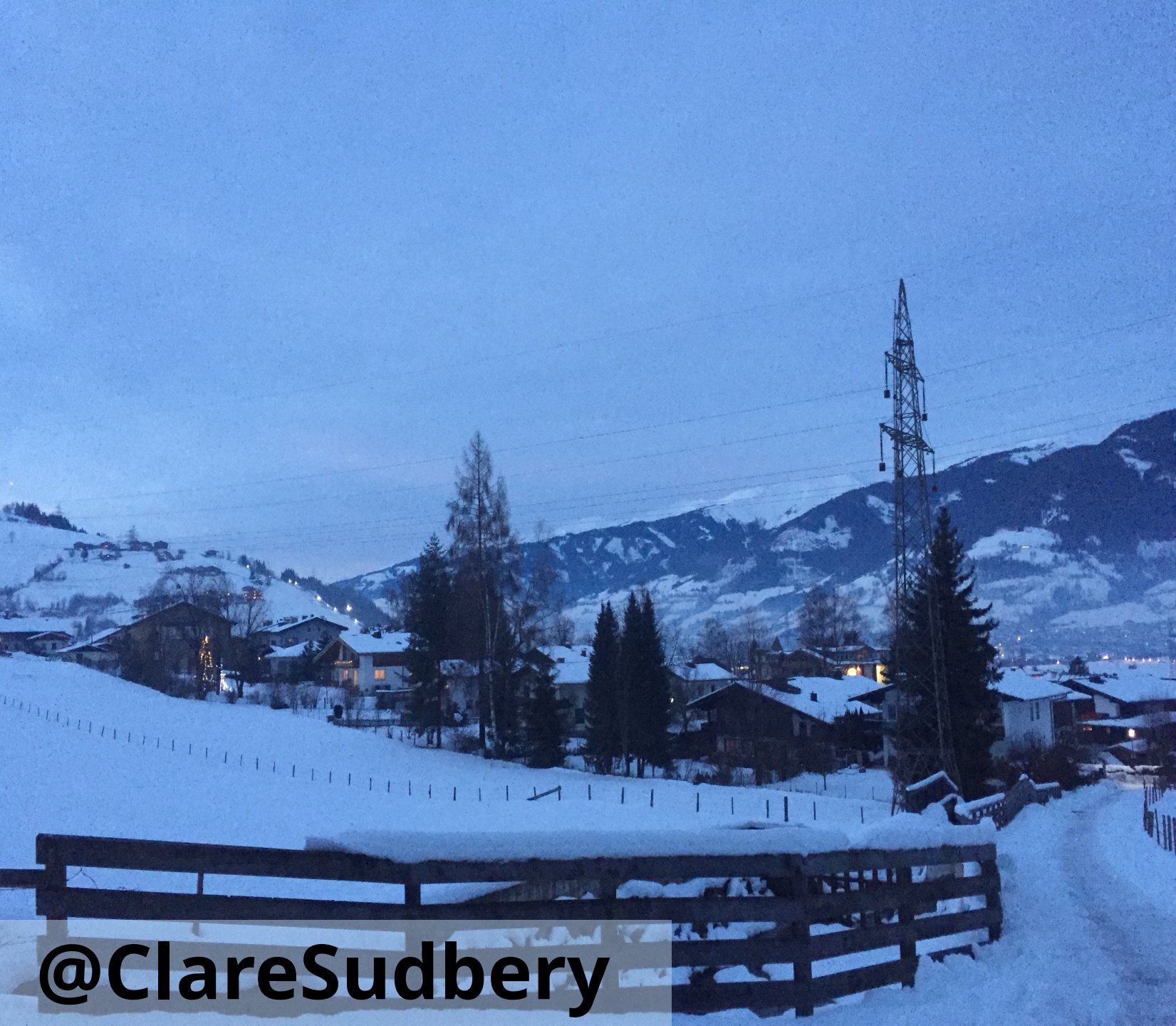
@ClareSudbery



@ClareSudbery



@ClareSudbery

A photograph of a snowy mountain landscape at dusk. In the foreground, a dark wooden fence runs across the frame. Behind it, a snow-covered hillside leads down to a small village with several houses, some of which have warm lights glowing from their windows. A tall, slender radio tower stands prominently in the middle ground. The background features snow-capped mountains under a deep blue twilight sky.

A lack of tests causes PAIN

- Encapsulation
- SRP (Single Responsibility)
- Public vs private
- Debugging
- Refactoring
- Fast feedback
- Edge cases
- Productionising spikes

