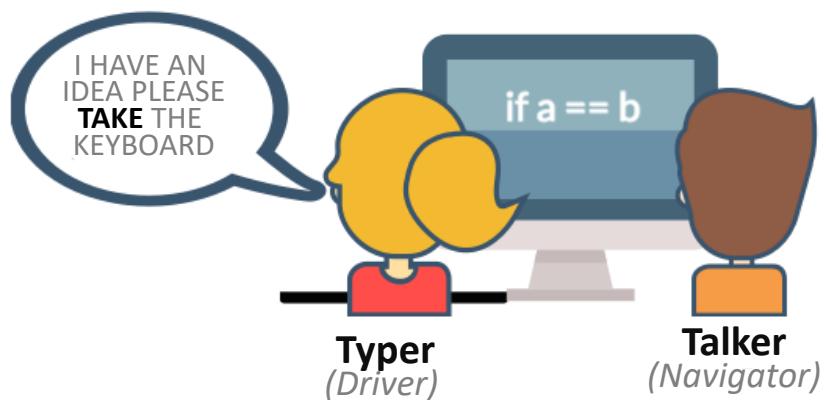


TRADITIONAL



"STRONG STYLE"

Pair Programming

" Mob Programming is all the brilliant people working on the same thing, at the same time, in the same space, on the same computer."

