

Relatório Fase 1

Engenharia de Software 22/23

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Code Smells:

Gonçalo Silva

1. Comment Smell
2. Long Method
3. Dead Code

Manuel Jardim

1. Long Method
2. Speculative Generality
3. Dead Code

Martim Gamboa

1. Long Method
2. Message Chain
3. Data Class

Simão Pires

1. Large Class
2. Message Chain
3. Long Method

Sebastião Jerónimo

1. Data Class
2. Large Class
3. Comment Smell

Design Patterns:

Gonçalo Silva

1. Interpreter
2. Memento
3. Abstract Factory

Manuel Jardim

1. Composite
2. Iterator
3. Abstract Factory

Martim Gamboa

1. Facade
2. Iterator
3. Composite

Simão Pires

1. Template
2. Abstract Factory
3. Facade

Sebastião Jerónimo

1. Memento
2. Abstract Iterator
3. State

Code Smells

Autor: Gonalo Silva

1. Comment Smell

Localizao: ganttproject\bizz.ganttproject.core\src\main\java\biz.ganttproject\core\calendar\walker\WeekendCalendarImpl.java

O mtodo setPublicHolidays, em WeekendCalendarImpl, apresenta um Comment Smell porque tem cdigo comentado, no sendo por isso usado, contribuindo para o aumento desnecessrio de tamanho do ficheiro.

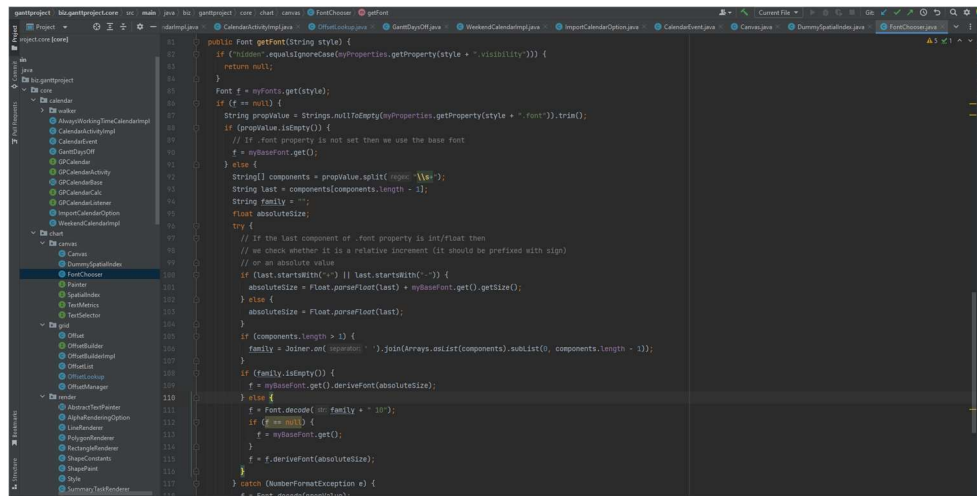
```
public void setPublicHolidays(Collection<CalendarEvent> holidays) {
    myRecurringEvents.clear();
    myOneOffEvents.clear();
    for (CalendarEvent h : holidays) {
        if (h.isRecurring) {
            myCalendar.setTime(h.myDate);
            myCalendar.set(Calendar.YEAR, DUMMY_YEAR_FOR_RECURRING_EVENTS);
            myRecurringEvents.put(myCalendar.getTime(), h);
        } else {
            myOneOffEvents.put(h.myDate, h);
        }
    }
    fireCalendarChanged();
    // myCalendarUrl = calendarUrl;
    // clearPublicHolidays();
    // if (calendarUrl != null) {
    //     XMLCalendarOpen opener = new XMLCalendarOpen();
    //
    //     HolidayTagHandler tagHandler = new HolidayTagHandler(this);
    //
    //     opener.addTagHandler(tagHandler);
    //     opener.addParsingListener(tagHandler);
    //     try {
    //         opener.load(calendarUrl.openStream());
    //     } catch (Exception e) {
    //         throw new RuntimeException(e);
    //     }
    // }
}
```

Reviewer: Sebasto Jernimo

2. Long Method

Localização: ganttproject\bizz.ganttproject.core\src\main\java\biz.ganttproject\core\calendar\chart\canvas\FontChooser.java

Este code smell é um Long Method Smell, o método `getFont()` é demasiado grande, podendo ser encurtado com a criação métodos auxiliares.



Reviewer: Martim Gamboa

3. Dead Code

Localização: ganttproject\bizz.ganttproject.core\src\main\java\biz.ganttproject\core\calendar\walker\GanttDaysOff.java

O método `isADayOffInWeek`, na classe `GanttDaysOff` apresenta um Dead Code Smell, pois é um método que nunca é usado.

```
public int isADayOffInWeek(Date date) {
    GanttCalendar start = myStart.clone();
    GanttCalendar finish = myFinish.clone();
    for (int i = 0; i < 7; i++) {
        start.add(Calendar.DATE, amount: -1);
        finish.add(Calendar.DATE, amount: -1);
        if (date.equals(start.getTime()) || date.equals(finish.getTime())
            || (date.before(finish.getTime()) && date.after(start.getTime())))
            return i + 1;
    }
    return -1;
}
```