@ClareSudbery



**“The essence of encapsulation
is turning a design decision into
a secret.”**

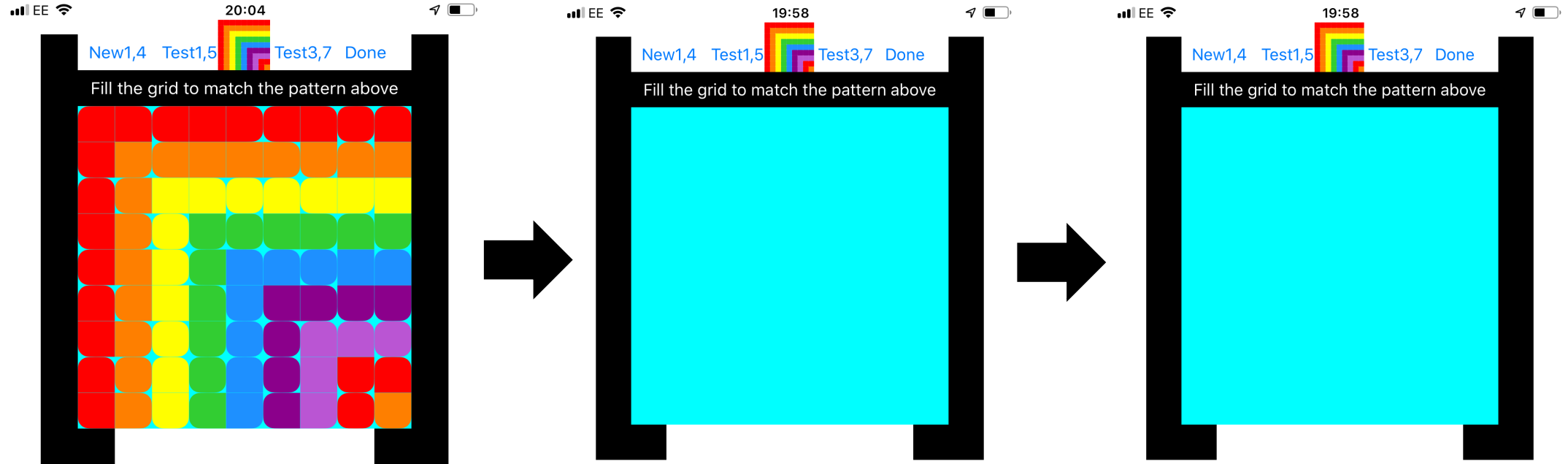
- Martin Fowler

@ClareSudbery

“Modules should be arranged around system secrets, each module hiding its secret from the other modules. Then if the secret thing changes, you avoid a ripple effect.”

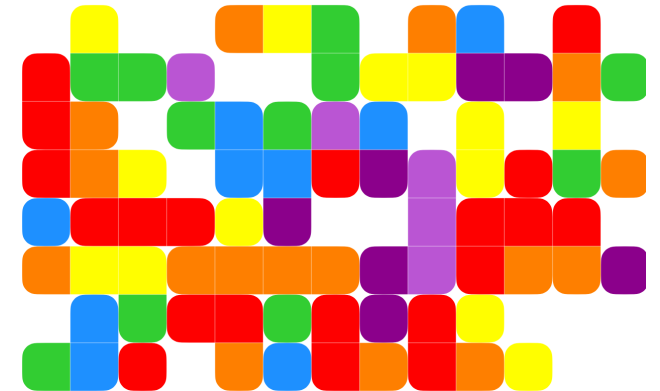
- Martin Fowler

ACCEPTANCE TESTS and ENCAPSULATION



GameGenerator.ShuffleShapes

@ClareSudbery





A lack of tests causes PAIN

- ~~Encapsulation~~
- SRP (Single Responsibility)

@ClareSudbery



Single Responsibility Principle

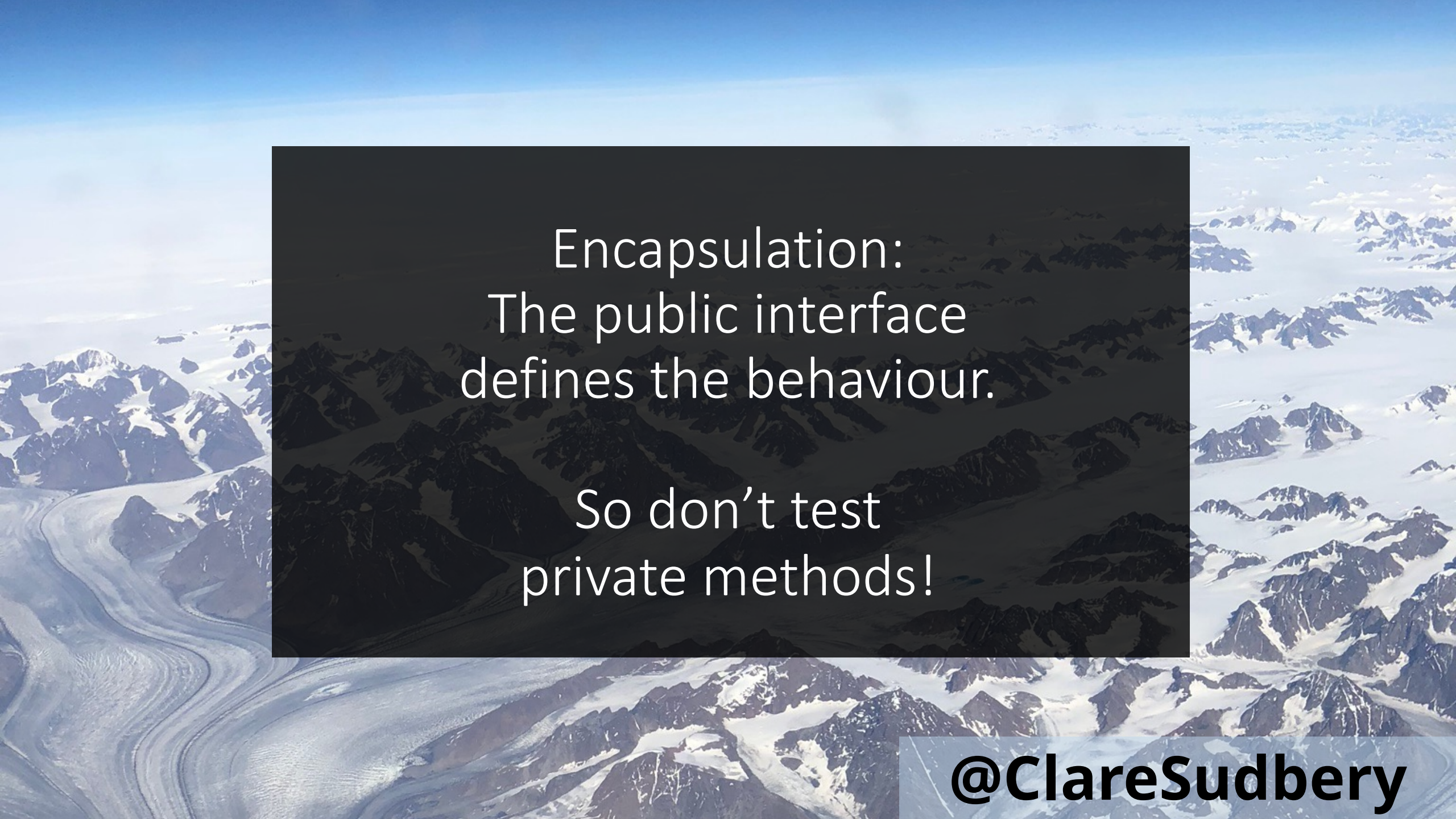
@ClareSudbery



A lack of tests causes PAIN

- ~~Encapsulation~~
- ~~SRP (Single Responsibility)~~
- Public vs private

@ClareSudbery

An aerial photograph of a vast, winding glacier flowing through a rugged mountain range. The peaks are covered in snow and partially shrouded in mist. The sky is a clear, pale blue.

Encapsulation:
The public interface
defines the behaviour.

So don't test
private methods!

@ClareSudbery

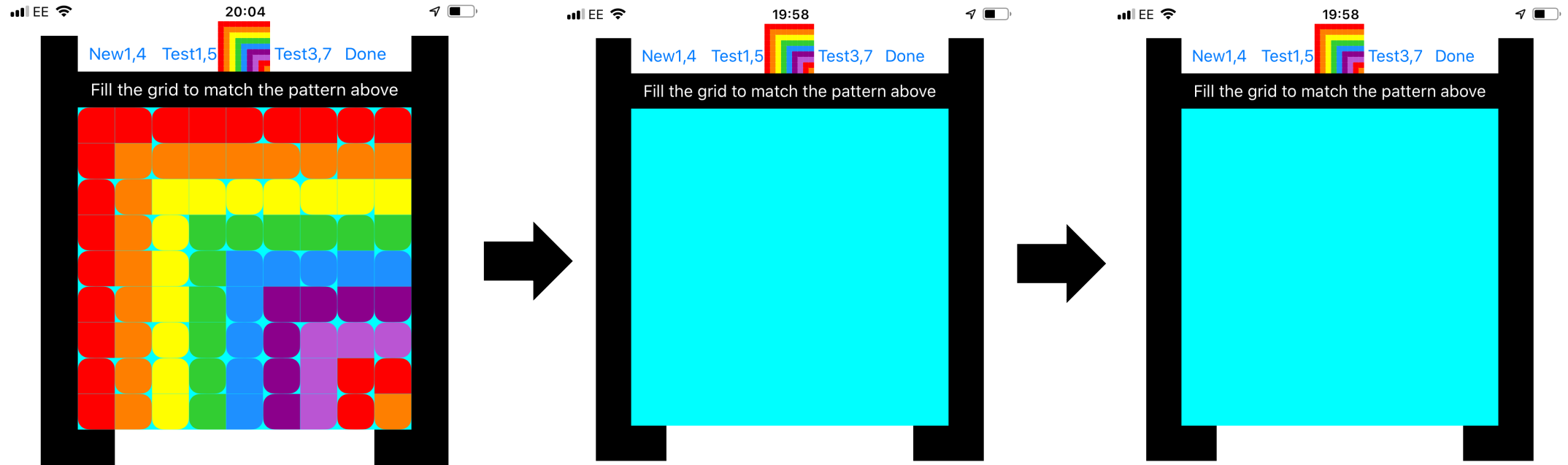


A lack of tests causes PAIN

- ~~Encapsulation~~
- ~~SRP (Single Responsibility)~~
- ~~Public vs private~~
- Debugging

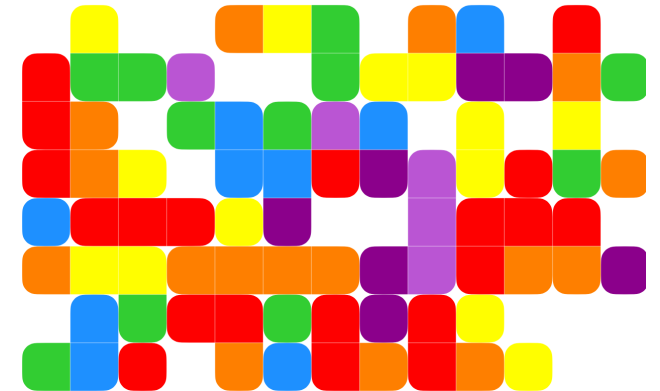
@ClareSudbery

ACCEPTANCE TESTS ONLY = POOR DEBUGGING



GameGenerator.ShuffleShapes

@ClareSudbery





A lack of tests causes PAIN

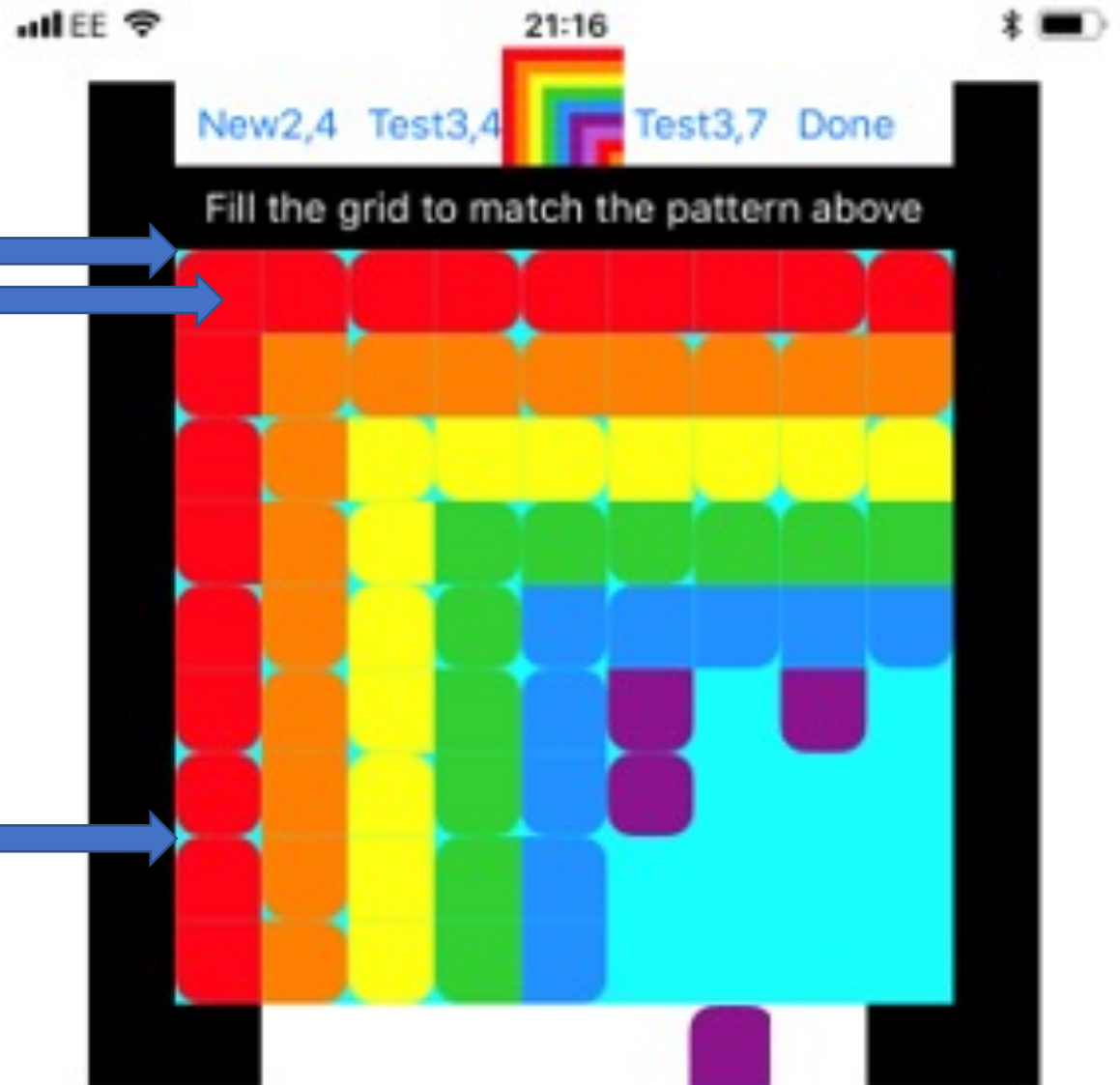
- ~~Encapsulation~~
- ~~SRP (Single Responsibility)~~
- ~~Public vs private~~
- ~~Debugging~~
- Refactoring

@ClareSudbery

CAN'T REFACTOR

Is (0, 0) the top left corner or the top left square?

Is this pointing at (0, 6) or (0, 192)?



@ClareSudbery



A lack of tests causes PAIN

- ~~Encapsulation~~
- ~~SRP (Single Responsibility)~~
- ~~Public vs private~~
- ~~Debugging~~
- ~~Refactoring~~
- Fast feedback