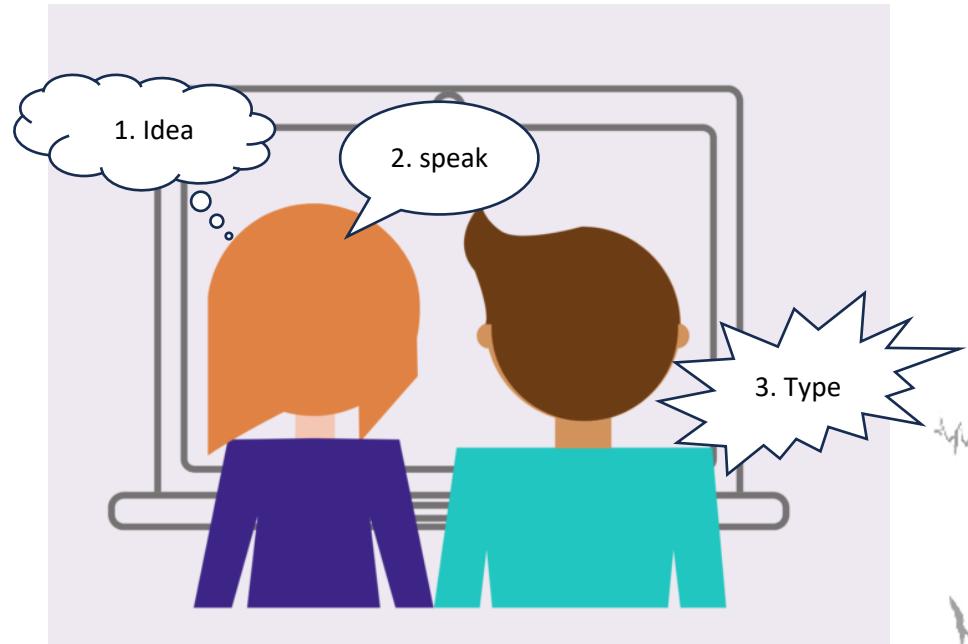
-- Woody Zuill





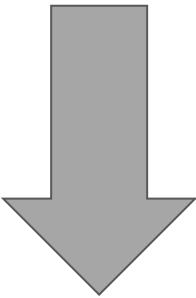
art by Cary Polkovitz

**"For an idea to go from
your head to the computer
it must go through
someone else's hands"**



Strong Style Pair Programming

Speak at the highest level of abstraction
go down as needed



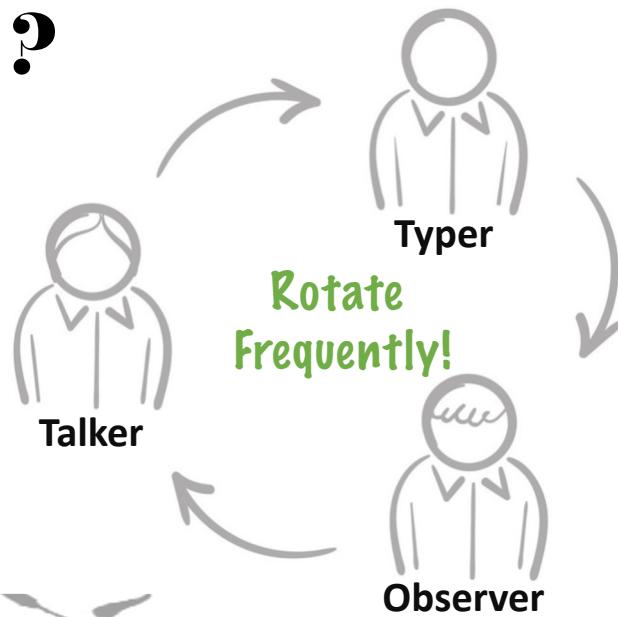
Intention - "write a for loop"
Location - "at line 34 and $\frac{1}{2}$ "
Details - "for(int i = 0;"

The 5 Whys



← Root Cause

When is the last time you rotated ?



