



@somkiat.cc



# โปรแกรมเมอร์ ?



# Code Written By A CS 101 Student

```
public int fibonacci(int x) {  
    if (x == 1) {  
        return 1;  
    } else if (x == 2) {  
        return 1;  
    } else {  
        return fibonacci(x - 1) + fibonacci(x - 2);  
    }  
}
```

<http://imgur.com/gallery/L0VoWT9>

# Code Written At A Hackathon

```
public int getFibonacciNumber(int n) {  
    switch(n) {  
        case 1: return 1;  
        case 2: return 1;  
        case 3: return 2;  
        case 4: return 3;  
        case 5: return 5;  
        case 6: return 8;  
        case 7: return 13;  
        default:  
            // good enough for the demo, lol  
            return -1;  
    }  
}
```

<http://imgur.com/gallery/L0VoWT9>

# Code Written At A Startup

```
// TODO add Javadoc comments
/**
 * getFibonacciNumber
 */
// TODO Should we move this to a different file?
public int getFibonacciNumber(int n) {
    // TODO Stack may overflow with recursive implementation, switch over to
    // iteration approach at some point?
    if (n < 0) {
        // TODO This should probably throw an exception. Or maybe just print
        // a log message?
        return -1;
    } else if (n == 0) {
        // TODO Generalize the initial conditions?
        return 0;
    } else if (n == 1) {
        return 1;
    } else {
        // TODO Spend some time with my family and kids, I've been at work for
        // over 48 hours straight.
        return getFibonacciNumber(n - 1) + getFibonacciNumber(n - 2);
    }
}
```

<http://imgur.com/gallery/L0VoWT9>

# Code Written At A Large Company

```
/*
 * getFibonacciNumber is a method that, given some index n, returns the nth
 * Fibonacci number.
 * @param n The index of the Fibonacci number you wish to retrieve.
 * @return The nth Fibonacci number.
 */
public CustomInteger64 getFibonacciNumber(CustomInteger64 n) {
    FibonacciDataViewBuilder builder =
        FibonacciDataViewBuilderFactory.createFibonacciDataViewBuilder(
            new FibonacciDataViewBuilderParams(n, null, null, 0, null));
    if (builder == FibonacciDataViewBuilderConstants.ERROR_STATE) {
        throw new FibonacciDataViewBuilderFactoryException();
    }
    FibonacciDataView dataView = builder.GenerateFibonacciDataView(this);
    if (dataView == FibonacciDataViewConstants.ERROR_STATE) {
        throw new FibonacciDataViewGenerationException();
    }
    return dataView.accessNextFibonacciNumber(null, null, null);
}
```

<http://imgur.com/gallery/L0VoWT9>

# Code Written By A Math Ph.D.

```
public int getFibonacciNumber(int n) {
    return (int) divide(subtract(exponentiate(phi(), n), exponentiate(psi(), n)),
        subtract(phi(), psi()));
}

public double exponentiate(double a, double b) {
    if (equal(b, zero())) {
        return one();
    } else {
        return multiply(a, exponentiate(a, subtract(b, one())));
    }
}

public double phi() {
    return divide(add(one(), sqrt(add(one(), one(), one(), one(), one(), one()))),
        add(one(), one()));
}

public double psi() {
    return subtract(one(), phi());
}
```

<http://imgur.com/gallery/L0VoWT9>

# Code Written By Your Cat

```
public static final int UNITE = 1;
public static final int UNITED = 2;

// meowwww meow
public int meow(int KITTENS_OF_THE_WORLD) {
    // MEOW
    if (KITTENS_OF_THE_WORLD < UNITED) {
        return KITTENS_OF_THE_WORLD;
    } else {
        // meeooowwwwwwww
        // meooooowwwwwwwwwwwwwwwwwwwwwwwwwww
        return meow(KITTENS_OF_THE_WORLD - UNITE)
            + meow(KITTENS_OF_THE_WORLD - UNITED);
    }
}
```

<http://imgur.com/gallery/L0VoWT9>

# ใครชอบเขียน code แบบนี้ ?





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```
if (dataList.size() > 0) {
    if (impactDate != null) {
        Calendar c = Calendar.getInstance(Locale.ENGLISH);
        for (DataBean d : dataList) {
            if (d.getOpenDateTimestamp() != null && d.getCloseDateTimestamp() != null) {
                c.add(Calendar.MONTH, -1);
                i = this.querySale(d, year, month, a);
                if (i != null) {
                    d.setBeforeSaleAmount(i);
                    d.setBeforeProfitAmount(i);
                }
            }
            for (DataBean bean : dataList) {
                if (bean != null) {
                    d.setSaleAmount(bean.getSaleAmount());
                    d.setProfitAmount(bean.getProfitAmount());
                }
            }
        }
    }
}
```

```
if item.name != 'Aged Brie' && item.name != 'Backstage passes to a T
  if item.quality > 0
    if item.name != 'Sulfuras, Hand of Ragnaros'
      item.quality -= 1
    end
  end
else
  if item.quality < 50
    item.quality += 1
    if item.name == 'Backstage passes to a TAFKAL80ETC concert'
      if item.sell_in < 11
        if item.quality < 50
          item.quality += 1
        end
      end
      if item.sell_in < 6
        if item.quality < 50
          item.quality += 1
        end
      end
    end
  end
end
end
end
```

```
for (int i = 0; i < items.length; i++) {
    if (!items[i].name.equals("apple"))
        && !items[i].isQualified())
        if (items[i].quality == null)
            if (!items[i].isQualified())
                items[i].setQuality("apple");
    }
} else {
    if (items[i].quality == null)
        items[i].setQuality("apple");

    if (items[i].isQualified())
        if (items[i].quality.equals("apple"))
            if (i > 0)
                items[i - 1].setQuality("apple");
    }
}

if (items[i].isQualified())
    if (i > 0)
        items[i - 1].setQuality("apple");
    }
}
}
```

```
bookings_calendar.php x design_dep_pdf.php x
340
341     {
342         $wd_des17 = '  ' . $row['wd_des17'] . ' ';
343     }
344
345     //-
346
347     if($row['wd_des18'] == null)
348     {
349         $wd_des18 = ' ';
350     }
351     else
352     {
353         $wd_des18 = '  ' . $row['wd_des18'] . ' ';
354     }
355
356     //-
357
358     if($row['wd_des19'] == null)
359     {
360         $wd_des19 = ' ';
361     }
362     else
363     {
364         $wd_des19 = '  ' . $row['wd_des19'] . ' ';
365     }
366
367     //-
368
369     if($row['wd_des20'] == null)
370     {
371         $wd_des20 = ' ';
372     }
373     else
374     {
375         $wd_des20 = '  ' . $row['wd_des20'] . ' ';
376     }
377
378
379
380
381
382
383
384
385
386
387
388
```

```
15 |     try {
16 +-- 14 lines: $status = 'A
30         if(!$readBalanceSumma
31             if(!$readBalanceSum
32 +-- 4 lines: $nowTime = t
36             if(array_key_exi
37 +--- 60 lines: if(array_ke
97                 if(array_key_exi
98 +----- 2 lines: $cashBonu
100                 if(array_key_e
101                     $! . . . Bonus
102                     if(array key
103 +----- 4 lines: $detail =
107                         if(array_k
108                             $! . . . Bo
109
110 +----- 20 lines: $detailar
130                 if(array_key_e
131                     $! . . . Frees
132                     if(array_key
133 +----- 3 lines: $detail =
136                         if(array_k
137                             $! . . . Fr
138
139 +----- 14 lines: $detailar
153                 }else{
154                     foreach($h
155 +----- 25 lines: $detail =
180                         if(array_key_e
181                             $bonusFromAp
182                             if(array key
183 +----- 3 lines: $detail =
186                         if(array_k
187                             $bonusAp
188
189 +----- 14 lines: $detailar
203                 }else{
204                     foreach($b
205 +----- 25 lines: $detail =
230                         if(array key e
231 +----- 22 lines: $bonusFro
253                     }else{
254                         foreach($b
255 +----- 3 lines: $detail =
258                         if(array
259                             $bonus
260
261 +----- 4 lines: $detailar
| controllers/api/BankingBalanc
```

```
if (user.contains("msie"))
{
    String substring=userAgent.substring(userAgent.indexOf("MSIE"));
    browser=substring.split(" ")[0].replace("MSIE", "IE")+"-"+substring.substring(5);
}
else if (user.contains("safari") && user.contains("version"))
{
    browser=(userAgent.substring(userAgent.indexOf("Safari")).split(" ")[0]);
}
else if ( user.contains("opr") || user.contains("opera"))
{
    if(user.contains("opera"))
        browser=(userAgent.substring(userAgent.indexOf("Opera")));
    else if(user.contains("opr"))
        browser=((userAgent.substring(userAgent.indexOf("OPR")));
}
else if (user.contains("chrome"))
{
    browser=(userAgent.substring(userAgent.indexOf("Chrome")));
}
else if ((user.indexOf("mozilla/7.0") > -1) || (user.indexOf("netscape") > -1))
{
    browser = "Netscape-?";
}
```