@ClareSudbery



**NO FAST
FEEDBACK**

@ClareSudbery

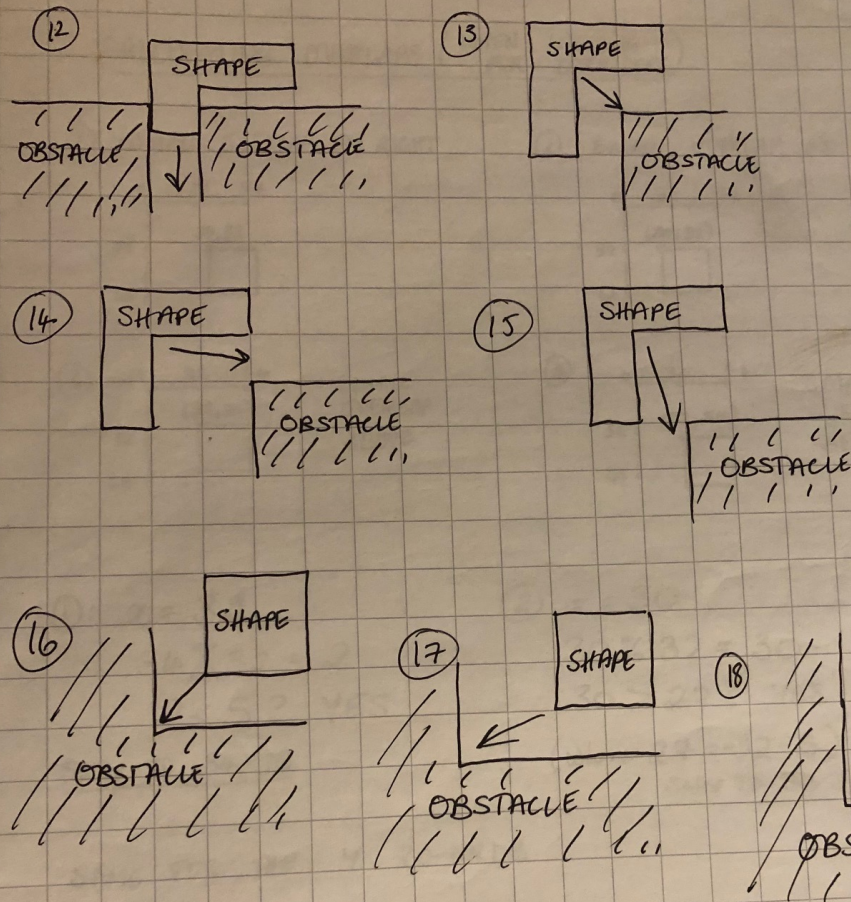
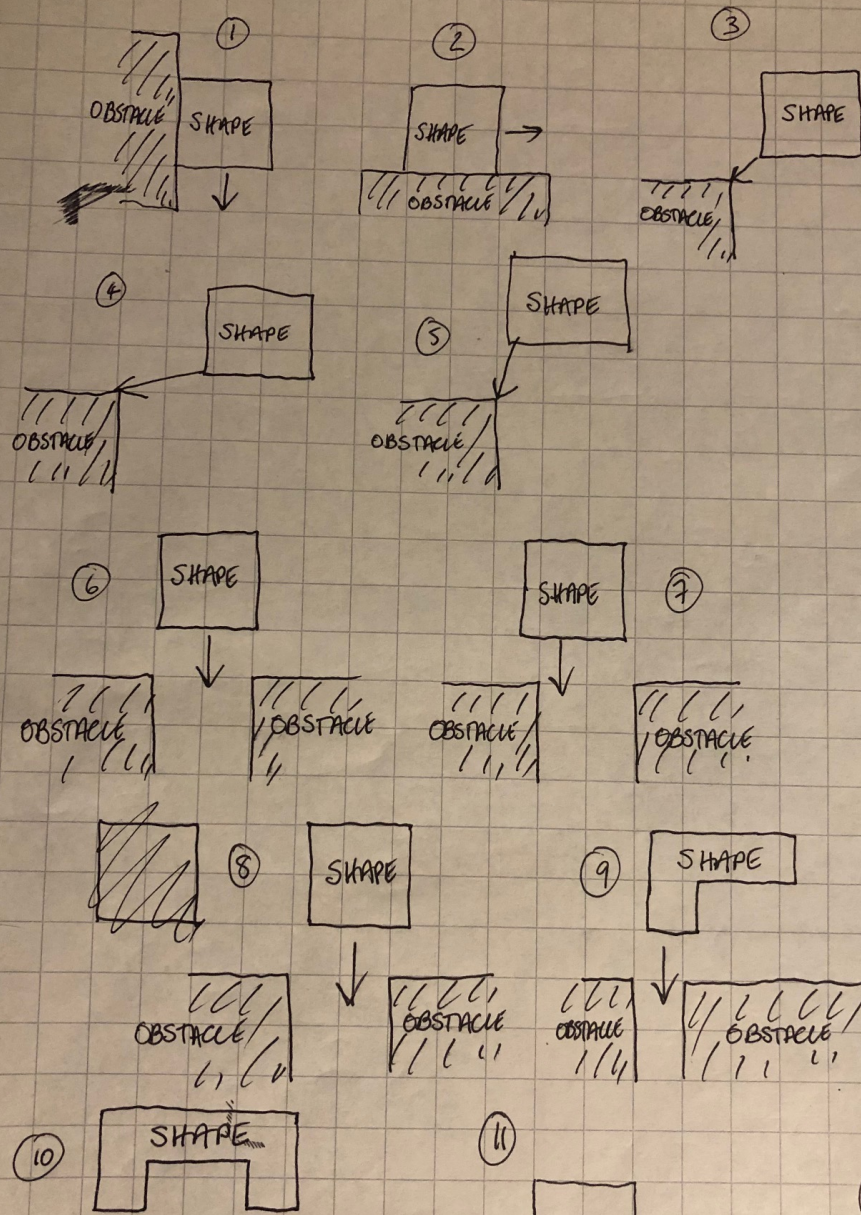


A lack of tests causes PAIN

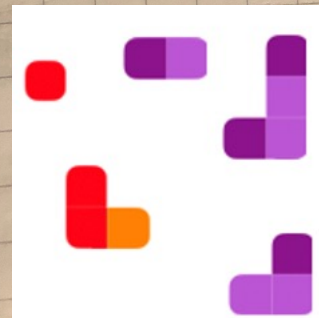
- ~~Encapsulation~~
- ~~SRP (Single Responsibility)~~
- ~~Public vs private~~
- ~~Debugging~~
- ~~Refactoring~~
- ~~Fast feedback~~
- Edge cases

@ClareSudbery

TEST CASES:



(MORE) ALSO USE ALL THE OVERLAP-CALCULATION EXAMPLES



CAN'T
SEE
EDGE
CASES


@ClareSudbery

PTD

(CONTINUES
ONTO
NEW
PAGE)

A lack of tests causes PAIN

- ~~Encapsulation~~
- ~~SRP (Single Responsibility)~~
- ~~Public vs private~~
- ~~Debugging~~
- ~~Refactoring~~
- ~~Fast feedback~~
- ~~Edge cases~~
- Productionising spikes



@ClareSudbery



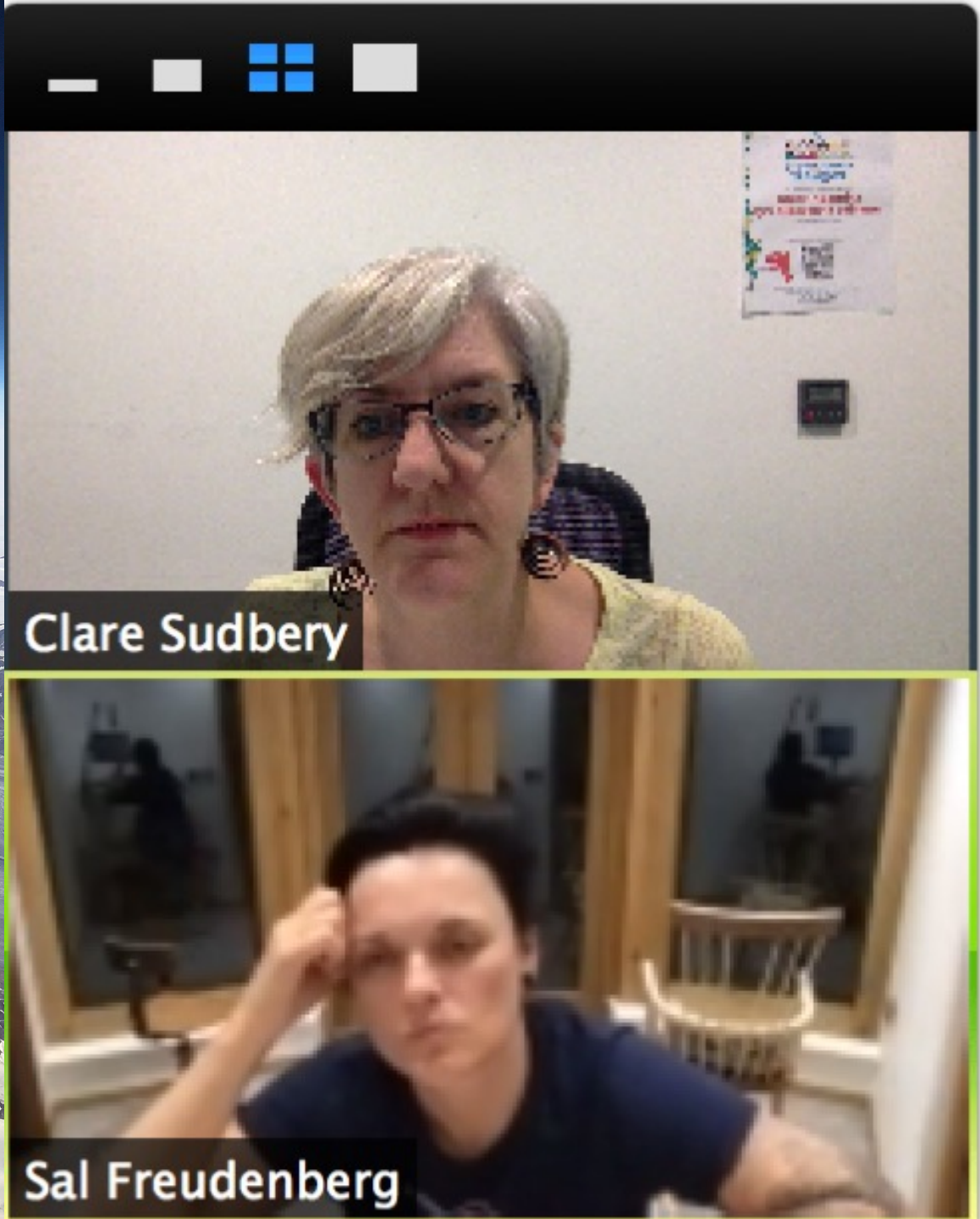
*Can't
productionise
spikes*

@ClareSudbery



PATH TO A SOLUTION

@ClareSudbery



Clare Sudbery

Sal Freudenberg



@ClareSudbery

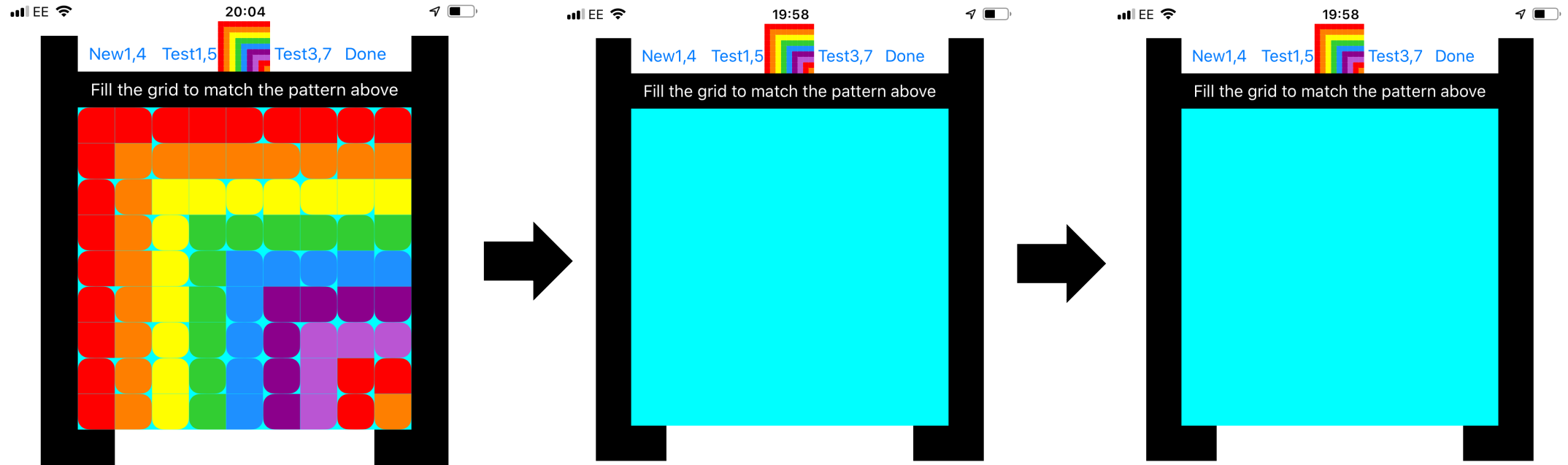


TDD makes everything better!

- Encapsulation
- SRP (Single Responsibility)
- Public vs private

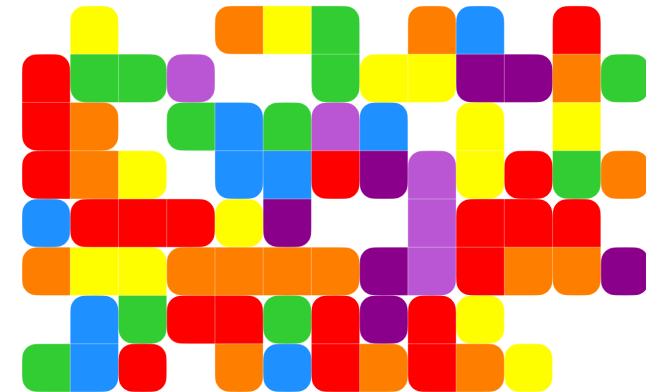
@ClareSudbery

ENCAPSULATION, SRP, PUB/PRIVATE



GameGenerator.ShuffleShapes

@ClareSudbery





TDD makes everything better!

- ~~Encapsulation~~
- ~~SRP (Single Responsibility)~~
- ~~Public vs private~~
- Debugging

@ClareSudbery



DEBUGGING

@ClareSudbery



TDD makes everything better!


- ~~Encapsulation~~
- ~~SRP (Single Responsibility)~~
- ~~Public vs private~~
- ~~Debugging~~
- Refactoring

@ClareSudbery

An aerial photograph of a vast, winding glacier flowing through a mountainous landscape. The glacier's surface is marked by numerous longitudinal stripes of sediment, giving it a textured appearance. In the background, a range of rugged mountains is partially covered in snow under a clear blue sky. A dark rectangular overlay is positioned in the center of the image, containing the word 'REFACTORING' in white capital letters.

REFACTORING

@ClareSudbery

An aerial photograph of a vast, winding glacier flowing through a mountainous landscape. The glacier's surface is marked by numerous longitudinal stripes of sediment, giving it a textured appearance. In the background, rugged mountains are partially covered in snow under a clear blue sky. A dark, semi-transparent rectangular box is centered over the image, containing white text.

REFACTORING:
It's better
to break encapsulation principles
to get tests in place,
than it is
to break testing principles
to keep encapsulation in place.

@ClareSudbery



TDD makes everything better!

- ~~Encapsulation~~
- ~~SRP (Single Responsibility)~~
- ~~Public vs private~~
- ~~Debugging~~
- ~~Refactoring~~
- Fast feedback

@ClareSudbery

An aerial photograph of a vast, icy landscape. In the foreground, a large glacier flows, its surface marked by numerous longitudinal stripes of dark sediment. To the right and in the background, a range of rugged mountains is partially covered in snow and ice. The sky is a clear, pale blue. A semi-transparent dark rectangle is centered over the image, containing the text "FAST FEEDBACK" in white.

FAST FEEDBACK

@ClareSudbery

FAST FEEDBACK: Don't wait for the race-track to test the car



@ClareSudbery

**...but skeleton cars
can often be driven**



@ClareSudbery

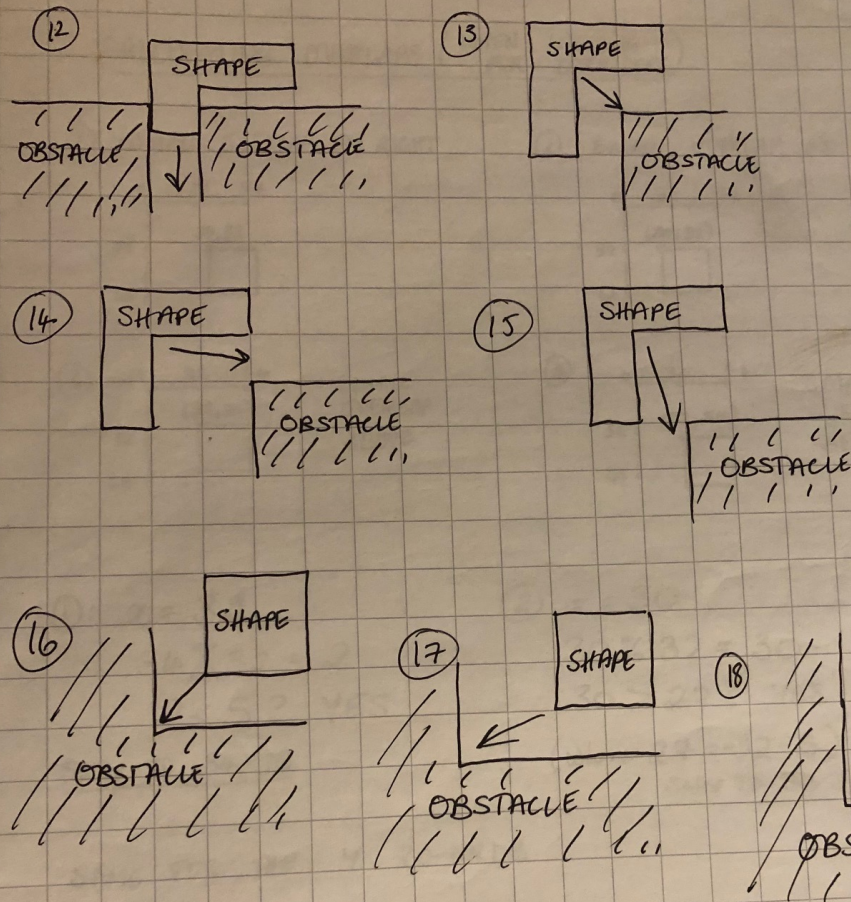
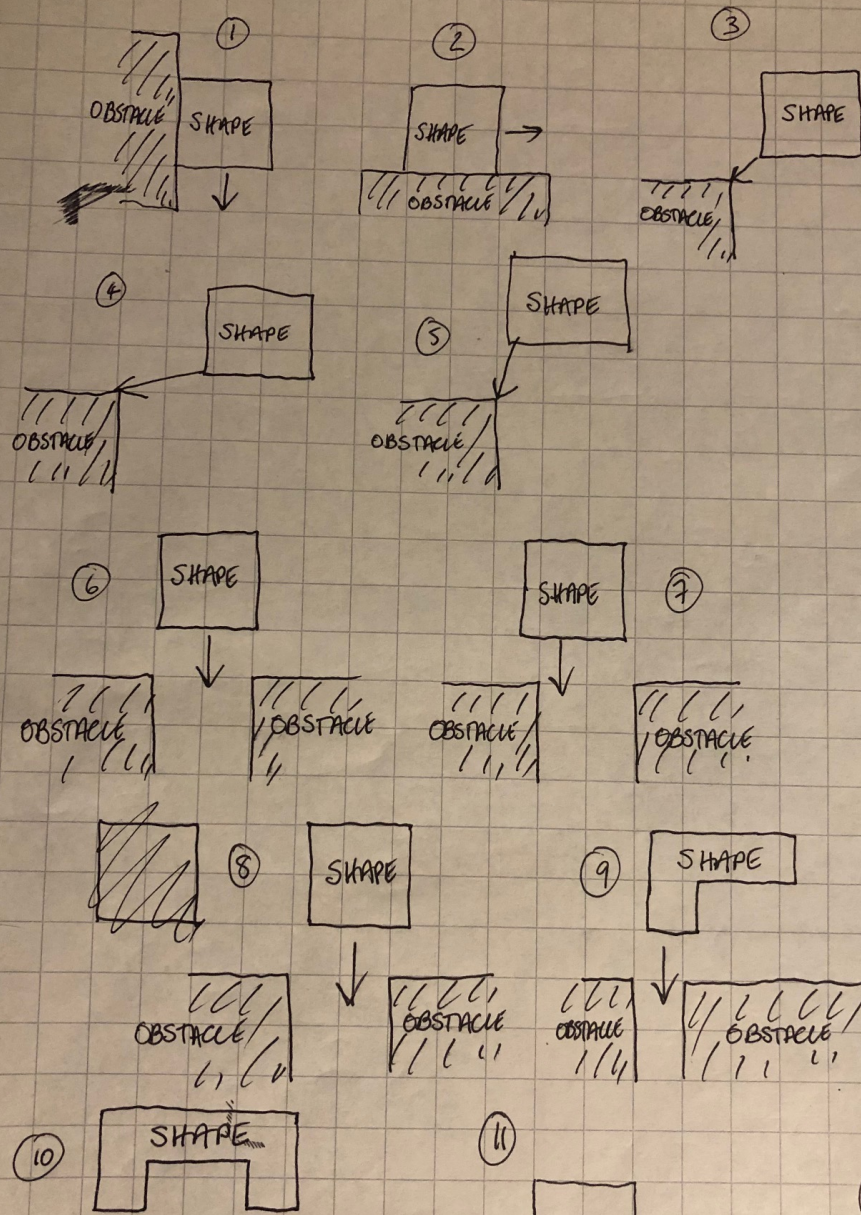


TDD makes everything better!

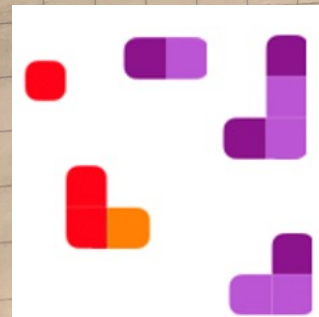
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- Edge cases

@ClareSudbery

TEST CASES:



MORE ALSO USE ALL THE OVERLAP-CALCULATION EXAMPLES



DRAW OUT EDGE CASES

@ClareSudbery

PTD

(CONTINUES
ONTO
NEW
PAGE)



*TDD makes
everything better!*

- ~~Encapsulation~~
- ~~SRP (Single Responsibility)~~
- ~~Public vs private~~
- ~~Debugging~~
- ~~Refactoring~~
- ~~Fast feedback~~
- ~~Edge cases~~
- Productionising spikes

@ClareSudbery



*Write tests
for spikes*

@ClareSudbery



ADVICE + CONCLUSIONS

@ClareSudbery



@ClareSudbery



@ClareSudbery



- No tests = false economy
- Not running tests = false economy
- Tests facilitate refactors
- Tests before refactoring
- Acceptance = not enough
- Write new tests in response to new problems
- Keep everything green
- Pairing keeps you honest
- (3 more slides)

@ClareSudbery



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I hosted a podcast...



tinyurl.com/making-tech-better

@ClareSudbery



Relevant podcast episodes...

Test Driven Development: tinyurl.com/mtb-geepaw-hill

Refactoring: tinyurl.com/mtb-emily-bache

Coding for fun: tinyurl.com/mtb-jon-skeet

When is a test not a test: tinyurl.com/mtb-dan-north

Hexagonal Architecture: tinyurl.com/mtb-ted-young

@ClareSudbery

THANK YOU, and...

Sudbery Software Engineering Ltd

Twitter: @claresudbery

LinkedIn: tinyurl.com/lin-csudbery

SDD Deep Dive wi Emily Bache, 8-10 Nov '22

YOW! London, 29-30 Nov '22

Software Cornwall, May/Jun '23

All events: tinyurl.com/csudbery-events

(NEXT
SLIDE)

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