Rotation Styles



On Task



On Time

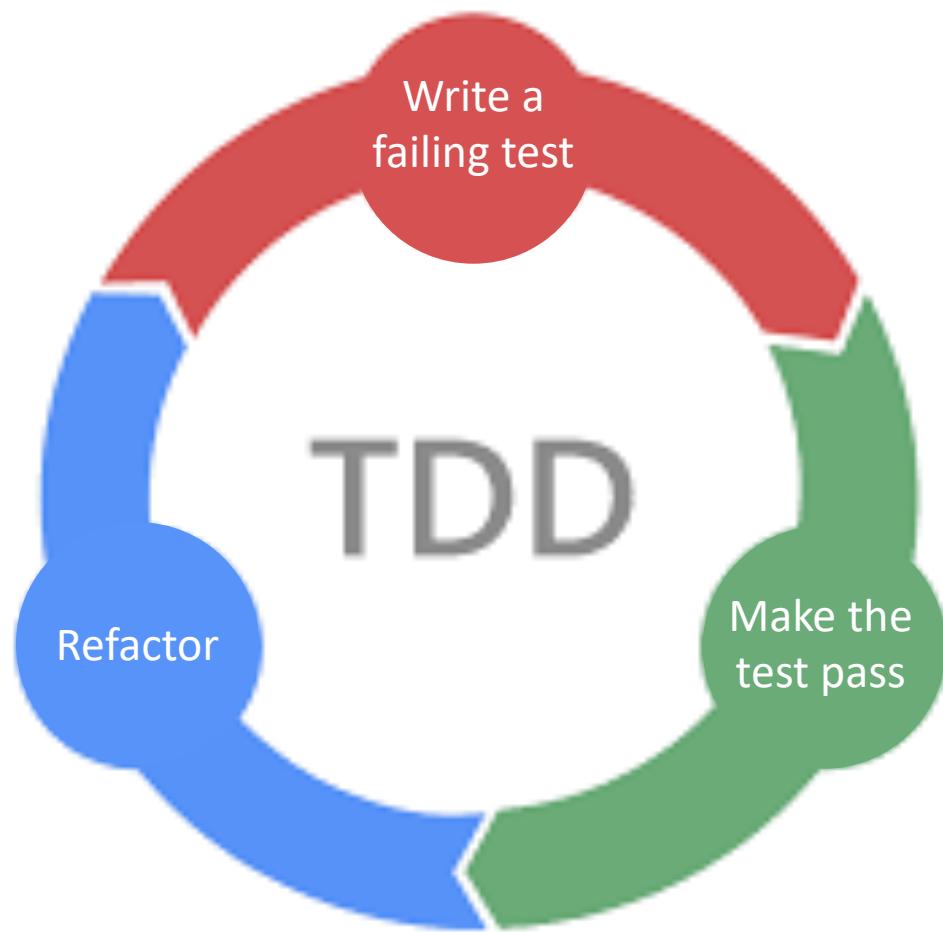


On Idea

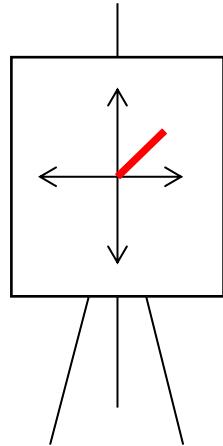


Kindness
Consideration
and
Respect

**Working
Agreements**
Make for better pairs & mobs



Start Here!
with **drawing**
and natural **language**



Whiteboard

Testing Circle

// Create side (0,0) – (3,4)
// Verify length

Result

Side (0,0) – (3,4) length = 5

Side s = new Side(0,0,3,4);
Approvals.Verify(s + " length = " +s.Length);

English

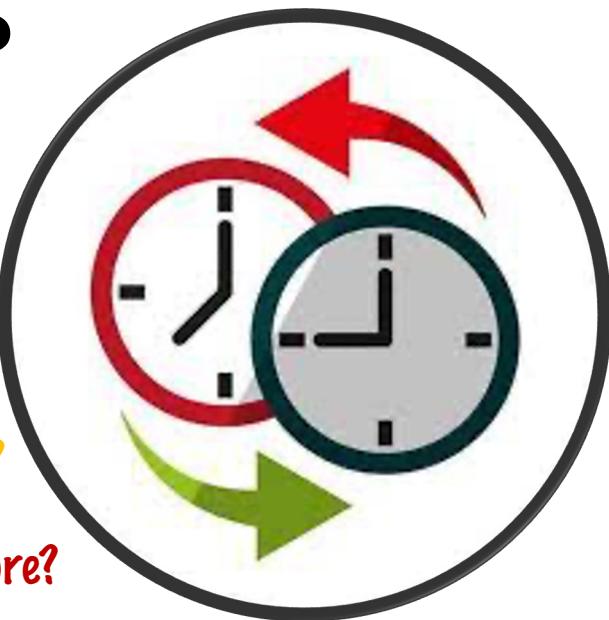
Code

When was the last time you ran your tests?

1 minute?

3 minutes?

more?



Test & Commit || Revert (TCR)

ADVANCED
TECHNIQUE

What it is

Every time you run your tests, you will either:

1. Commit everything, because **all tests passed**
2. Revert everything (*or everything except the test*) because **it failed**



Kent Beck
Creator of TCR
& Extreme Programming

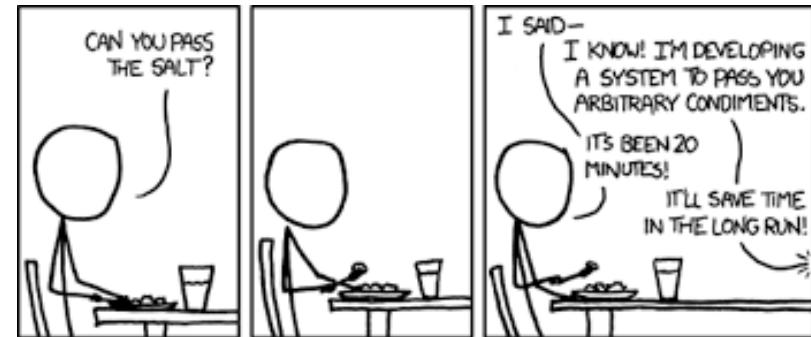
Smaller steps
Faster Feedback
Better safety net

Java starter project



github.com/LarsEckart/tcr-extension.starterproject

You
Ain't
Gonna
Need
It



xkcd.com

*Write the simplest thing
that could possibly work*

Zero

One

Many

Boundaries

Interfaces

Exceptions

Scenarios

*Guide your tests by
looking at these 7 cases*

Blog



blog.wingman-sw.com/tdd-guided-by-zombies



Pattern by
James Grenning

- 1. Specification** - what am I going to write?
- 2. Feedback** - did it work?
- 3. Regression** - does it still work?
- 4. Granularity** - why did it stop working?

Blog



The 4 Benefits of Tests

Not like this....



1



2



3



4

Like this!



1



2



3



4



5

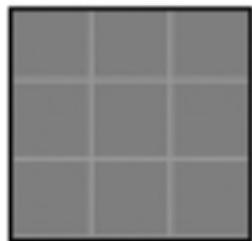
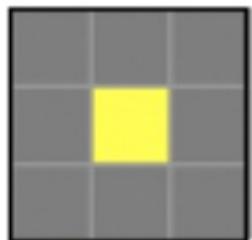
Henrik Kniberg

Building an MVP
(minimal viable product)

The 4 principles of
simple design:
(in order of importance)

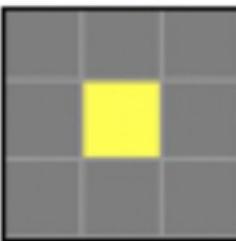
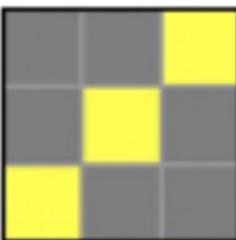
1. **Passes** all tests
2. Expresses the intent of programmer
3. Contains no **duplication**
4. Minimizes the number of classes and methods

1 neighbor or less



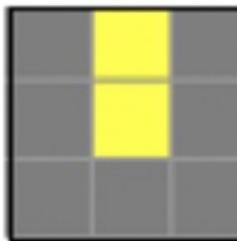
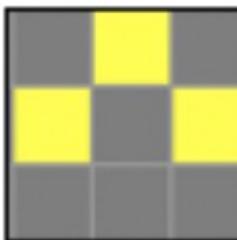
Middle square
dies
from **Starvation**

2-3 neighbors



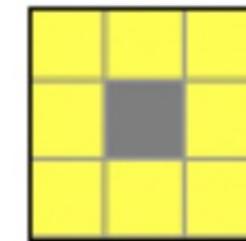
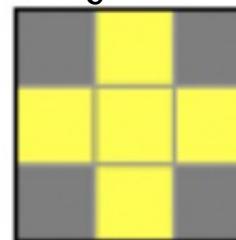
Middle square
survives
from **Subsistence**

3 neighbors



Middle square
is born

4 or more
neighbors

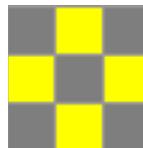
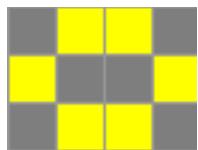
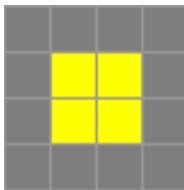


Middle square
dies
from **Overpopulation**

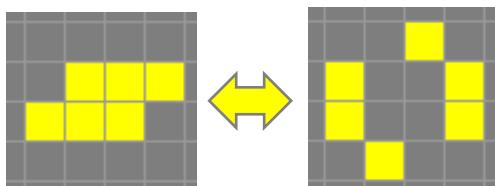
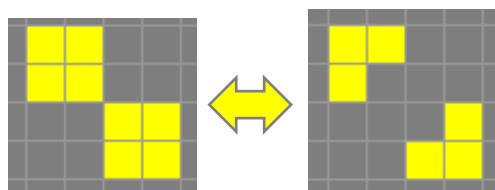
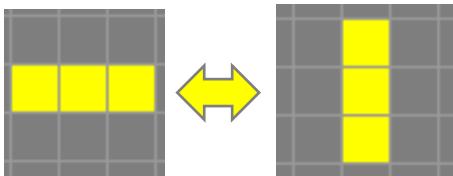
Game of Life Rules

Interesting Game of Life Structures

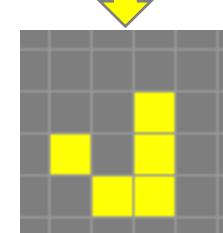
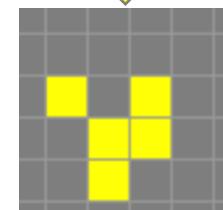
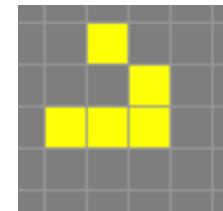
Unchanging



Oscillating

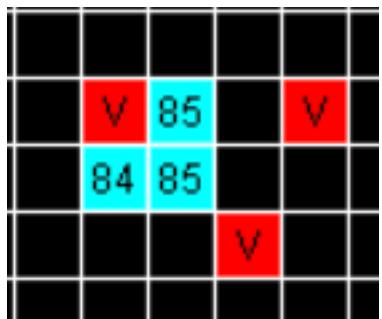


Traveling



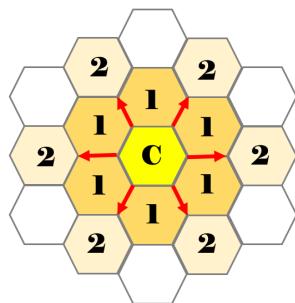
Variations to Game of Life:

Vampires



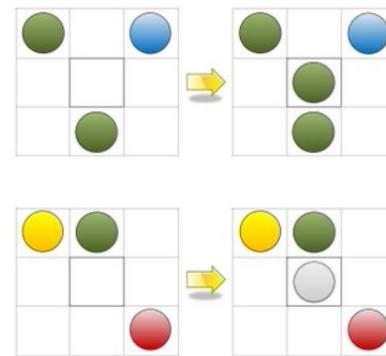
Cells age,
turn into undying vampires,
that kill each other

Hex



The board isn't square

Cells with Friends



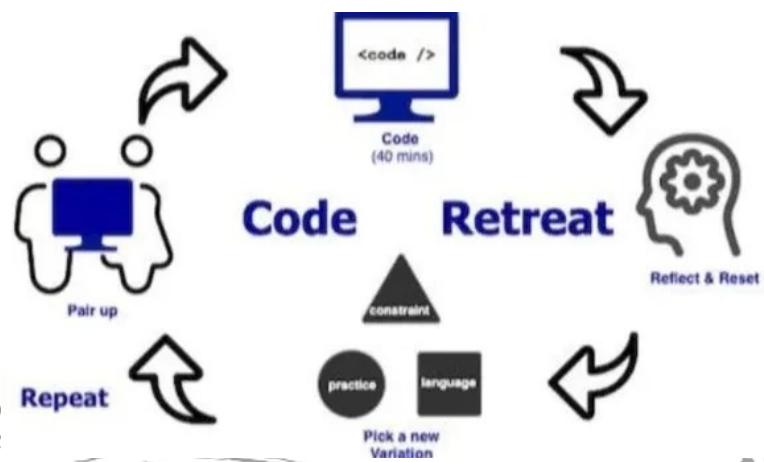
Cells have color
which is passed onto their
children

More info at:





Welcome!



Schedule

9:30 – 10:00 Introduction

10:00-11:00 Session 1

11:00-12:00 Session 2

11:00-12:00 Lunch

1:00 - 2:00 Session 3

2:00 - 3:00 Session 4

3:00 - 4:00 Session 5

4:00 - 4:30 Closing Circle

Session

40 mins - Code

10 mins - Retro

10 mins - Break

Need an environment?

CyberDojo

cyber-dojo.org

Online coding and testing in many languages

Starter Projects

github.com/LearnWithLlew/StarterProjects

Clone and go

exercism

exercism.org

64 languages with setup instructions

Gitpod.io

gitpod.io/#<http://your_github_url>

*VS Code online with linux
Can install and run via the terminal*



elixir

```
def hello_world do
  "Hello World!"
end
```



Ruby

```
def hello_world
  "Hello World!"
end
```



clojure

```
(defn hello-world []
  "Hello World!")
```



Elm

```
helloWorld : String
helloWorld = "Hello World!"
```



Haskell

```
helloWorld :: String
helloWorld = "Hello World!"
```



C++

```
string helloWorld() {
  return "Hello World!";
}
```



Lua

```
function helloWorld()
  return "Hello World!"
end
```



PHP

```
function helloWorld() {
  return "Hello World!";
}
```



JS

```
function helloWorld() {
  return "Hello World!";
}
```



TypeScript



```
public static string Hello() {
  return "Hello World!";
}
```



```
func helloWorld() string {
  return "Hello World!"
}
```



```
func helloWorld() -> String {
  return "Hello World!"
}
```



```
NSString* helloWorld() {
  return @\"Hello World!\";
}
```



```
sub hello_world {
  return "Hello World!";
}
```



```
fun helloWorld(): String {
  return "Hello World!"
}
```



```
def hello_world():
  return "Hello World!"
```



```
function helloWorld()
  return "Hello World!"
end
```



Java

```
public static String helloWorld() {
  return "Hello World!";
}
```



Rust

```
fn hello_world() -> &'static str {
  "Hello World!"
}
```



OCaml

```
let hello_world () = "Hello World!"
```



Prolog

```
hello_world :- write('Hello World!').
```



RE

ML

```
let helloWorld = () => "Hello World!";
```



```
def helloWorld: "Hello World!";
```



```
helloWorld = -> "Hello World!"
```



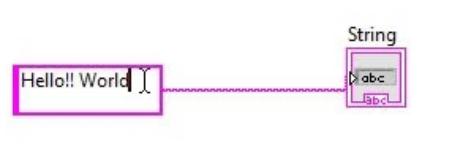
```
hello_world() -> "Hello World!".
```



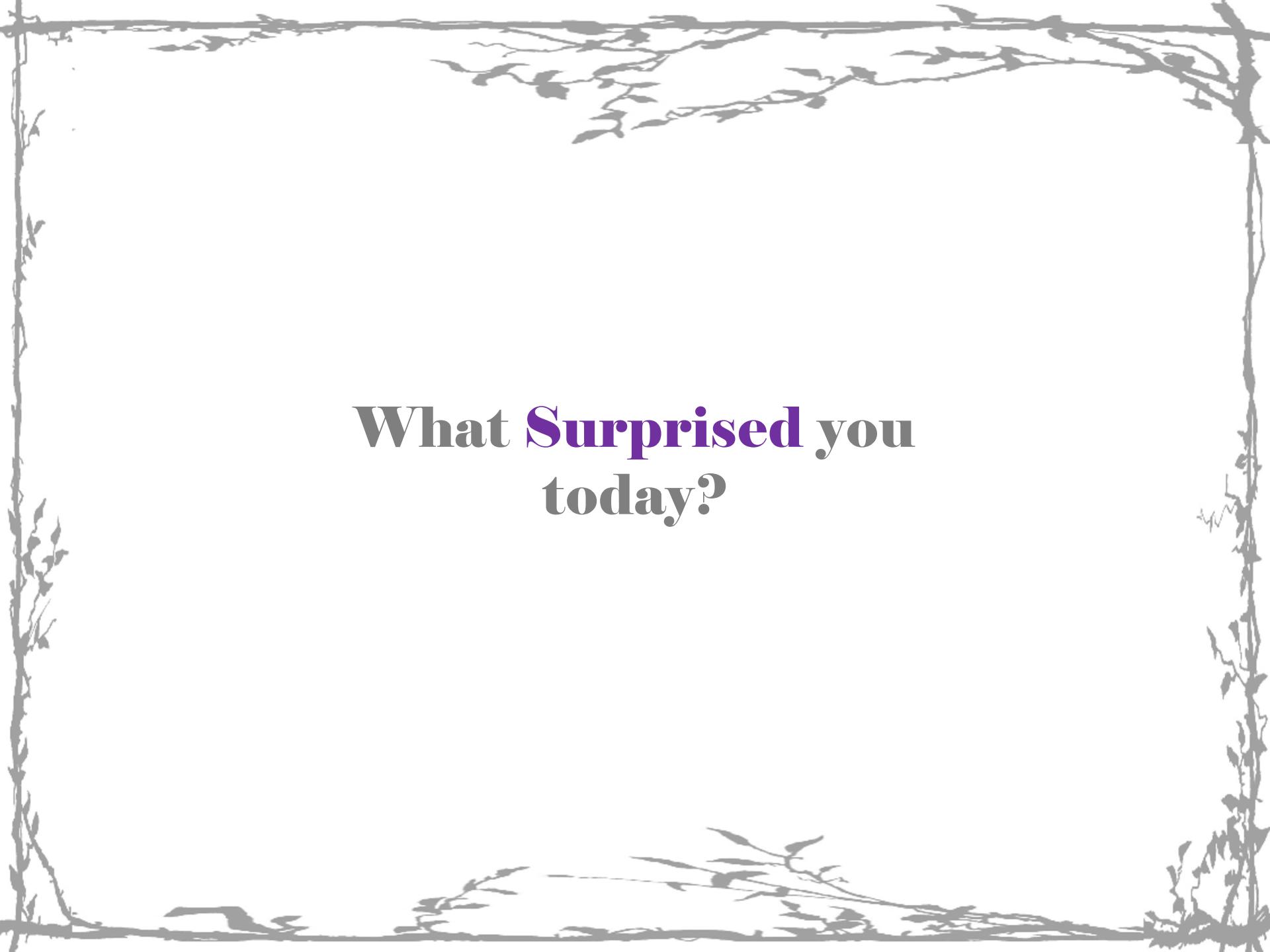
```
let helloWorld() = "Hello World!"
```



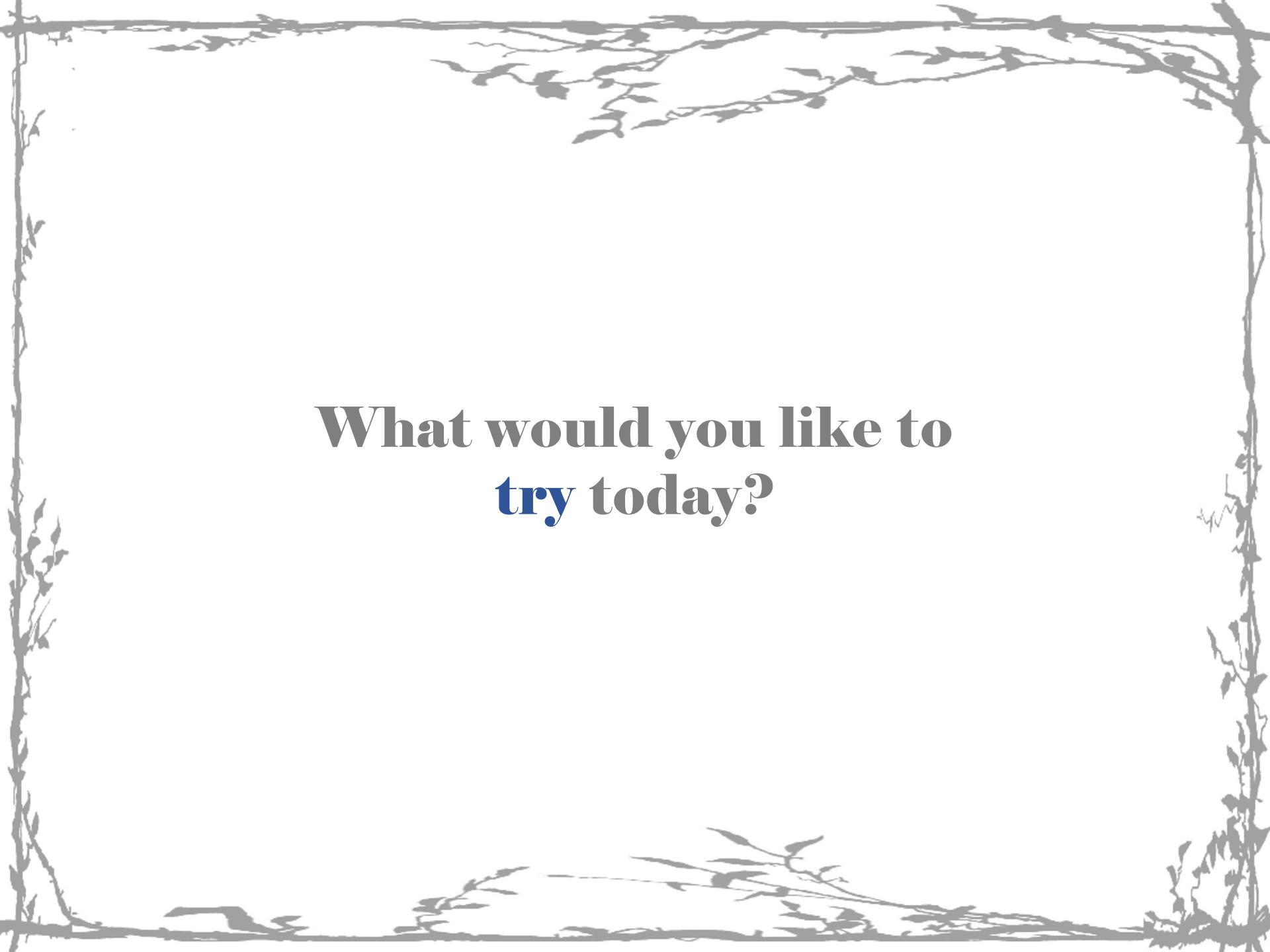
LabVIEW







**What Surprised you
today?**



**What would you like to
try today?**

What did you **learn** today?

I TRY NOT TO MAKE FUN OF PEOPLE FOR ADMITTING THEY DON'T KNOW THINGS.

BECAUSE FOR EACH THING "EVERYONE KNOWS" BY THE TIME THEY'RE ADULTS, EVERY DAY THERE ARE, ON AVERAGE, 10,000 PEOPLE IN THE US HEARING ABOUT IT FOR THE FIRST TIME.

FRACTION WHO HAVE = 0%
HEARD OF IT AT BIRTH

FRACTION WHO HAVE ≈ 100%
HEARD OF IT BY 30

US BIRTH RATE ≈ 4,000,000/year

NUMBER HEARING
ABOUT IT FOR THE
FIRST TIME ≈ 10,000/day

IF I MAKE FUN OF PEOPLE,
I TRAIN THEM NOT TO TELL ME
WHEN THEY HAVE THOSE MOMENTS.
AND I MISS OUT ON THE FUN.

"DIET COKE AND MENTOS
THING"? WHAT'S THAT?

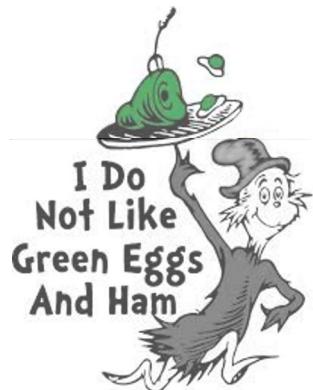
OH MAN! COME ON, WE'RE
GOING TO THE GROCERY STORE.
WHY?

YOU'RE ONE OF
TODAY'S LUCKY
10,000.



*Many people have **strong opinions**
about things they have **not experienced***

Hate it with data



*Don't make up **your mind**
about something without **trying it**.*

Deliberate Practice

THE FIVE PRINCIPLES OF DELIBERATE PRACTICE

