

# Refactoring 102

or: How I learned to stop worrying and started to remove code

Alex Poovathingal

Gozefo.com

January 11, 2019

# Introduction



Disclaimer - The author shall not be held liable for any issues of whatever nature which may arise as a result of following these advices.

# What is Refactoring

# What is Refactoring

- Restructure for the better without changing behaviour

# What is Refactoring

- Restructure for the better without changing behaviour
- Remove code smells

# What is Refactoring

- Restructure for the better without changing behaviour
- Remove code smells
- Reduce technical debt

# What is Refactoring

- Restructure for the better without changing behaviour
- Remove code smells
- Reduce technical debt
- Without modifying testcases

# What is Refactoring

- Restructure for the better without changing behaviour
- Remove code smells
- Reduce technical debt
- Without modifying testcases
- "Leave this world a little better than you found it." - Boy Scout Rule



## When to Refactor and things to keep in mind

- “Don’t stop coding when it starts to work”

## When to Refactor and things to keep in mind

- “Don’t stop coding when it starts to work”
- Yucky code

## When to Refactor and things to keep in mind

- “Don’t stop coding when it starts to work”
- Yucky code
- comprehending difficult to understand code should never be the last step

## When to Refactor and things to keep in mind

- “Don’t stop coding when it starts to work”
- Yucky code
- comprehending difficult to understand code should never be the last step
- “Does this code spark joy” - Marie Kondo

## When to Refactor and things to keep in mind

- “Don’t stop coding when it starts to work”
- Yucky code
- comprehending difficult to understand code should never be the last step
- “Does this code spark joy” - Marie Kondo
- Why?? Refactoring is good economics - Is refactoring wasteful rework?

## When to Refactor and things to keep in mind

- “Don’t stop coding when it starts to work”
- Yucky code
- comprehending difficult to understand code should never be the last step
- “Does this code spark joy” - Marie Kondo
- Why?? Refactoring is good economics - Is refactoring wasteful rework?
- Refactor v/s features - do any one at a time - not both

## When to Refactor and things to keep in mind

- “Don’t stop coding when it starts to work”
- Yucky code
- comprehending difficult to understand code should never be the last step
- “Does this code spark joy” - Marie Kondo
- Why?? Refactoring is good economics - Is refactoring wasteful rework?
- Refactor v/s features - do any one at a time - not both
- Refactor - be ready to throw away code. “Don’t be emotionally attached to your code”

## When to Refactor and things to keep in mind

- “Don’t stop coding when it starts to work”
- Yucky code
- comprehending difficult to understand code should never be the last step
- “Does this code spark joy” - Marie Kondo
- Why?? Refactoring is good economics - Is refactoring wasteful rework?
- Refactor v/s features - do any one at a time - not both
- Refactor - be ready to throw away code. “Don’t be emotionally attached to your code”
- Workflow - small improvements (always in same direction)



## When to Refactor and things to keep in mind

- “Don’t stop coding when it starts to work”
- Yucky code
- comprehending difficult to understand code should never be the last step
- “Does this code spark joy” - Marie Kondo
- Why?? Refactoring is good economics - Is refactoring wasteful rework?
- Refactor v/s features - do any one at a time - not both
- Refactor - be ready to throw away code. “Don’t be emotionally attached to your code”
- Workflow - small improvements (always in same direction)
- File renames or package changes always in different PR and when no one is working on those files

# Plurals

```
Integer productsInCart = 2;
```

# Plurals

```
Integer productsInCart = 2;
```

```
List<CartProduct> productsInCart = [product1, product2];
```

# Plurals

```
Integer productsInCart = 2;
```

```
List<CartProduct> productsInCart = [product1, product2];
```

Better - cartProductCount, cartProductList,  
cartProducts (?)

# Plurals

```
Integer productsInCart = 2;
```

```
List<CartProduct> productsInCart = [product1, product2];
```

Better - cartProductCount, cartProductList,  
cartProducts (?)

products v/s productList

productNames, productsNames, productsName, productNameList

# Proper Names

ProductParts

ProductParts.id and ProductParts.productPartId

# Proper Names

ProductParts

ProductParts.id and ProductParts.productPartId

```
String productPartId = productPart.getId();
```

```
String productPartId = productPart.getProductPartId();
```

# Mysql

- Plural table Name (Controversial)
- Singular entity
- `updated_on` vs `updatedAt`
- Worst case - learn language



# Removing Code

- Less code, less bugs. No code, ...

# Removing Code

- Less code, less bugs. No code, ...
- Unused files, unused functions

# Removing Code

- Less code, less bugs. No code, ...
- Unused files, unused functions
- Unused APIs

# Visual

- Code consistency throughout the project

# Visual

- Code consistency throughout the project
- Arguments on each line

# Visual

- Code consistency throughout the project
- Arguments on each line
- Easier if condition

# Visual

- Code consistency throughout the project
- Arguments on each line
- Easier if condition
- Readability always

# Visual

- Code consistency throughout the project
- Arguments on each line
- Easier if condition
- Readability always
- IntelliJ warnings



# Visual

- Code consistency throughout the project
- Arguments on each line
- Easier if condition
- Readability always
- IntelliJ warnings
- Line length - 150, function length, class length

# Pull Request Etiquettes

- `git diff`

# Pull Request Etiquettes

- git diff
- Make life easier for reviewer.

# Pull Request Etiquettes

- git diff
- Make life easier for reviewer.
- Lesser lines - what do each line do

# Pull Request Etiquettes

- git diff
- Make life easier for reviewer.
- Lesser lines - what do each line do
- Blank lines, format issues, unrelated changes

## Bug fixing Workflow

- Write failing test. Make sure it fails
- Make your code change.
- Test should pass now

## Bug fixing Workflow

- Write failing test. Make sure it fails
- Make your code change.
- Test should pass now

Tests should be

- Concise
- Readable
- Isolated

## Unsolicited Advice (Polished Rants)

- Upfront Design v/s evolutionary design



## Unsolicited Advice (Polished Rants)

- Upfront Design v/s evolutionary design
- If your code is not unit testable, it is bad code

## Unsolicited Advice (Polished Rants)

- Upfront Design v/s evolutionary design
- If your code is not unit testable, it is bad code
- Small changes every day take you to big refactoring

## Unsolicited Advice (Polished Rants)

- Upfront Design v/s evolutionary design
- If your code is not unit testable, it is bad code
- Small changes every day take you to big refactoring
- Compilation errors are good

## Unsolicited Advice (Polished Rants)

- Upfront Design v/s evolutionary design
- If your code is not unit testable, it is bad code
- Small changes every day take you to big refactoring
- Compilation errors are good
- Easy to read, understand, navigate >>> performance, design pattern, world peace, or any other thing

## Unsolicited Advice (Polished Rants)

- Upfront Design v/s evolutionary design
- If your code is not unit testable, it is bad code
- Small changes every day take you to big refactoring
- Compilation errors are good
- Easy to read, understand, navigate >>>performance, design pattern, world peace, or any other thing
- Not everything needs to scale - MOST things doesn't need to scale

## Unsolicited Advice (Polished Rants)

- Upfront Design v/s evolutionary design
- If your code is not unit testable, it is bad code
- Small changes every day take you to big refactoring
- Compilation errors are good
- Easy to read, understand, navigate >>> performance, design pattern, world peace, or any other thing
- Not everything needs to scale - MOST things doesn't need to scale
- Code is better than infrastructure

Any more points?