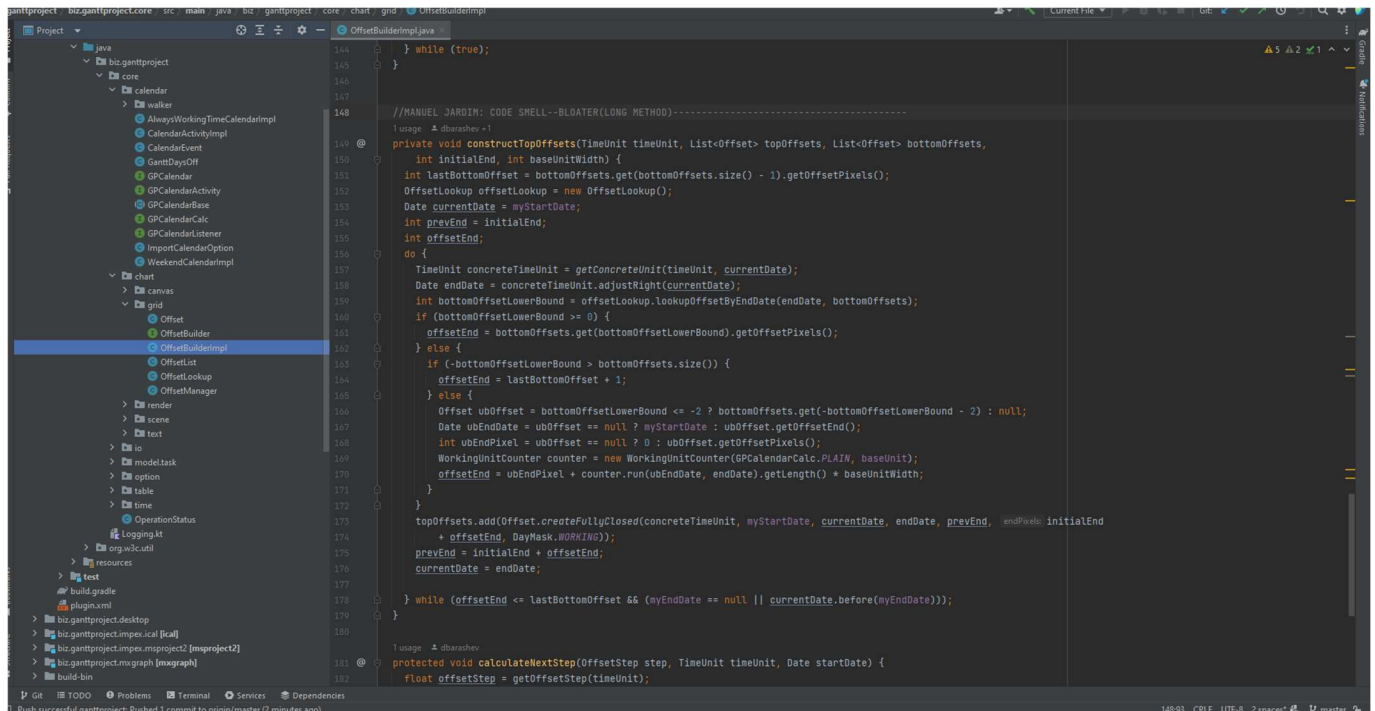
Reviewer: Manuel Jardim

Autor: Manuel Jardim

1. Long Method

Localização: ganttproject\bizz.ganttproject.core\src\main\java\biz.ganttproject\core\chart\grid\OffsetBuilderImpl.java

Este code smell é um Long Method, pois é desnecessariamente extenso, e facilmente se poderia dividir em vários pequenos metodos.

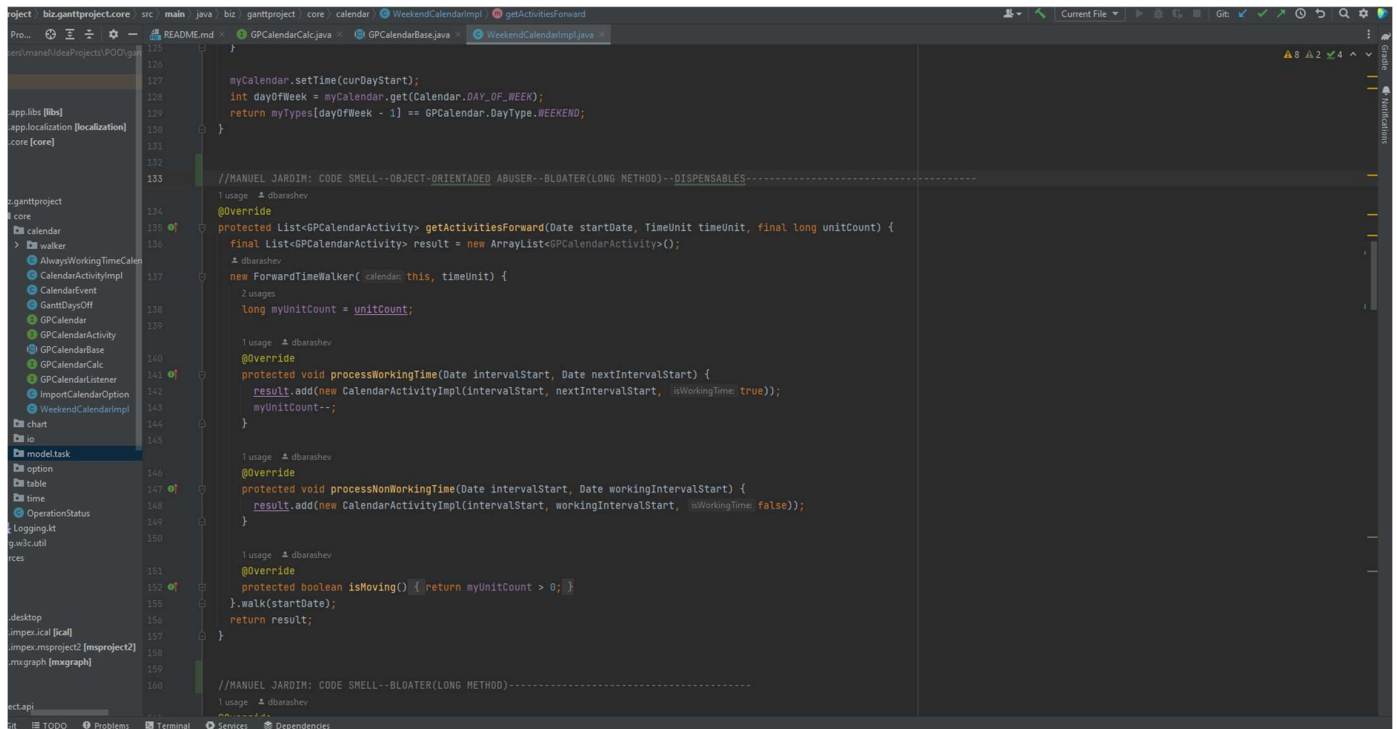


Reviewer: Simão Pires

2. Speculative Generality

Localização: ganttproject\bizz.ganttproject.core\src\main\java\biz.ganttproject\core\calendar\WeekendCalendarImpl.java

Este code smell é uma Speculative Generality, pois implementou-se metodos dentro da classe que acabaram por nunca ser chamados pela mesma classe que os contém.

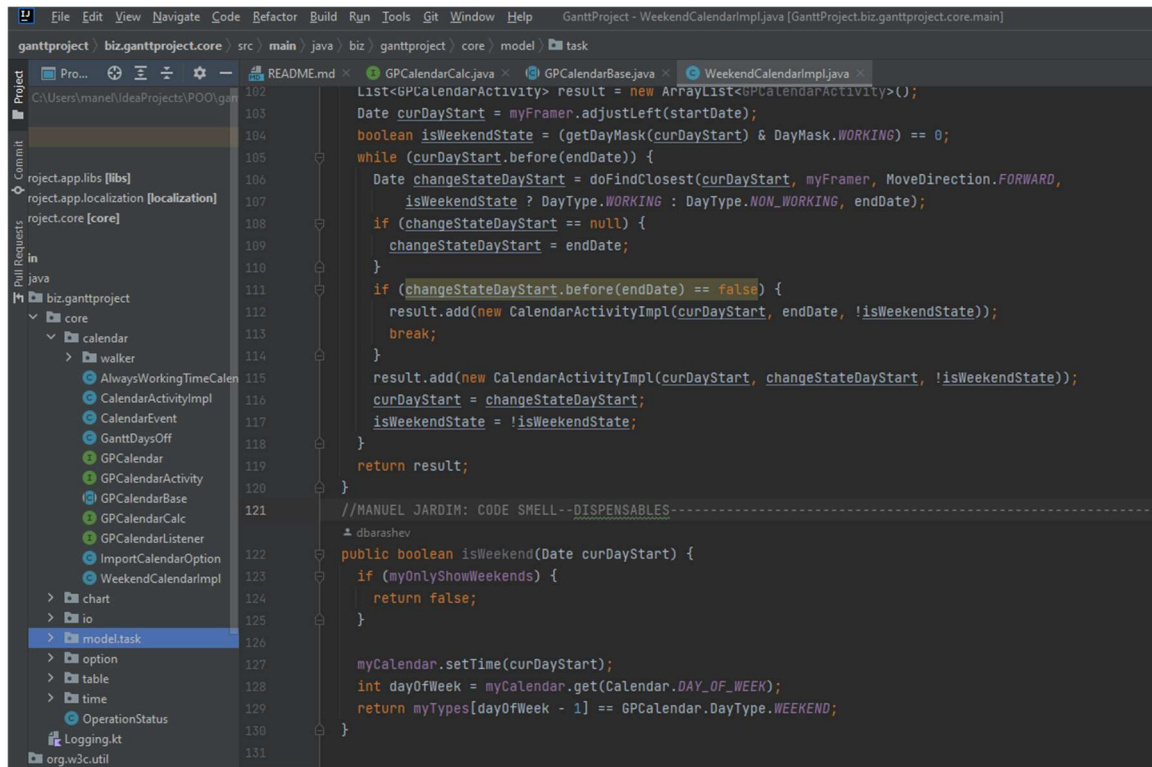


Reviewer: Martim Gamboa

3. Dead Code

Localização: ganttproject\biz.ganttproject.core\src\main\java\biz.ganttproject\core\calendar\WeekendCalendarImpl.java

O método `isWeekend` nunca é usado, sendo então um code smell Dead Code.



Reviewer: Sebastião Jerónimo

Autor: Martim Gamboa

1. Long Method

Localização: ganttproject\ganttp\src\main\java\net\sourceforge\ganttp\GanttOptions.java

Este método tem um total de 204 linhas, podendo ser dividido em múltiplos métodos de modo a tornar o código mais claro.

```
  dbarashev +3  
  @Override  
  public void startElement(String namespaceURI, String sName, // simple name  
                          String qName, // qualified name  
                          Attributes attrs) throws SAXException {
```

Reviewer: Gonçalo Silva

2. Message Chain

Localização: ganttproject\ganttp\src\main\java\net\sourceforge\ganttp\chart\ChartViewState.java

Estes métodos invocam uma cadeia de objetos, podendo qualquer alteração na relação entre eles fazer com que os métodos deixem de funcionar.

```
3 usages  dbarashev  
public int getBottomUnitWidth() { return getCurrentZoomState().getBottomUnitWidth(); }  
  
3 usages  dbarashev  
public TimeUnit getTopTimeUnit() { return getCurrentZoomState().getTimeUnitPair().getTopTimeUnit(); }  
  
3 usages  dbarashev  
public TimeUnit getBottomTimeUnit() { return getCurrentZoomState().getTimeUnitPair().getBottomTimeUnit(); }  
  
3 usages  dbarashev  
public ZoomManager.ZoomState getCurrentZoomState() { return myCurrentZoomState; }
```

Reviewer: Simão Pires

3. Data Class

Localização: ganttproject\ganttpproject\src\main\java\net\sourceforge\ganttpproject\task\event\TaskDependencyEvent.java

Esta classe é apenas utilizada para guardar e retornar uma variável não contendo qualquer operação, logo não apresenta qualquer propósito e a sua remoção simplificaria o código.

```
public class TaskDependencyEvent extends EventObject {  
    2 usages  
    private final TaskDependency myDependency;  
  
    3 usages  dbarashev  
    public TaskDependencyEvent(TaskDependencyCollection source, TaskDependency dependency) {  
        super(source);  
        myDependency = dependency;  
    }  
  
    dbarashev  
    public TaskDependency getDependency() {  
        return myDependency;  
    }  
}
```

Reviewer: Manuel Jardim

Autor: Simão Pires

1. Large Class

Localização: ganttproject\biz.ganttproject.core\src\main\java\biz\ganttpproject\core\chart\canvas

Uma class com mais de 700 linhas de código com várias classes definidas dentro desta.

```
1  .../
19 package biz.ganttproject.core.chart.canvas;
20
21 import ...
22
23 /**
24  * Stores the available primitives and their information (used for painting) and
25  * provides methods to retrieve them
26  *
27  * @author bard
28  */
29
30 dbarashev +3
31
32 public class Canvas {
33     6 usages
34     private ArrayList<Rectangle> myRectangles = new ArrayList<>();
35
36     4 usages
37     private ArrayList<Line> myLines = new ArrayList<>();
38
39     5 usages
40     private ArrayList<Text> myTexts = new ArrayList<>();
41
42     3 usages
43     private Map<Object, Shape> myModelObject2primitive = new WeakHashMap<>();
44
45     4 usages
46     private List<Canvas> myLayers = new ArrayList<>();
47 }
```

```
676     return result;
677 }
678 result = myRhombusIndex.get(x, xThreshold, y, yThreshold);
679 if (result != null) {
680     return result;
681 }
682 return myTextIndex.get(x + myDeltaX, y + myDeltaY);
683 }
684
685 1 usage dbarashev
686 public List<Canvas> getLayers() {
687     return Collections.unmodifiableList(myLayers);
688 }
689
690 dbarashev
691 public Canvas getLayer(int layer) {
692     if (layer < 0 || layer >= myLayers.size()) {
693         throw new IllegalArgumentException();
694     }
695     return myLayers.get(layer);
696 }
697
698 6 usages dbarashev
699 public Canvas newLayer() {
700     Canvas result = new Canvas();
701     myLayers.add(result);
702     return result;
703 }
704
705 dbarashev
706 public void createLayers(int count) {
707     for (int i = 0; i < count; i++) {
708         newLayer();
709     }
710 }
711 }
```

Reviewer: Sebastião Jerónimo

2. Message Chains

Localização: ganttproject\biz.ganttproject.core\src\main\java\biz\ganttpproject\core\time

Temos um objeto a chamar um método que por sua vez chama outro método, e por assim por diante.

```
public GanttCalendar getDisplayValue() {
    if (myShiftedValue == null) {
        myShiftedValue = CalendarFactory.createGanttCalendar(GPTimeUnitStack.DAY.jumpLeft(getTime()));
    }
    return myShiftedValue;
}
```

Date date;

Reviewer: Martim Gamboa

3. Long Method

Localização: ganttproject\biz.ganttproject.core\src\main\java\biz\ganttproject\core\chart\scene\gantt

Este método está demasiado extenso.

```
DependencySceneBuilder.java
72
1 usage  dbarashev +2
73 public void drawDependencies(Collection<Connector> connectors) {
74     if (myChartApi.getBarHeight() != myBarHeight) {
75         myFinishArrow = new Canvas.Arrow((int)(0.7f * myChartApi.getBarHeight()), (int)(0.3f*myChartApi.getBarHeight()));
76         myBarHeight = myChartApi.getBarHeight();
77     }
78     Canvas primitiveContainer = myOutputCanvas;
79     for (Connector connector : connectors) {
80         Connector.Vector dependantVector = connector.getEnd();
81         Connector.Vector dependeeVector = connector.getStart();
82         // Determine the line style (depending on type of dependency)
83         String lineStyle = connector.getStyleName();
84
85         if (dependeeVector.getHProjection().reaches(dependantVector.getHProjection().getPoint())) {
86             // when dependee.end <= dependant.start && dependency.type is
87             // any
88             // or dependee.end <= dependant.end && dependency.type==FF
89             // or dependee.start >= dependant.end && dependency.type==SF
90             Point first = new Point(dependeeVector.getPoint().x, dependeeVector.getPoint().y);
91
92             int xEntry = dependantVector.getPoint().x;
93             int yEntry = dependantVector.getPoint().y;
94             Point second = new Point(xEntry, dependeeVector.getPoint().y);
95             Point third = new Point(xEntry, yEntry);
96
97             primitiveContainer.createLine(first.x, first.y, second.x, second.y).setStyle(lineStyle);
98             Line secondLine = primitiveContainer.createLine(second.x, second.y, third.x, third.y);
99             secondLine.setStyle(lineStyle);
100             secondLine.setArrow(myFinishArrow);
101         } else if (dependantVector.getHProjection().reaches(dependeeVector.getHProjection().getPoint())) {
102             Point first = dependeeVector.getPoint( units: 3);
103             Point second = new Point(first.x, dependantVector.getPoint().y);
104             primitiveContainer.createLine(dependeeVector.getPoint().x, dependeeVector.getPoint().y, first.x,
105                 first.y).setStyle(lineStyle);
106             primitiveContainer.createLine(first.x, first.y, second.x, second.y).setStyle(lineStyle);
107             Line line = primitiveContainer.createLine(second.x, second.y, dependantVector.getPoint().x,
108                 dependantVector.getPoint().y);
109             line.setStyle(lineStyle);
110             line.setArrow(myFinishArrow);
111         } else {
112             Point first = dependeeVector.getPoint( units: 10);
113             Point forth = dependantVector.getPoint( units: 10);
114             Point second = new Point(first.x, (first.y + forth.y) / 2);
115             Point third = new Point(forth.x, (first.y + forth.y) / 2);
116             primitiveContainer.createLine(dependeeVector.getPoint().x, dependeeVector.getPoint().y, first.x,
117                 first.y).setStyle(lineStyle);
118             primitiveContainer.createLine(first.x, first.y, second.x, second.y).setStyle(lineStyle);
119             primitiveContainer.createLine(second.x, second.y, third.x, third.y).setStyle(lineStyle);
120             primitiveContainer.createLine(third.x, third.y, forth.x, forth.y).setStyle(lineStyle);
121             Line lastLine = primitiveContainer.createLine(forth.x, forth.y, dependantVector.getPoint().x,
122                 dependantVector.getPoint().y);
123             lastLine.setStyle(lineStyle);
124             lastLine.setArrow(myFinishArrow);
125         }
126     }
127 }
```

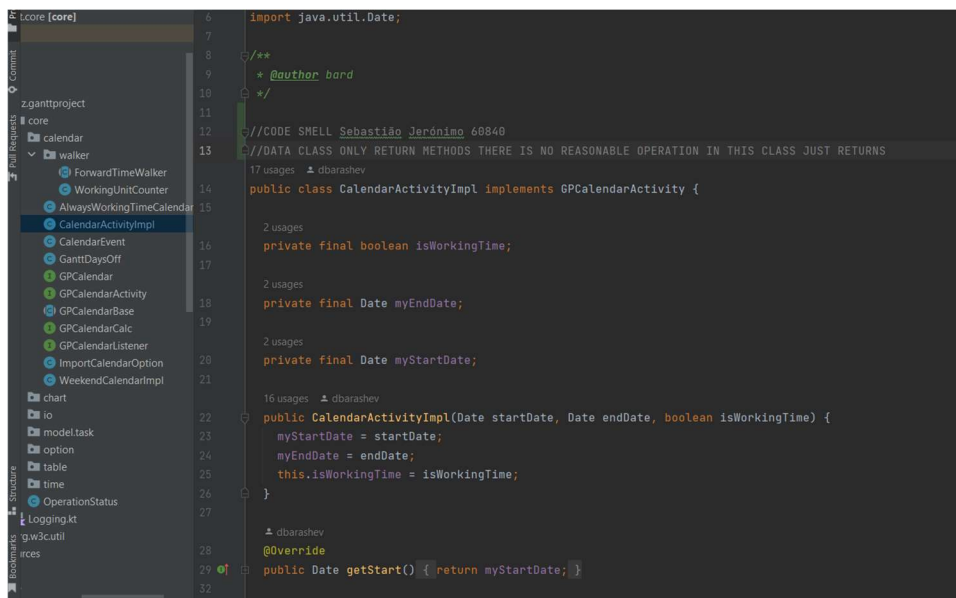
Reviewer: Gonalo Silva

Autor: Sebastião Jerónimo

1. Data Class

Localização: ganttproject\ganttp\src\main\java\net\sourceforge\ganttp\calendar\CalendarEditorPanel.java

Data class só tem data nenhum método para além de returns.



```
import java.util.Date;

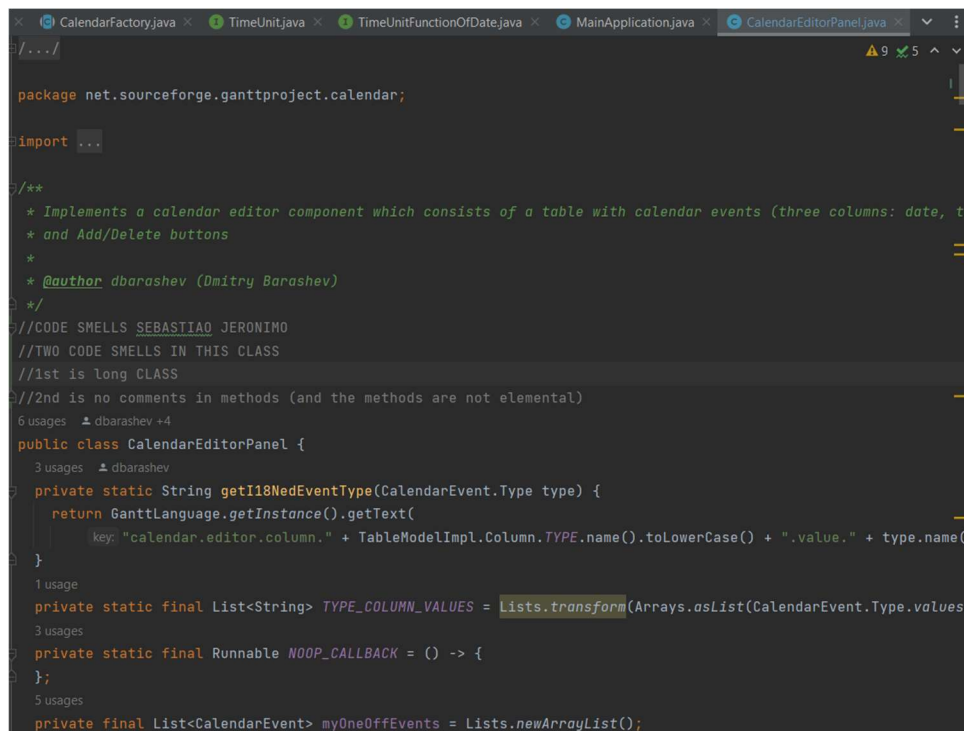
/**
 * @author bard
 */
//CODE SMELL Sebastião Jerónimo 60840
//DATA CLASS ONLY RETURN METHODS THERE IS NO REASONABLE OPERATION IN THIS CLASS JUST RETURNS
17 usages  ▴ dbarashev
public class CalendarActivityImpl implements GPCalendarActivity {
    2 usages
    private final boolean isWorkingTime;
    2 usages
    private final Date myEndDate;
    2 usages
    private final Date myStartDate;
    16 usages  ▴ dbarashev
    public CalendarActivityImpl(Date startDate, Date endDate, boolean isWorkingTime) {
        myStartDate = startDate;
        myEndDate = endDate;
        this.isWorkingTime = isWorkingTime;
    }
    ▴ dbarashev
    @Override
    public Date getStart() { return myStartDate; }
}
```

Reviewer: Gonçalo Silva

2. Large Class

Localização: ganttproject\ganttp\src\main\java\net\sourceforge\ganttp\calendar\CalendarEditorPanel.java

Uma class de extensão excessiva.



```
package net.sourceforge.ganttproject.calendar;

import ...

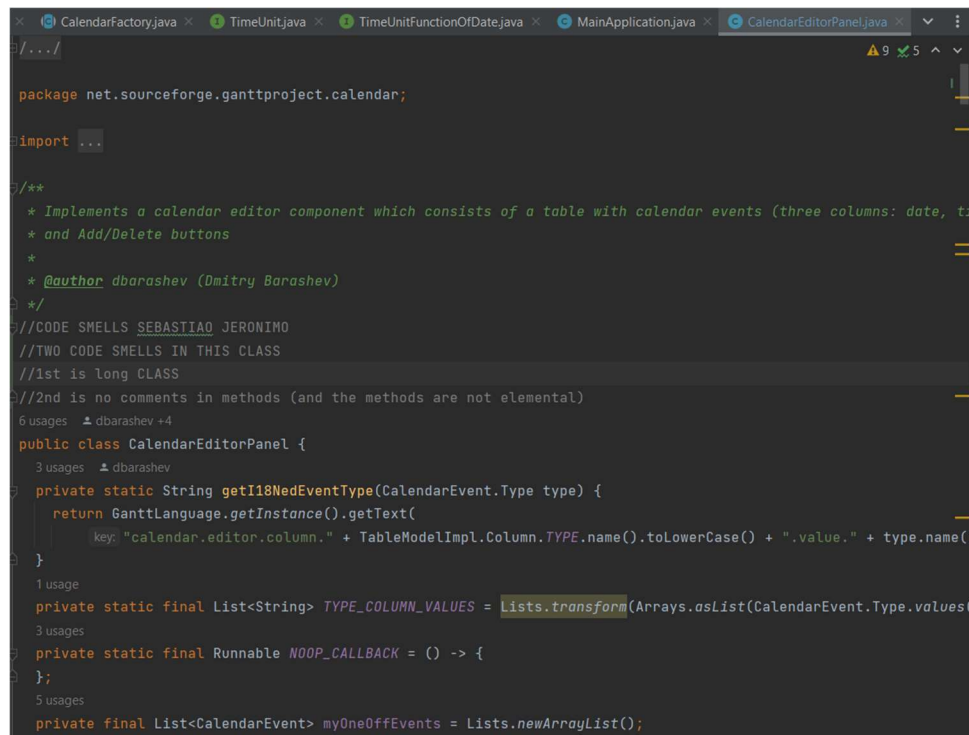
/**
 * Implements a calendar editor component which consists of a table with calendar events (three columns: date, time, and Add/Delete buttons)
 *
 * @author dbarashev (Dmitry Barashev)
 */
//CODE SMELLS SEBASTIAO JERONIMO
//TWO CODE SMELLS IN THIS CLASS
//1st is long CLASS
//2nd is no comments in methods (and the methods are not elemental)
6 usages  ▴ dbarashev +4
public class CalendarEditorPanel {
    3 usages  ▴ dbarashev
    private static String getI18NedEventType(CalendarEvent.Type type) {
        return GanttLanguage.getInstance().getText(
            key: "calendar.editor.column." + TableModelImpl.Column.TYPE.name().toLowerCase() + ".value." + type.name()
        );
    }
    1 usage
    private static final List<String> TYPE_COLUMN_VALUES = Lists.transform(Arrays.asList(CalendarEvent.Type.values()),
        type -> getI18NedEventType(type));
    3 usages
    private static final Runnable NOOP_CALLBACK = () -> {
    };
    5 usages
    private final List<CalendarEvent> myOneOffEvents = Lists.newArrayList();
}
```

Reviewer: Manuel Jardim

3. Comment Smell

Localização: ganttproject\ganttproject\src\main\java\net\sourceforge\ganttproject\calendar\CalendarEditorPanel.java

A falta de comentários dificulta a interpretação do código por outros.



```
package net.sourceforge.ganttproject.calendar;

import ...

/**
 * Implements a calendar editor component which consists of a table with calendar events (three columns: date, time, and Add/Delete buttons)
 *
 * @author dbarashev (Dmitry Barashev)
 */
//CODE SMELLS SEBASTIAO JERONIMO
//TWO CODE SMELLS IN THIS CLASS
//1st is long CLASS
//2nd is no comments in methods (and the methods are not elemental)
6 usages 1 dbarashev +4
public class CalendarEditorPanel {
    3 usages 1 dbarashev
    private static String getI18NedEventType(CalendarEvent.Type type) {
        return GanttLanguage.getInstance().getText(
            key, "calendar.editor.column." + TableModelImpl.Column.TYPE.name().toLowerCase() + ".value." + type.name()
        );
    }
    1 usage
    private static final List<String> TYPE_COLUMN_VALUES = Lists.transform(Arrays.asList(CalendarEvent.Type.values()),
        t -> getI18NedEventType(t));
    3 usages
    private static final Runnable NOOP_CALLBACK = () -> {
    };
    5 usages
    private final List<CalendarEvent> myOneOffEvents = Lists.newArrayList();
}
```

Reviewer: Simão Pires

Design Patterns

Autor: Gonalo Silva

1. Interpreter

Localizao: ganttproject\src\main\java\net.sourceforge.ganttproject\language\GanttLanguage.java

A classe GanttLanguage representa um Interpreter Design Pattern por construir um interpretador para uma linguagem.

```
private GanttLanguage() {
    // dbarashev
    new GPAbstractOption.I18N() {
        {
            setI18N(this);
        }
    };
    // dbarashev
    @Override
    protected String i18n(String key) { return getText(key); }
};

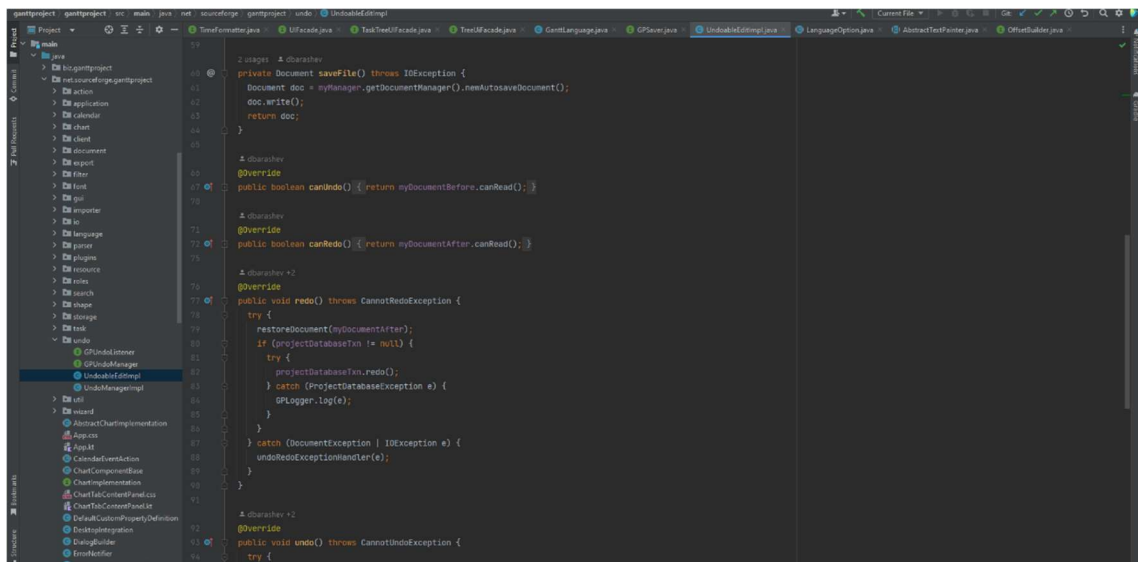
Properties charsets = new Properties();
PropertiesUtil.loadProperties(charsets, resource: "/charsets.properties");
myCharSetMap = new CharSetMap(charsets);
setLocale(Locale.getDefault());
PropertiesUtil.loadProperties(myExtraLocales, resource: "/language/extra.properties");
}
```

Reviewer: Simo Pires

2. Memento

Localizao: ganttproject\src\main\java\net.sourceforge.ganttproject\undo\UndoableEditImpl.java

A classe GanttLanguage representa um Interpreter Design Pattern por construir um interpretador para uma linguagem.



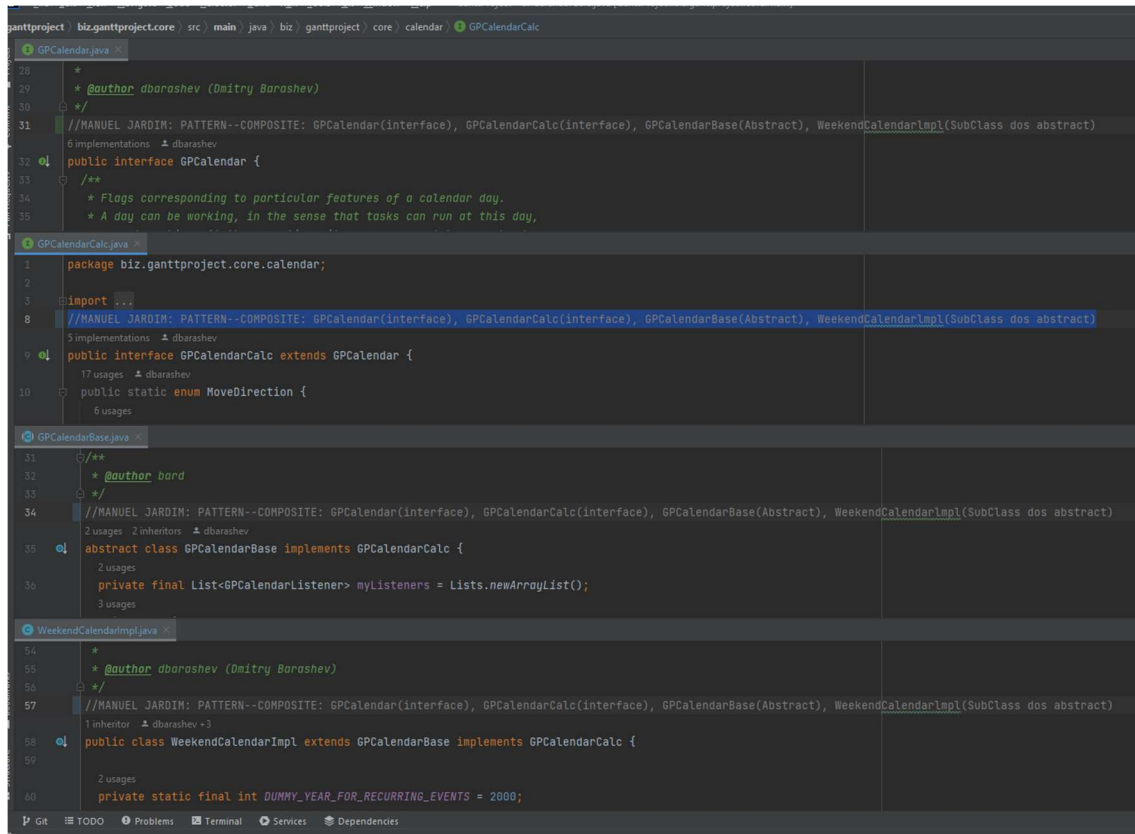
Reviewer: Manuel Jardim

Autor: Manuel Jardim

1. Composite

Localização: ganttproject\bizz.ganttproject.core\src\main\java\biz.ganttproject\core\calendar\walker\GPCalendarCalc.java

Aqui está presente uma Abstract Factory, porque a partir de uma classe abstrata MouseInteractionBase é possível criar várias subclasses.



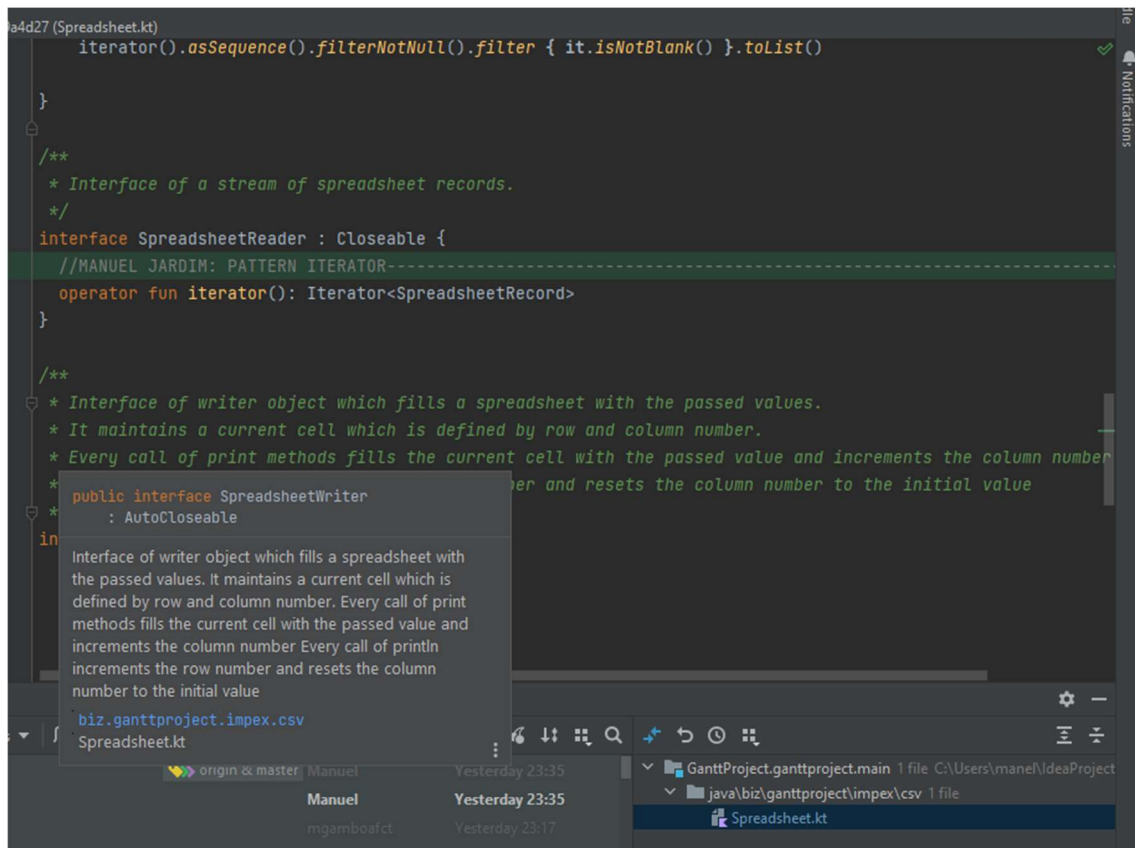
```
28  *
29  * @author dbarashev (Dmitry Barashev)
30  */
31  //MANUEL JARDIM: PATTERN--COMPOSITE: GPCalendar(interface), GPCalendarCalc(interface), GPCalendarBase(Abstract), WeekendCalendarImpl(SubClass dos abstract)
32  public interface GPCalendar {
33      /**
34       * Flags corresponding to particular features of a calendar day.
35       * A day can be working, in the sense that tasks can run at this day,
36       */
37  }
38
39  package biz.ganttproject.core.calendar;
40
41  import ...
42
43  //MANUEL JARDIM: PATTERN--COMPOSITE: GPCalendar(interface), GPCalendarCalc(interface), GPCalendarBase(Abstract), WeekendCalendarImpl(SubClass dos abstract)
44  public interface GPCalendarCalc extends GPCalendar {
45      17 usages
46      public static enum MoveDirection {
47          6 usages
48      }
49  }
50
51  /**
52   * @author bard
53   */
54  //MANUEL JARDIM: PATTERN--COMPOSITE: GPCalendar(interface), GPCalendarCalc(interface), GPCalendarBase(Abstract), WeekendCalendarImpl(SubClass dos abstract)
55  abstract class GPCalendarBase implements GPCalendarCalc {
56      2 usages
57      2 inheritors
58      private final List<GPCalendarListener> myListeners = Lists.newArrayList();
59      3 usages
60  }
61
62  /**
63   * @author dbarashev (Dmitry Barashev)
64   */
65  //MANUEL JARDIM: PATTERN--COMPOSITE: GPCalendar(interface), GPCalendarCalc(interface), GPCalendarBase(Abstract), WeekendCalendarImpl(SubClass dos abstract)
66  public class WeekendCalendarImpl extends GPCalendarBase implements GPCalendarCalc {
67      2 usages
68      1 inheritor
69      private static final int DUMMY_YEAR_FOR_RECURRING_EVENTS = 2000;
70  }
```

Reviewer: Martim Gamboa

2. Iterator

Localização: ganttproject\ganttp\src\main\java\biz\ganttp\impex\csv\Spreadsheet.kt

Este pattern é um Iterator, pois usa um iterador para mexer numa lista sem alterar a original.



```
iterator().asSequence().filterNotNull().filter { it.isNotBlank() }.toList()

}

/**
 * Interface of a stream of spreadsheet records.
 */
interface SpreadsheetReader : Closeable {
    //MANUEL JARDIM: PATTERN ITERATOR-----
    operator fun iterator(): Iterator<SpreadsheetRecord>
}

/**
 * Interface of writer object which fills a spreadsheet with the passed values.
 * It maintains a current cell which is defined by row and column number.
 * Every call of print methods fills the current cell with the passed value and increments the column number
 * Every call of println increments the row number and resets the column number to the initial value
 */
public interface SpreadsheetWriter
    : AutoCloseable {
    //MANUEL JARDIM: PATTERN ITERATOR-----
    fun print(value: String)
    fun println()
    fun resetColumn()
    fun resetRow()
}

in
```

Interface of writer object which fills a spreadsheet with the passed values. It maintains a current cell which is defined by row and column number. