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Strong Pair Programming

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Pair Programming Basics

a.k.a... 2 devs 1 keyb

Pair Programming basics...

- Driver is at the keyboard, writing code
- Observer is sat next to the driver...
  - Reviews code typed in
  - Considers strategic direction
  - Suggests improvements / alternative approaches
  - Identifying potential problems
  - Act as a safety net
  - Two heads are better than one
- The driver and observer switch roles ***frequently!***

Pair Programming Benefits

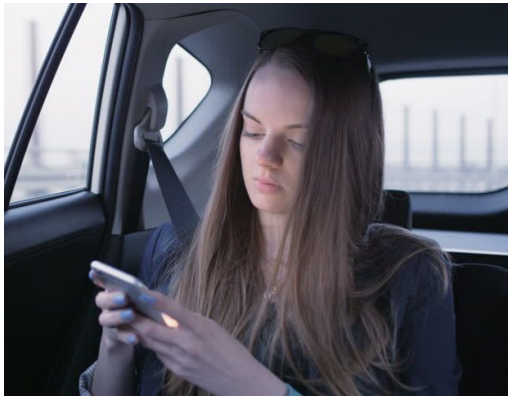
- Increased code quality
- Less time spent on code review stage
- Wider understanding of the solution in the code
- Less defects
- Helps to skill up junior devs
- Improves communication and team building

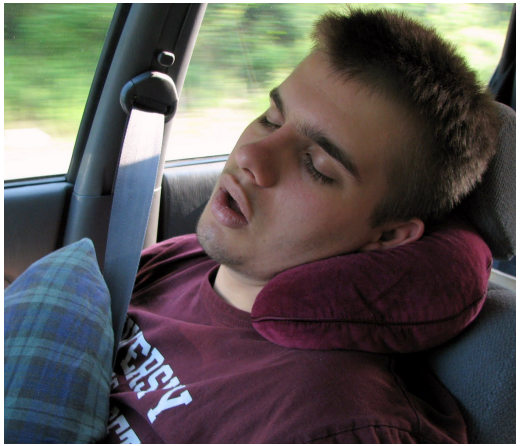
But…

- May take longer
- Harder when distributed
- Benefits are a bit subjective

Pair Programming Anti Patterns

- One person coding, the other person just watching (or on their phone)
  - Observer is not engaged
  - Not reaping the benefit of pairing



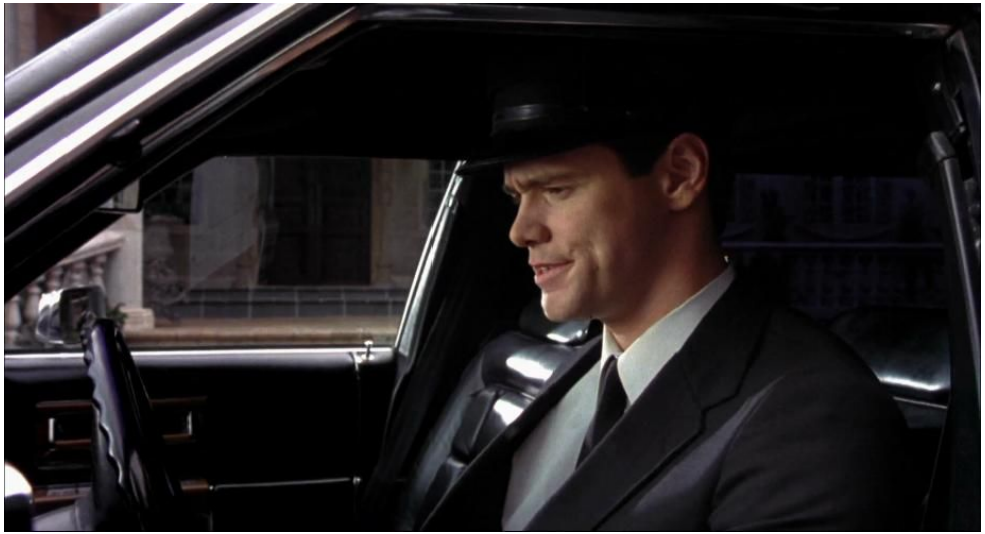


Pair Programming Anti Patterns

- Driver/Person at the keyboard is not communicating, just typing away
  - Solution is not shared with observer
  - No communication benefit
  - Dangerous when an expert is pairing with a junior dev

Pair Programming Summary

Whoever has the keyboard has most control



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Strong Pair Programming

"For an idea to go from your head into the computer ...
it MUST go through someone else's hands"

Llewellyn Falco

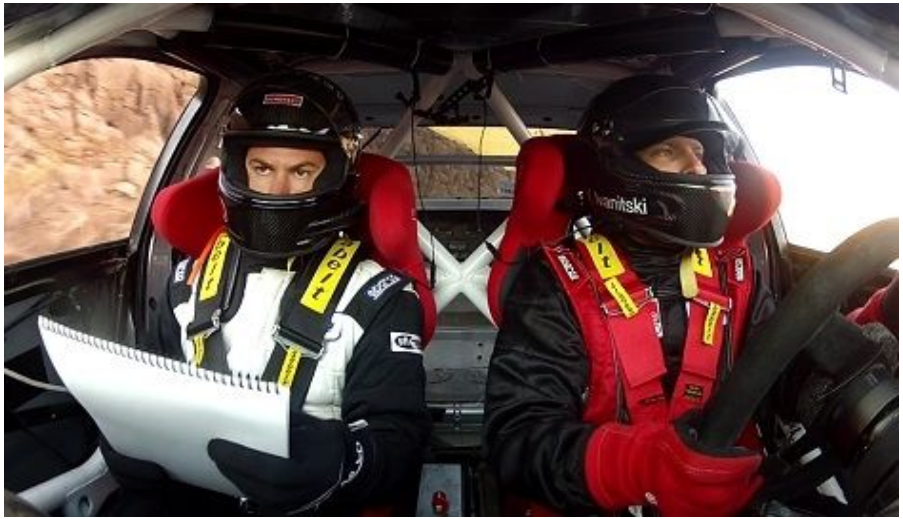
Strong Pair Programming

- The Observer becomes the Navigator!
  - High level commands come from the navigator

- The Driver executes the instructions from the navigator
  - Low level commands being entered onto the keyboard by the driver

This style of pair programming is all about:

- Increasing communication
- Increasing collaboration and engagement



Driving Tips 1: Trust your navigator

- Trust the navigator knows what they are telling you
- If you don’t understand ***what*** they are telling you - ask!
- KEY BIT: If you don’t understand ***why***, trust them, go with it. Have a chat about it once you have finished executing their current thought or idea on a particular section of code

Driving Tips 2: Get comfortable working without a complete understanding

- You will learn as you go
- You might not know the language, OS, editor, code, or even the problem space you are working in….
- It's ok, you will soon!

Navigating Tip 1: Give the next instruction to the driver the instant they are ready to implement it

- Manage a todo list of next things in your head
- Keep the driver in a state of flow
- Manage the big picture details so the driver can stay focused on the code they are typing

Navigating Tip 2: Use as high a level of abstraction as possible

- But adjust your instructions to suit the driver..
- Higher level of abstractions free up the navigator to think of the next step without being bogged down by syntax/implementation

Lower level	**Higher Level**
Highlight code, refactor -> extract method, call it “getX()”	Extract that code to a method
Type: `newList = list.sort();`	Sort the list alphabetically
Type: “`public void testNullInput() …`”	Create a test to make sure it works with null input

Driver: “What if I have an idea I want to implement?”

Great!

Switch places and become the Navigator.

What's the strongest material known to man?

1. ~~Graphene~~
2. ~~Buckypaper~~
3. ~~Metallic glass~~
4. ~~Dyneema~~
5. ~~Lonsdaleite~~
6. ~~Wurtzite Boron Nitride~~
7. DIAMONDS!!!

The Diamond Kata...

New to the code dojo / programming / pair programming?

… or just here for the pizza?

`printDiamond(3)`

```
  *
 * *
*   *
 * *
  *
```

`printDiamond(4)`

```
   *
  * *
 *   *
*     *
 *   *
  * *
   *
```

The Diamond Kata...

Otherwise…

```
printDiamond('E')
```

```
    A
   B B
  C   C
 D     D
E       E
 D     D
  C   C
   B B
    A
```

```
printDiamond('C')
```

```
  A
 B B
C   C
 B B
  A
```

The Diamond Kata...

“MemAlloc” was your first word

```
printDiamond('F')
          F
        F E F
      F E D E F
    F E D C D E F
  F E D C B C D E F
F E D C B A B C D E F
  F E D C B C D E F
    F E D C D E F
      F E D E F
        F E F
          F
```

All ideas presented here are from Llewellyn Falco's blog...

https://llewellynfalco.blogspot.com/2014/06/llewellyns-strong-style-pairing.html

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