```
if (getArea() == 1) {  
    List aree = ar.getArea();  
    Area area = null;  
  
    for (int i = 0; i < aree.size(); i++) {  
        area = (Area) aree.get(i);  
        demande = req.getDemande(getIdQuestionario(),area.getIdArea());  
        if (demande != null) {  
            for (int j = 0; j < demande.size(); j++) {  
                domanda = (Domanda) demande.get(j);  
                risposte = req.getRisposteDomanda(getIdQuestionario(),domanda.getId());  
                if (risposte != null)  
                    domanda.setRisposte(risposte);  
            }  
        }  
    }  
}
```

```

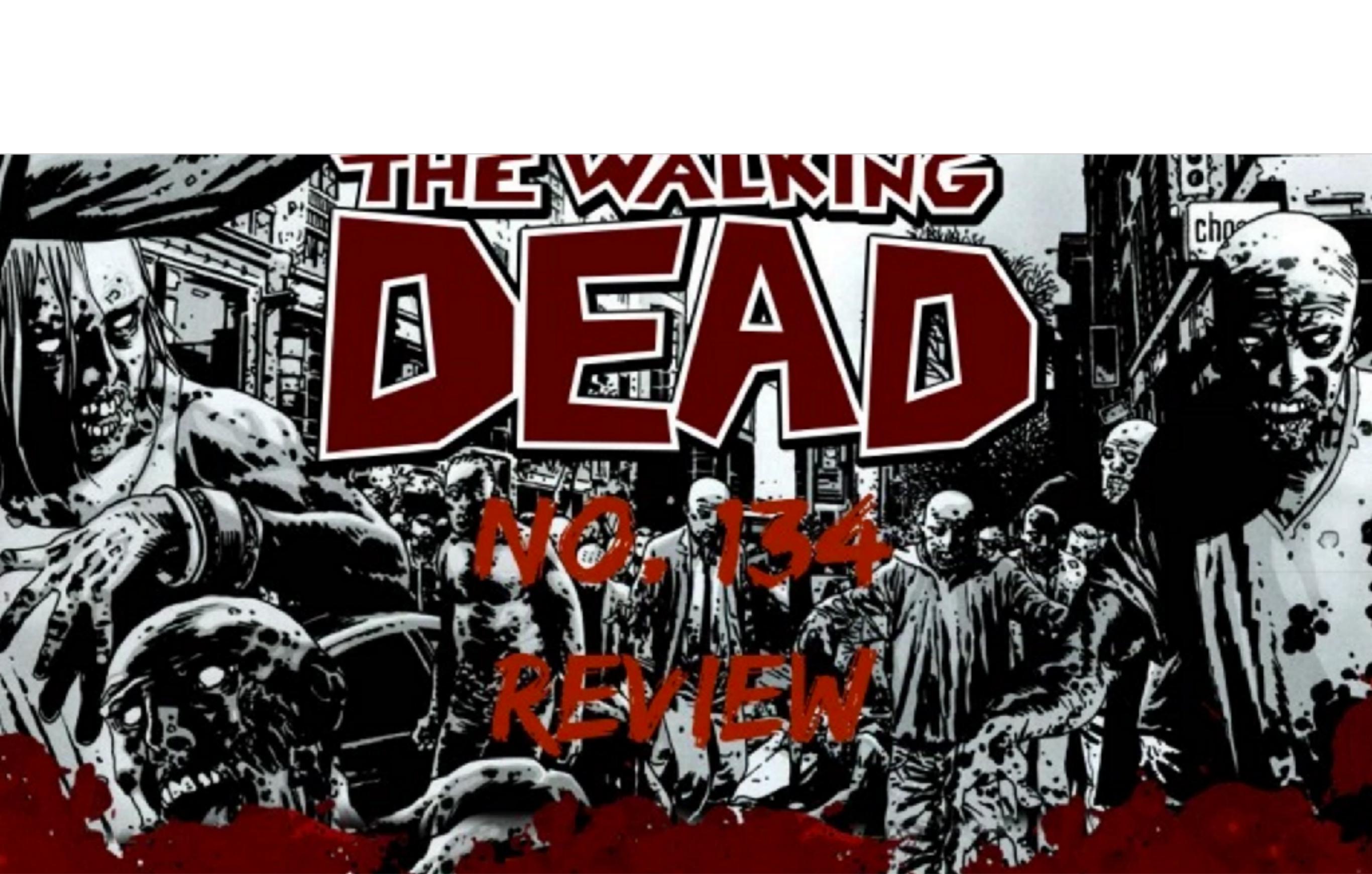
function register()
{
    if (empty($_POST)) {
        $msg = '';
        if (!$_POST['user_name']) {
            if (!$_POST['user_password_new']) {
                if (!$_POST['user_password_repeat']) {
                    if (strlen($_POST['user_password_new']) > 5) {
                        if (strlen($_POST['user_name']) < 6 || strlen($_POST['user_name']) > 1) {
                            if (preg_match('/^(a-zA-Z\d){2,64}$/i', $_POST['user_name'])) {
                                $user = read_user($_POST['user_name']);
                                if (!isset($user['user_name'])) {
                                    if (!$_POST['user_email']) {
                                        if (strlen($_POST['user_email']) < 6) {
                                            if (filter_var($_POST['user_email'], FILTER_VALIDATE_EMAIL)) {
                                                create_user();
                                                $_SESSION['msg'] = 'You are now registered so please login';
                                                header('Location: ' . $_SERVER['PHP_SELF']);
                                                exit();
                                            } else $msg = 'You must provide a valid email address';
                                        } else $msg = 'Email must be less than 64 characters';
                                    } else $msg = 'Email cannot be empty';
                                } else $msg = 'Username already exists';
                            } else $msg = 'Username must be only a-z, A-Z, 0-9';
                        } else $msg = 'Username must be between 2 and 64 characters';
                    } else $msg = 'Password must be at least 6 characters';
                } else $msg = 'Passwords do not match';
            } else $msg = 'Empty Password';
        } else $msg = 'Empty Username';
        $_SESSION['msg'] = $msg;
    }
    return register_form();
}

```



pikabu.ru





# THE WALKING DEAD

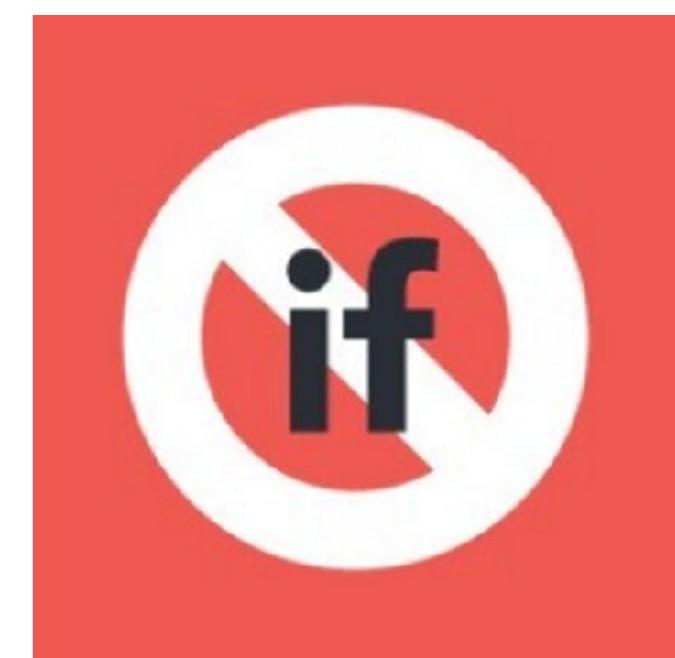
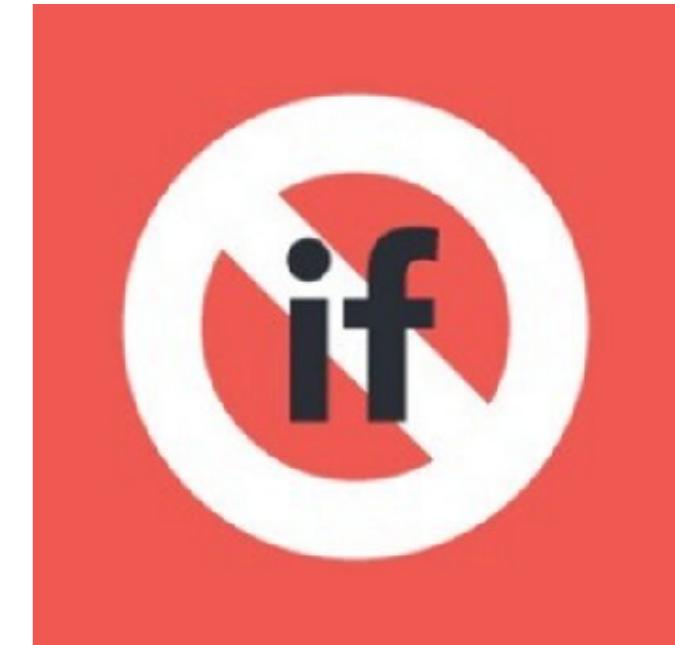
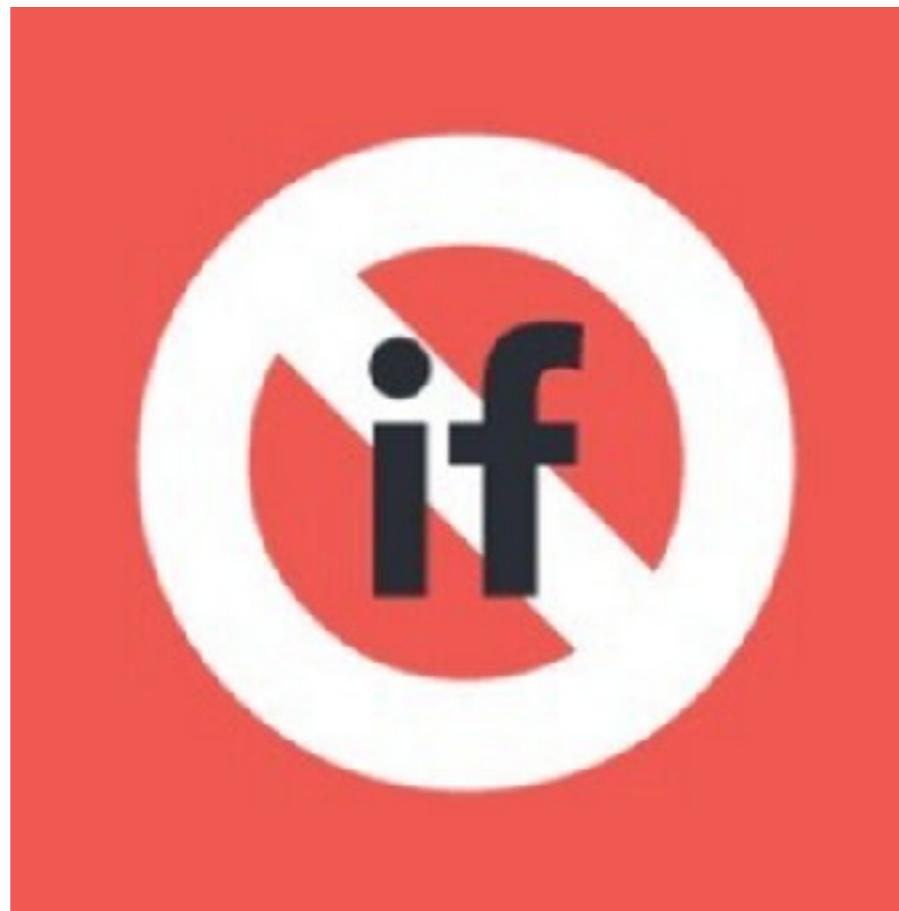
NO.134  
REVIEW



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# ทำอย่างไรดี ?

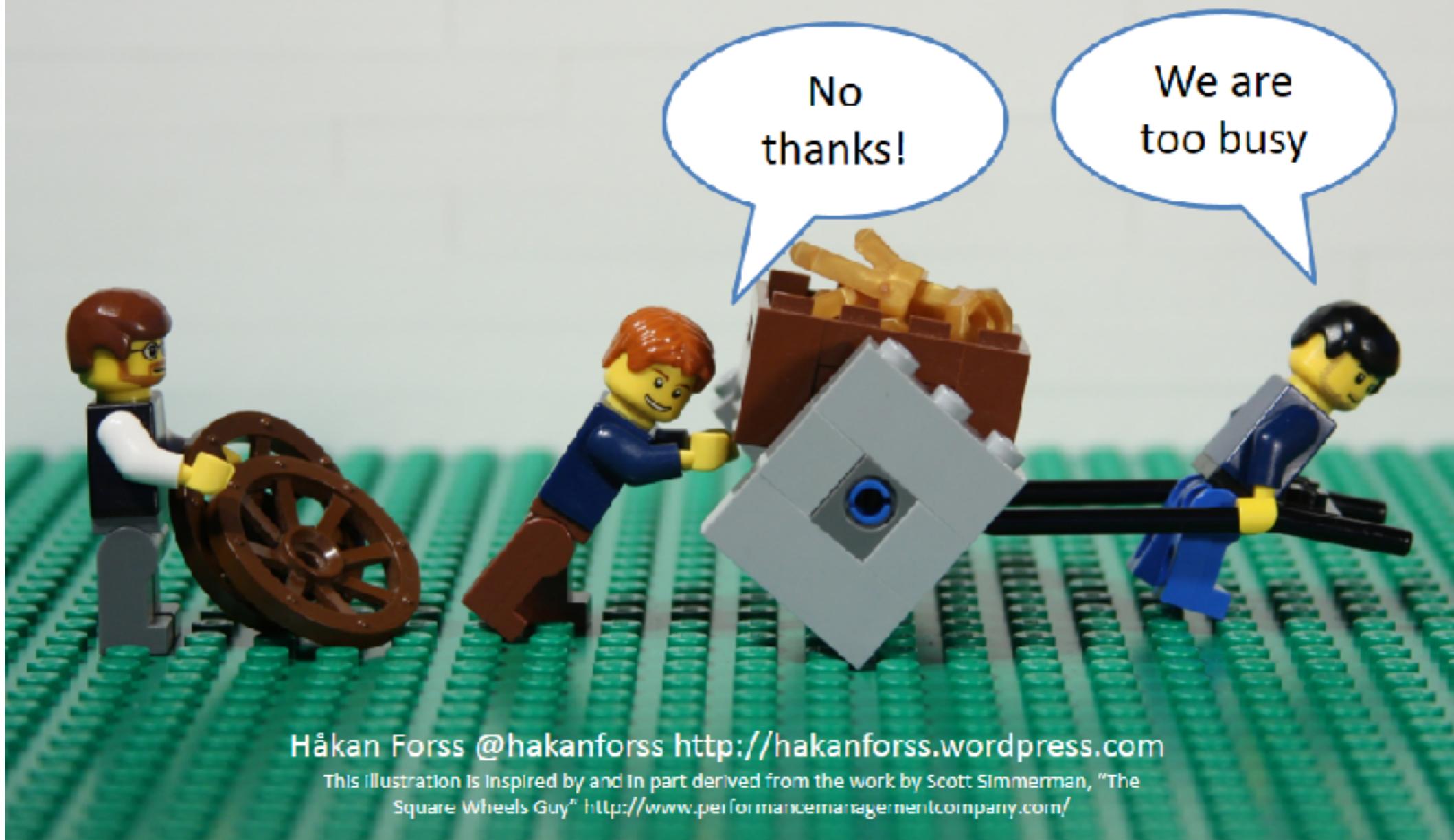


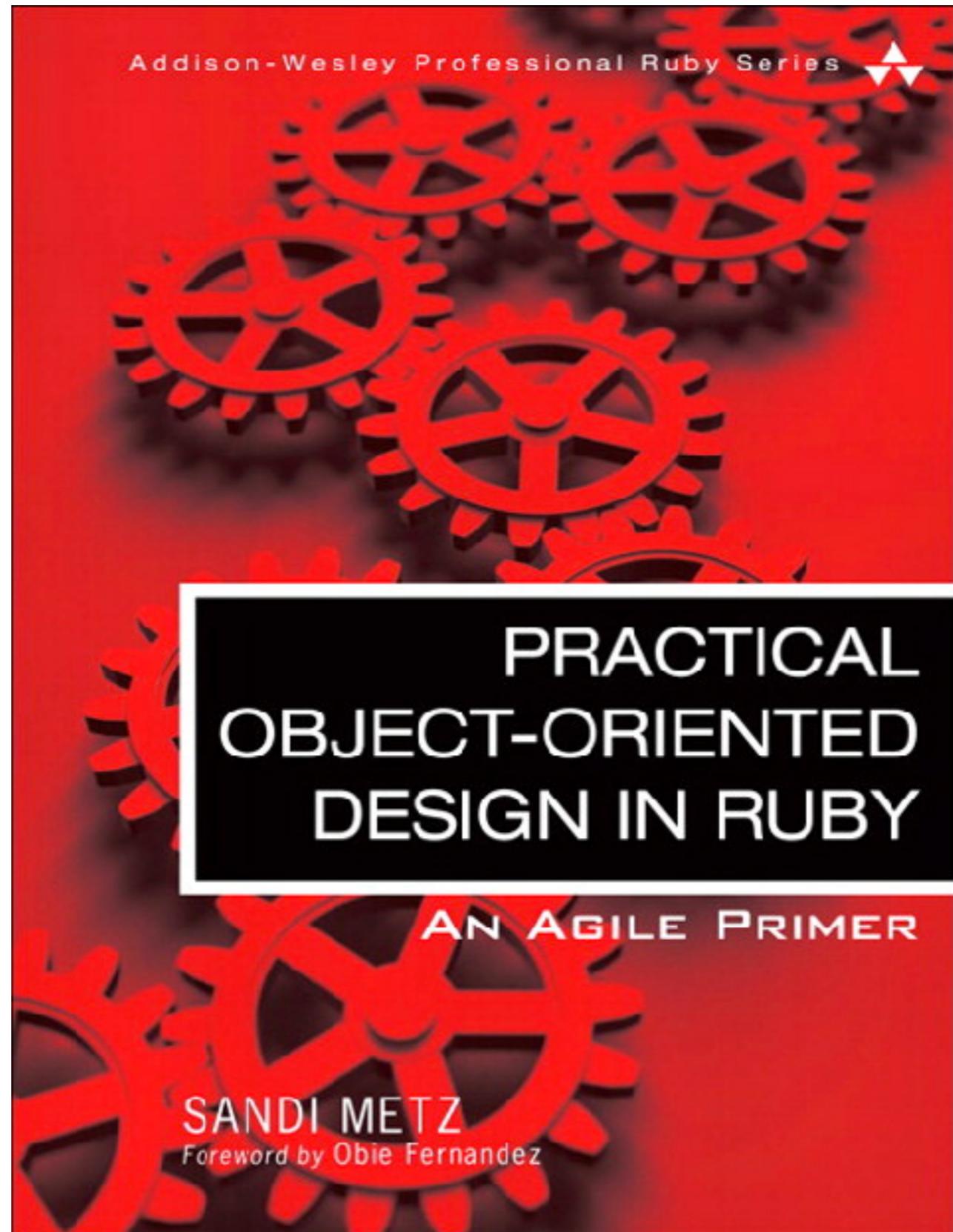
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# เราต้องการทำให้ระบบดีขึ้นใหม่ ?

# Are you too busy to improve?





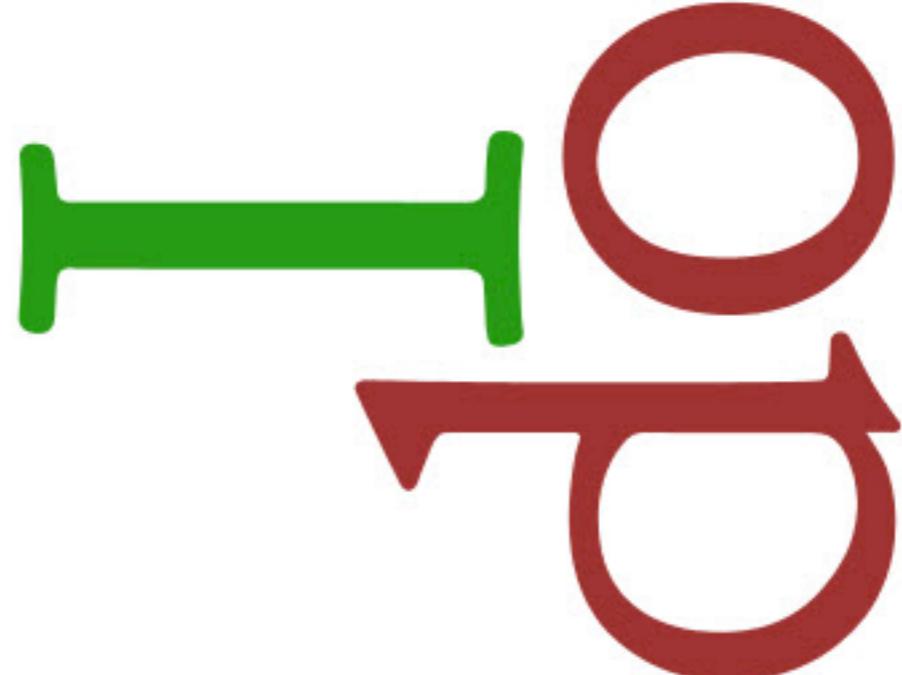
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# គោយ ၅ ការប្រើប្រាស់



**HLOW**





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# ทำให้เล็กลง



# GildedRose Kata

<https://github.com/emilybache/GildedRose-Refactoring-Kata>

```
class GildedRose {  
  
    private String name;  
    private int quality;  
    private int daysRemaining;  
  
    public GildedRose(String name, int quality, int daysRemaining) {...}  
  
    public void tick() {...}  
}
```

```
public void tick() {  
    if (name.equals("Aged Brie")  
        && !name.equals("Backstage passes to a TAFKAL80ETC concert")) {  
        if (quality > 0) {  
            if (!name.equals("Sulfuras, Hand of Ragnaros")) {  
                quality = quality - 1;  
            }  
        }  
    } else {  
        if (quality < 50) {  
            quality = quality + 1;  
  
            if (name.equals("Backstage passes to a TAFKAL80ETC concert")) {  
                if (daysRemaining < 11) {  
                    if (quality < 50) {  
                        quality = quality + 1;  
                    }  
                }  
  
                if (daysRemaining < 6) {  
                    if (quality < 50) {  
                        quality = quality + 1;  
                    }  
                }  
            }  
        }  
    }  
}
```

```
public void tick() {
    //Hide 26 lines

    if (!name.equals("Sulfuras, Hand of Ragnaros")) {
        daysRemaining = daysRemaining - 1;
    }

    if (daysRemaining < 0) {
        if (!name.equals("Aged Brie")) {
            if (!name.equals("Backstage passes to a TAFKAL80ETC concert")) {
                if (quality > 0) {
                    if (!name.equals("Sulfuras, Hand of Ragnaros")) {
                        quality = quality - 1;
                    }
                }
            } else {
                quality = quality - quality;
            }
        } else {
            if (quality < 50) {
                quality = quality + 1;
            }
        }
    }
}
```

```
public void tick() {
    if (name.equals("Aged Brie"))
        && !name.equals("Backstage passes to a TAFKAL80ETC concert")) {
        if (quality > 0) {
            if (!name.equals("Sulfuras, Hand of Ragnaros")) {
                quality = quality - 1;
            }
        }
    } else {
        if (quality < 50) {
            quality = quality + 1;

            if (name.equals("Backstage passes to a TAFKAL80ETC concert")) {
                if (daysRemaining < 11) {
                    if (quality < 50) {
                        quality = quality + 1;
                    }
                }

                if (daysRemaining < 6) {
                    if (quality < 50) {
                        quality = quality + 1;
                    }
                }
            }
        }
    }

    if (!name.equals("Sulfuras, Hand of Ragnaros")) {
        daysRemaining = daysRemaining - 1;
    }

    if (daysRemaining < 0) {
        if (!name.equals("Aged Brie")) {
            if (!name.equals("Backstage passes to a TAFKAL80ETC concert")) {
                if (quality > 0) {
                    if (!name.equals("Sulfuras, Hand of Ragnaros")) {
                        quality = quality - 1;
                    }
                }
            } else {
                quality = 0;
            }
        } else {
            if (quality < 50) {
                quality = quality + 1;
            }
        }
    }
}
```



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```
public void tick() {
    if (name.equals("Aged Brie"))
        && !name.equals("Backstage passes to a TAFKAL80ETC concert")) {
        if (quality > 0) {
            if (!name.equals("Sulfuras, Hand of Ragnaros")) {
                quality = quality - 1;
            }
        }
    } else {
        if (quality < 50) {
            quality = quality + 1;

            if (name.equals("Backstage passes to a TAFKAL80ETC concert")) {
                if (daysRemaining < 11) {
                    if (quality < 50) {
                        quality = quality + 1;
                    }
                }

                if (daysRemaining < 6) {
                    if (quality < 50) {
                        quality = quality + 1;
                    }
                }
            }
        }
    }

    if (!name.equals("Sulfuras, Hand of Ragnaros")) {
        daysRemaining = daysRemaining - 1;
    }

    if (daysRemaining < 0) {
        if (!name.equals("Aged Brie")) {
            if (!name.equals("Backstage passes to a TAFKAL80ETC concert")) {
                if (quality > 0) {
                    if (!name.equals("Sulfuras, Hand of Ragnaros")) {
                        quality = quality - 1;
                    }
                }
            } else {
                quality = 0;
            }
        } else {
            if (quality < 50) {
                quality = quality + 1;
            }
        }
    }
}
```

# Code มีกลิ่นตุ๊ๆ

sonarqube Dashboards Issues Measures Rules Quality Profiles Quality Gates More Log in Q ?

kata.gildedrose Version 1.0-SNAPSHOT / February 27 2016 9:51 AM

Overview Components Issues More

Main Dashboard Time changes...

Lines Of Code 72	Files 2	Functions 4	SQALE Rating <span>A</span>	Technical Debt Ratio 8.3%								
Java	Directories 1	Lines 92	Classes 2	Statements 31	Accessors 0	Debt 2h 59min	Issues 21	Blocker 0	Critical 0	Major 19	Minor 2	Info 0
Duplications 0.0%	Lines 0	Blocks 0	Files 0	Directory Tangle Index 0.0%	Dependencies To Cut Between Directories 0	Between Files 0						
Complexity 21	/Function 5.3	/Class 10.5	/File 10.5	Cycles > 0								

Complexity chart:

Complexity chart data:

Category	Value
Functions	3
Files	1

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# ค่าความซับซ้อน = 19 !!

```
public void tick() {
    if (name.equals("Aged Brie"))
        && !name.equals("Backstage passes to a TAFKAL80ETC concert")) {
        if (quality > 0) {
            if (!name.equals("Sulfuras, Hand of Ragnaros")) {
                quality = quality - 1;
            }
        }
    } else {
        if (quality < 50) {
            quality = quality + 1;
        }
        if (name.equals("Backstage passes to a TAFKAL80ETC concert")) {
            if (daysRemaining < 11)
                if (quality < 50)
                    quality = quality + 1;
        }
        if (daysRemaining < 6) {
            if (quality < 50) {
                quality = quality + 1;
            }
        }
    }
}

if (!name.equals("Sulfuras, Hand of Ragnaros")) {
    daysRemaining = daysRemaining - 1;
}

if (daysRemaining < 0) {
    if (!name.equals("Aged Brie")) {
        if (!name.equals("Backstage passes to a TAFKAL80ETC concert")) {
            if (quality > 0) {
                if (!name.equals("Sulfuras, Hand of Ragnaros")) {
                    quality = quality - 1;
                }
            }
        } else {
            quality = 0;
        }
    } else {
        if (quality < 50) {
            quality = quality + 1;
        }
    }
}
```

```
public void tick() {
    if (name.equals("Aged Brie"))
        && !name.equals("Backstage passes to a TAFKAL80ETC concert")) {
        if (quality > 0) {
            if (!name.equals("Sulfuras, Hand of Ragnaros")) {
                quality = quality - 1;
            }
        }
    } else {
        if (quality < 50) {
            quality = quality + 1;
        }
        if (name.equals("Backstage passes to a TAFKAL80ETC concert")) {
            if (daysRemaining < 11) {
                if (quality < 50) {
                    quality = quality + 1;
                }
            }
            if (daysRemaining < 6) {
                if (quality < 50) {
                    quality = quality + 1;
                }
            }
        }
    }
}

if (!name.equals("Sulfuras, Hand of Ragnaros")) {
    daysRemaining = daysRemaining - 1;
}

if (daysRemaining < 0) {
    if (!name.equals("Aged Brie")) {
        if (!name.equals("Backstage passes to a TAFKAL80ETC concert")) {
            if (quality > 0) {
                if (!name.equals("Sulfuras, Hand of Ragnaros")) {
                    quality = quality - 1;
                }
            }
        } else {
            quality = 0;
        }
    } else {
        if (quality < 50) {
            quality = quality + 1;
        }
    }
}
}
```

# Magic String !!

```
public void tick() {
    if (name.equals("Aged Brie"))
        && !name.equals("Backstage passes to a TAFKAL80ETC concert")) {
        if (quality > 0) {
            if (!name.equals("Sulfuras, Hand of Ragnaros")) {
                quality = quality - 1;
            }
        }
    } else {
        if (quality < 50) {
            quality = quality + 1;
        }
        if (name.equals("Backstage passes to a TAFKAL80ETC concert")) {
            if (daysRemaining < 11) {
                if (quality < 50) {
                    quality = quality + 1;
                }
            }
            if (daysRemaining < 10) {
                if (quality < 50) {
                    quality = quality + 1;
                }
            }
        }
    }
    if (!name.equals("Sulfuras, Hand of Ragnaros")) {
        daysRemaining = daysRemaining - 1;
    }
}

if (daysRemaining < 0) {
    if (!name.equals("Aged Brie")) {
        if (!name.equals("Backstage passes to a TAFKAL80ETC concert")) {
            if (quality > 0) {
                if (!name.equals("Sulfuras, Hand of Ragnaros")) {
                    quality = quality - 1;
                }
            }
        } else {
            quality = 0;
        }
    } else {
        if (quality < 50) {
            quality = quality + 1;
        }
    }
}
}
```

# Magic String !!

Aged Brie  
Backstage passes to a TAFKAL80ETC concert

Sulfuras, Hand of Ragnaros

Conjured



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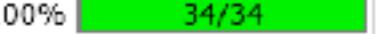
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เขียน test สี

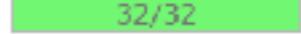
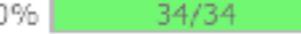
# TDDer ?



## Coverage Report - kata.GildedRose

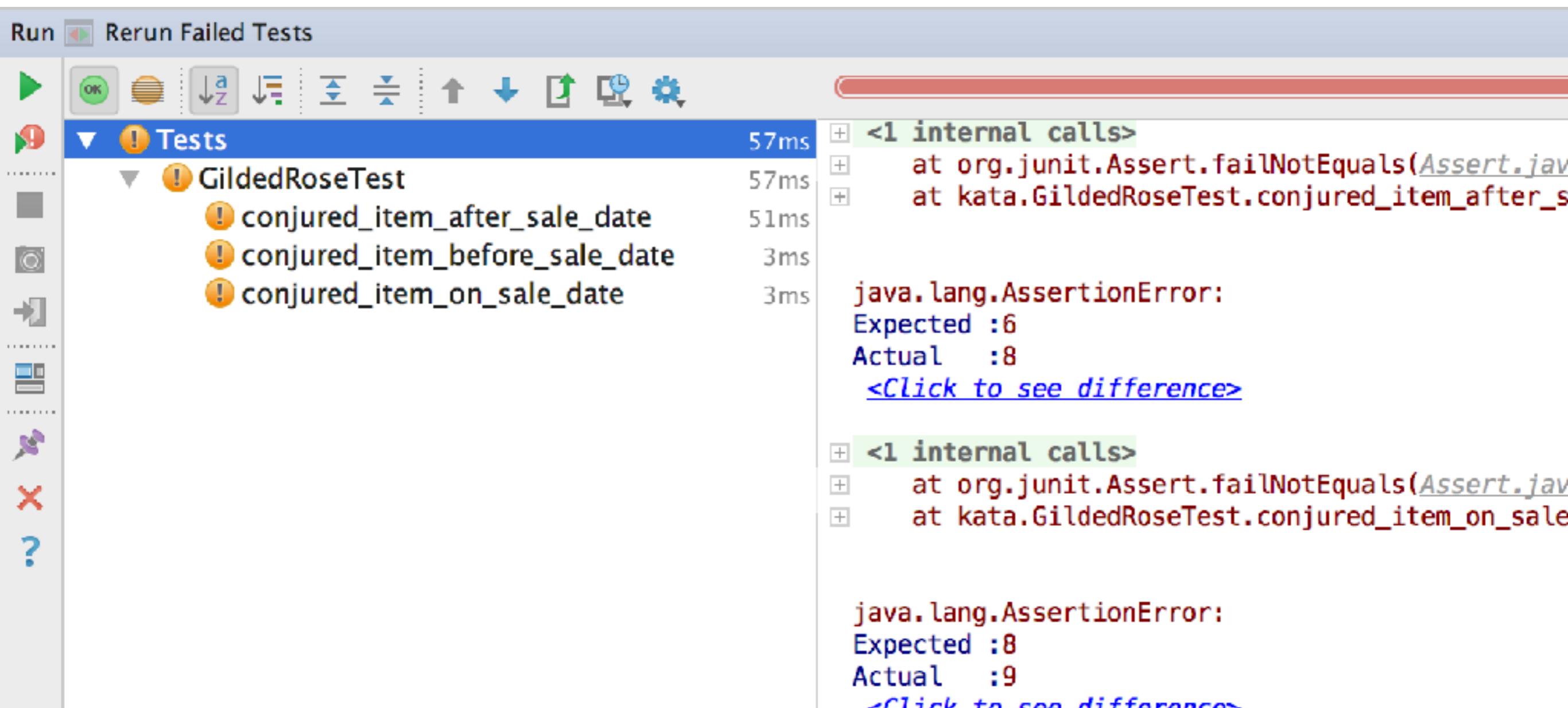
Classes in this File		Line Coverage	Branch Coverage
GildedRose		100%  32/32	100%  34/34
1	package kata;		
2	class GildedRose {		
3	private String name;		
4	private int quality;		
5	private int daysRemaining;		
6	public GildedRose(String name, int quality, int daysRemaining) {		
7	this.name = name;		
8	this.quality = quality;		
9	this.daysRemaining = daysRemaining;		
10	}		
11	public void updateQuality() {		
12	if (!name.equals("Aged Brie")		
13	&& !name.equals("Backstage passes to a TAFKAL80ETC concert")) {		
14	if (quality > 0) {		
15	if (!name.equals("Sulfuras, Hand of Ragnaros")) {		
16	quality -= 1;		
17	}		
18	}		
19	} else {		
20	if (quality < 50) {		
21	quality += 1;		
22	}		
23	}		
24	if (name.equals("Backstage passes to a TAFKAL80ETC concert")) {		
25	if (daysRemaining < 11) {		
26	if (quality < 50) {		
27	quality += 1;		
28	}		
29	}		
30	if (daysRemaining < 6) {		
31	if (quality < 50) {		
32	quality += 1;		
33	}		
34	}		
35	}		
36	}		
37	}		
38	}		
39	}		
40	}		
41	}		

## Coverage Report - kata.GildedRose

Classes in this File		Line Coverage		Branch Coverage	
<a href="#">GildedRose</a>		100%  32/32		100%  34/34	
1	package kata;				
2					
3	class GildedRose {				
4					
5	private String name;				
6	private int quality;				
7	private int daysRemaining;				
8					
9 23	public GildedRose(String name, int quality, int daysRemaining) {				
10 23	this.name = name;				
11 23	this.quality = quality;				
12 23	this.daysRemaining = daysRemaining;				
13 23	}				
14					
15	public void updateQuality() {				
16 23	if (!name.equals("Aged Brie")				
17 18	&& !name.equals("Backstage passes to a TAFKAL80ETC concert")) {				
18 8	if (quality > 0) {				
19 6	if (!name.equals("Sulfuras, Hand of Ragnaros")) {				
20 3	quality -= 1;				
21	}				
22	}				
23	} else {				
24 15	if (quality < 50) {				
25 11	quality += 1;				
26					
27 11	if (name.equals("Backstage passes to a TAFKAL80ETC concert")) {				
28 8	if (daysRemaining < 11) {				
29 7	if (quality < 50) {				
30 5	quality += 1;				
31	}				
32	}				
33					
34 8	if (daysRemaining < 6) {				
35 4	if (quality < 50) {				
36 3	quality += 1;				
37	}				
38	}				
39					
40	}				
41					
42	}				

# Test Coverage 100%

# พบว่า มีบาง feature ยังไม่เสร็จ !!





# ทำอย่างไรดี ?

```
@Test @Ignore
public void conjured_item_before_sale_date() {...}

@Test @Ignore
public void conjured_item_before_sale_date_with_zero_quality() {...}

@Test @Ignore
public void conjured_item_on_sale_date() {...}

@Test @Ignore
public void conjured_item_on_sale_date_with_zero_quality() {...}

@Test @Ignore
public void conjured_item_after_sale_date() {...}

@Test @Ignore
public void conjured_item_after_sale_date_with_zero_quality() {...}
```

## TESTS

Running kata.GildedRoseTest

Tests run: 29, Failures: 0, Errors: 0, Skipped: 6, Time elapsed: 0.135 sec

Results :

Tests run: 29, Failures: 0, Errors: 0, Skipped: 6

แล้วไง ?

# Listen Your Code



SPRINT3R

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```
1 public void normal_item_before_sale_date()
2 public void normal_item_on_sale_date()
3 public void normal_item_after_sale_date()
4 public void normal_item_of_zero_quality()
5 public void aged_brie_item_before_sale_date()
6 public void aged_brie_item_before_sale_date_with_max_quality()
7 public void aged_brie_item_on_sale_date()
8 public void aged_brie_item_after_sale_date()
9 public void aged_brie_item_after_sale_date_with_max_quality()
10 public void sulfuras_item_before_sale_date()
```

11

12

13

14

15

# ແປ່ງກຸມການທຳງານ ?

```
16 public void backstage_pass_medium_close_to_sell_date_lower_bound(),
17 public void backstage_pass_medium_close_to_sell_date_lower_bound_with_max_quality()
18 public void backstage_pass_medium_close_to_sell_date_lower_bound_with_max_quality2()
19 public void backstage_pass_very_close_to_sell_date_upper_bound()
20 public void backstage_pass_very_close_to_sell_date_upper_bound_with_max_quatity()
21 public void backstage_pass_very_close_to_sell_date_upper_bound_with_max_quatity2()
22 public void backstage_pass_item_on_sale_date()
23 public void backstage_pass_item_after_sale_date()
24 public void conjured_item_before_sale_date()
25 public void conjured_item_before_sale_date_with_zero_quality()
26 public void conjured_item_on_sale_date()
27 public void conjured_item_on_sale_date_with_zero_quality()
28 public void conjured_item_after_sale_date()
29 public void conjured_item_after_sale_date_with_zero_quality()
```

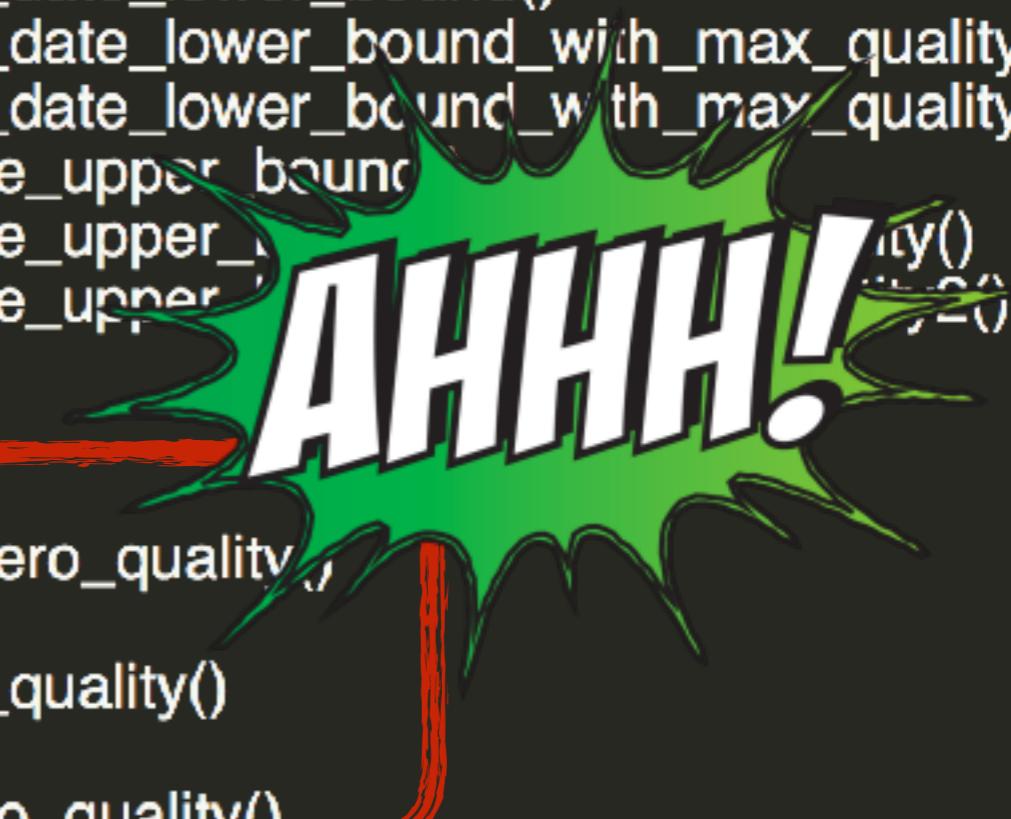
```
1 public void normal_item_before_sale_date()
2 public void normal_item_on_sale_date()
3 public void normal_item_after_sale_date()
4 public void normal_item_of_zero_quality()
5 public void aged_brie_item_before_sale_date()
6 public void aged_brie_item_before_sale_date_with_max_quality()
7 public void aged_brie_item_on_sale_date()
8 public void aged_brie_item_after_sale_date()
9 public void aged_brie_item_after_sale_date_with_max_quality()
10 public void sulfuras_item_before_sale_date()
11 public void sulfuras_item_on_sale_date()
12 public void sulfuras_item_after_sale_date()
13 public void sulfuras_item_after_sale_date2()
14 public void backstage_passes_item_long_before_sale_date()
15 public void backstage_pass_medium_close_to_sell_date_upper_bound()
16 public void backstage_pass_medium_close_to_sell_date_lower_bound()
17 public void backstage_pass_medium_close_to_sell_date_lower_bound_with_max_quality()
18 public void backstage_pass_medium_close_to_sell_date_lower_bound_with_max_quality2()
19 public void backstage_pass_very_close_to_sell_date_upper_bound()
20 public void backstage_pass_very_close_to_sell_date_upper_bound_with_max_quatity()
21 public void backstage_pass_very_close_to_sell_date_upper_bound_with_max_quatity2()
22 public void backstage_pass_item_on_sale_date()
23 public void backstage_pass_item_after_sale_date()
24 public void conjured_item_before_sale_date()
25 public void conjured_item_before_sale_date_with_zero_quality()
26 public void conjured_item_on_sale_date()
27 public void conjured_item_on_sale_date_with_zero_quality()
28 public void conjured_item_after_sale_date()
29 public void conjured_item_after_sale_date_with_zero_quality()
```

```
1 public void normal_item_before_sale_date()
2 public void normal_item_on_sale_date()
3 public void normal_item_after_sale_date()
4 public void normal_item_of_zero_quality()
5 public void aged_brie_item_before_sale_date()
6 public void aged_brie_item_before_sale_date_with_max_quality()
7 public void aged_brie_item_on_sale_date()
8 public void aged_brie_item_after_sale_date()
9 public void aged_brie_item_after_sale_date_with_max_quality()
10 public void sulfuras_item_before_sale_date()
11 public void sulfuras_item_on_sale_date()
12 public void sulfuras_item_after_sale_date()
13 public void sulfuras_item_after_sale_date2()
14 public void backstage_passes_item_long_before_sale_date()
15 public void backstage_pass_medium_close_to_sell_date_upper_bound()
16 public void backstage_pass_medium_close_to_sell_date_lower_bound()
17 public void backstage_pass_medium_close_to_sell_date_lower_bound_with_max_quality()
18 public void backstage_pass_medium_close_to_sell_date_lower_bound_with_max_quality2()
19 public void backstage_pass_very_close_to_sell_date_upper_bound()
20 public void backstage_pass_very_close_to_sell_date_upper_bound_with_max_quatity()
21 public void backstage_pass_very_close_to_sell_date_upper_bound_with_max_quatity2()
22 public void backstage_pass_item_on_sale_date()
23 public void backstage_pass_item_after_sale_date()
24 public void conjured_item_before_sale_date()
25 public void conjured_item_before_sale_date_with_zero_quality()
26 public void conjured_item_on_sale_date()
27 public void conjured_item_on_sale_date_with_zero_quality()
28 public void conjured_item_after_sale_date()
29 public void conjured_item_after_sale_date_with_zero_quality()
```

```
1 public void normal_item_before_sale_date()
2 public void normal_item_on_sale_date()
3 public void normal_item_after_sale_date()
4 public void normal_item_of_zero_quality()
5 public void aged_brie_item_before_sale_date()
6 public void aged_brie_item_before_sale_date_with_max_quality()
7 public void aged_brie_item_on_sale_date()
8 public void aged_brie_item_after_sale_date()
9 public void aged_brie_item_after_sale_date_with_max_quality()
10 public void sulfuras_item_before_sale_date()
11 public void sulfuras_item_on_sale_date()
12 public void sulfuras_item_after_sale_date()
13 public void sulfuras_item_after_sale_date2()
14 public void backstage_passes_item_long_before_sale_date()
15 public void backstage_pass_medium_close_to_sell_date_upper_bound()
16 public void backstage_pass_medium_close_to_sell_date_lower_bound()
17 public void backstage_pass_medium_close_to_sell_date_lower_bound_with_max_quality()
18 public void backstage_pass_medium_close_to_sell_date_lower_bound_with_max_quality2()
19 public void backstage_pass_very_close_to_sell_date_upper_bound()
20 public void backstage_pass_very_close_to_sell_date_upper_bound_with_max_quatity()
21 public void backstage_pass_very_close_to_sell_date_upper_bound_with_max_quatity2()
22 public void backstage_pass_item_on_sale_date()
23 public void backstage_pass_item_after_sale_date()
24 public void conjured_item_before_sale_date()
25 public void conjured_item_before_sale_date_with_zero_quality()
26 public void conjured_item_on_sale_date()
27 public void conjured_item_on_sale_date_with_zero_quality()
28 public void conjured_item_after_sale_date()
29 public void conjured_item_after_sale_date_with_zero_quality()
```

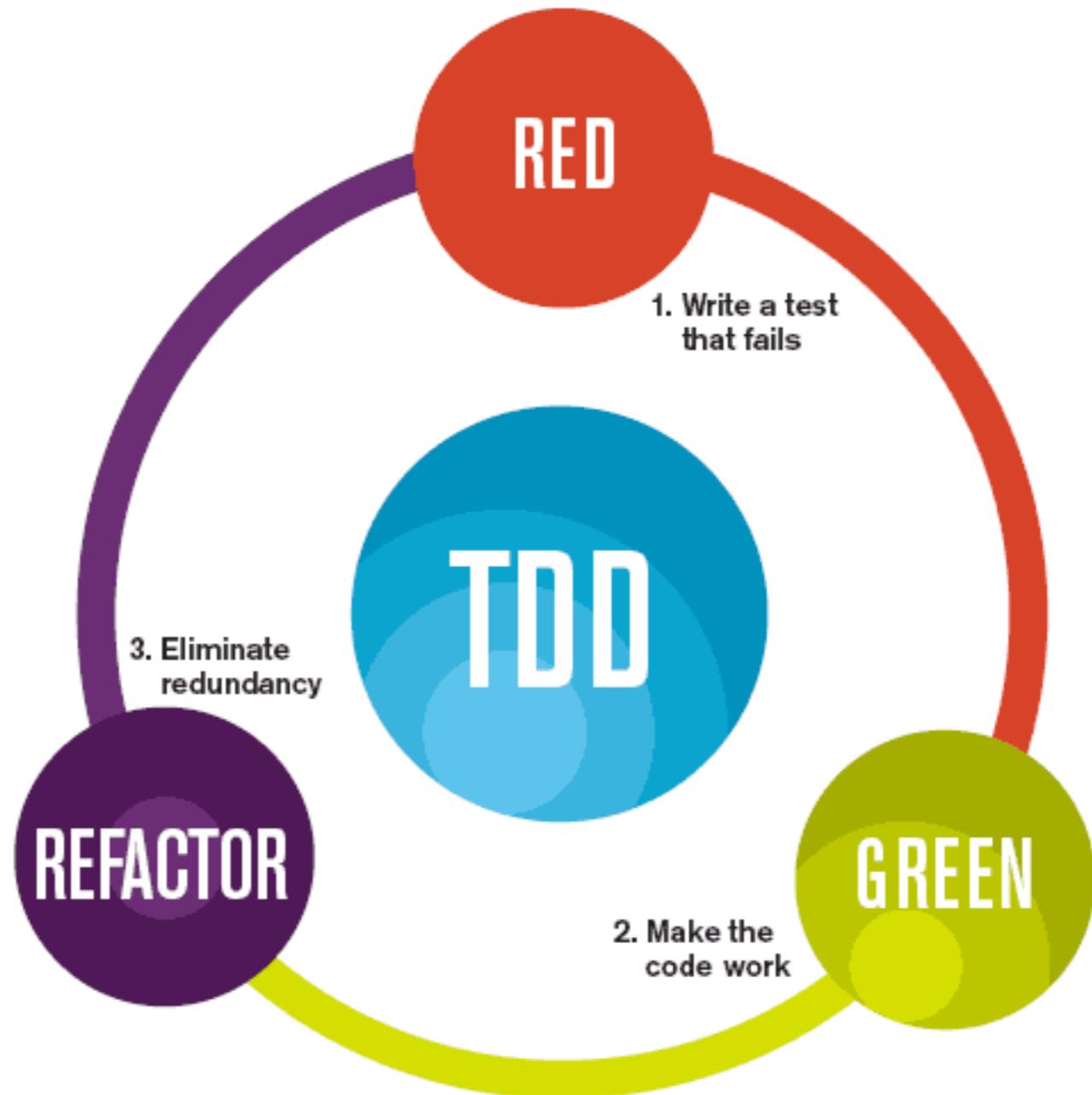
```
1 public void normal_item_before_sale_date()
2 public void normal_item_on_sale_date()
3 public void normal_item_after_sale_date()
4 public void normal_item_of_zero_quality()
5 public void aged_brie_item_before_sale_date()
6 public void aged_brie_item_before_sale_date_with_max_quality()
7 public void aged_brie_item_on_sale_date()
8 public void aged_brie_item_after_sale_date()
9 public void aged_brie_item_after_sale_date_with_max_quality()
10 public void sulfuras_item_before_sale_date()
11 public void sulfuras_item_on_sale_date()
12 public void sulfuras_item_after_sale_date()
13 public void sulfuras_item_after_sale_date2()
14 public void backstage_passes_item_long_before_sale_date()
15 public void backstage_pass_medium_close_to_sell_date_upper_bound()
16 public void backstage_pass_medium_close_to_sell_date_lower_bound()
17 public void backstage_pass_medium_close_to_sell_date_lower_bound_with_max_quality()
18 public void backstage_pass_medium_close_to_sell_date_lower_bound_with_max_quality2()
19 public void backstage_pass_very_close_to_sell_date_upper_bound()
20 public void backstage_pass_very_close_to_sell_date_upper_bound_with_max_quatity()
21 public void backstage_pass_very_close_to_sell_date_upper_bound_with_max_quatity2()
22 public void backstage_pass_item_on_sale_date()
23 public void backstage_pass_item_after_sale_date()
24 public void conjured_item_before_sale_date()
25 public void conjured_item_before_sale_date_with_zero_quality()
26 public void conjured_item_on_sale_date()
27 public void conjured_item_on_sale_date_with_zero_quality()
28 public void conjured_item_after_sale_date()
29 public void conjured_item_after_sale_date_with_zero_quality()
```

```
1 public void normal_item_before_sale_date()
2 public void normal_item_on_sale_date()
3 public void normal_item_after_sale_date()
4 public void normal_item_of_zero_quality()
5 public void aged_brie_item_before_sale_date()
6 public void aged_brie_item_before_sale_date_with_max_quality()
7 public void aged_brie_item_on_sale_date()
8 public void aged_brie_item_after_sale_date()
9 public void aged_brie_item_after_sale_date_with_max_quality()
10 public void sulfuras_item_before_sale_date()
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12 public void sulfuras_item_after_sale_date()
13 public void sulfuras_item_after_sale_date2()
14 public void backstage_passes_item_long_before_sale_date()
15 public void backstage_pass_medium_close_to_sell_date_upper_bound()
16 public void backstage_pass_medium_close_to_sell_date_lower_bound()
17 public void backstage_pass_medium_close_to_sell_date_lower_bound_with_max_quality()
18 public void backstage_pass_medium_close_to_sell_date_lower_bound_with_max_quality2()
19 public void backstage_pass_very_close_to_sell_date_upper_bound()
20 public void backstage_pass_very_close_to_sell_date_upper_bound()
21 public void backstage_pass_very_close_to_sell_date_upper_bound()
22 public void backstage_pass_item_on_sale_date()
23 public void backstage_pass_item_after_sale_date()
24 public void conjured_item_before_sale_date()
25 public void conjured_item_before_sale_date_with_zero_quality()
26 public void conjured_item_on_sale_date()
27 public void conjured_item_on_sale_date_with_zero_quality()
28 public void conjured_item_after_sale_date()
29 public void conjured_item_after_sale_date_with_zero_quality()
```



# Refactoring code + Implement

# Fast feedback





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# เริ่มจากอะไร ?

# Normal case

# Start with test case

```
@Test  
public void normal_item_before_sale_date() {  
    GildedRose gildedRose = new GildedRose("normal", 10, 5);  
    gildedRose.updateQuality();  
    assertEquals(9, gildedRose.getQuality());  
}
```

# Modify production code

```
if(name.equals("normal")) {  
    updateQualityOfNormal();  
    return;  
}  
}
```

```
if (!name.equals("Aged Brie")  
    && !name.equals("Backstage passes to  
if (quality > 0) {  
    if (!name.equals("Sulfuras, Hand of
```

# Run test

```
java.lang.AssertionError:  
Expected :9  
Actual   :10  
<Click to see difference>
```

- + <1 internal calls>
- + at org.junit.Assert.failNotEquals([Assert.java:834](#)) <2 internal call>
- + at kata.GildedRoseTest.normal\_item\_before\_sale\_date([GildedRoseTest](#)

Process finished with exit code 255

# Modify production code

```
private void updateQualityOfNormal() {  
    this.quality -=1;  
}
```

# Run test

PASS

# Test case ຕ່ອໄປ

# Start with test case

```
@Test  
public void normal_item_on_sale_date() {  
    GildedRose gildedRose = new GildedRose("normal", 10, 0);  
    gildedRose.updateQuality();  
    assertEquals(8, gildedRose.getQuality());  
}
```

# Modify production code

```
private void updateQualityOfNormal() {  
    if(this.daysRemaining > 0) {  
        this.quality -= 1;  
    }  
    if( this.daysRemaining <= 0) {  
        this.quality -= 2;  
    }  
    this.daysRemaining -= 1;  
}
```

# Run test

PASS

# Test case ຕ່ອໄປ

# Start with test case

```
@Test  
public void normal_item_of_zero_quality() {  
    GildedRose gildedRose = new GildedRose("normal", 0, 10);  
    gildedRose.updateQuality();  
    assertEquals(0, gildedRose.getQuality());  
}
```

# Modify production code

```
private void updateQualityOfNormal() {  
    if(this.quality != 0) {  
        if (this.daysRemaining > 0) {  
            this.quality -= 1;  
        }  
        if (this.daysRemaining <= 0) {  
            this.quality -= 2;  
        }  
    }  
    this.daysRemaining -= 1;  
}
```

# Run test

PASS

# ทำอะไรต่อไปดี ?

# Better code !!

```
private void updateQualityOfNormal() {  
    if(this.quality != 0) {  
        if (this.daysRemaining > 0) {  
            this.quality -= 1;  
        }  
        if (this.daysRemaining <= 0) {  
            this.quality -= 2;  
        }  
    }  
    this.daysRemaining -= 1;  
}
```

ทำการ refactor code  
เมื่อ Green เท่านั้น !!

# Better code !!

```
private void updateQualityOfNormal() {  
    this.daysRemaining -= 1;  
    if (this.quality == 0) {  
        return;  
    }  
  
    this.quality -= 1;  
  
    if (this.daysRemaining <= 0) {  
        this.quality -= 1;  
    }  
}
```

# Run test

PASS

# Normal case



# Aged Brie case

# Modify production code

```
public void updateQuality() {  
  
    if (name.equals("normal")) {  
        updateQualityOfNormal();  
        return;  
    } else if (name.equals("Aged Brie")) {  
        updateQualityOfAgedBrie();  
        return;  
    }  
}
```

# Run test

```
Test ignored.  
Test ignored.  
java.lang.AssertionError:  
Expected :12  
Actual   :10  
<Click to see difference>
```

```
+ <1 internal calls>  
+   at org.junit.Assert.failNotEquals(Assert.java:834) <2 internal calls>  
+   at kata.GildedRoseTest.aged_brie_item_after_sale_date(GildedRoseTest.java:63) <34 internal calls>
```

```
java.lang.AssertionError:  
Expected :11  
Actual   :10  
<Click to see difference>
```

```
+ <1 internal calls>  
+   at org.junit.Assert.failNotEquals(Assert.java:834) <2 internal calls>  
+   at kata.GildedRoseTest.aged_brie_item_before_sale_date(GildedRoseTest.java:42) <34 internal calls>
```

```
Test ignored.  
java.lang.AssertionError:  
Expected :12  
Actual   :10  
<Click to see difference>
```

```
+ <1 internal calls>  
+   at org.junit.Assert.failNotEquals(Assert.java:834) <2 internal calls>  
+   at kata.GildedRoseTest.aged_brie_item_on_sale_date(GildedRoseTest.java:56) <34 internal calls>
```

# Modify production code

```
private void updateQualityOfAgedBrie() {  
    this.daysRemaining -= 1;  
    this.quality += 1;  
    if (this.daysRemaining <= 0) {  
        this.quality += 1;  
    }  
}
```

# Run test

PASS

# ทำอะไรต่อไปดี ?

# Modify production code

```
public void updateQuality() {  
  
    if (name.equals("normal")) {  
        updateQualityOfNormal();  
        return;  
    } else if (name.equals("Aged Brie")) {  
        updateQualityOfAgedBrie();  
        return;  
    } else if (name.equals("Sulfuras, Hand of Ragnaros")) {  
        updateQualityOfSulfuras();  
        return;  
    } else if (name.equals("Backstage passes to a TAFKAL80ETC concert")) {  
        updateQualityOfBackstage();  
        return;  
    }  
}
```

# Small method มันคือว่านะ

ເຫັນວະໄຮທ໌ມັນຈຳ ຖໍ່ໄໝ ?

Duplication is chapter  
than the wrong abstraction

# ทำอย่างไรล่ะ ?



# OPEN CLOSED PRINCIPLE

Open Chest Surgery Is Not Needed When Putting On A Coat

<https://github.com/up1/kata-gildedrose>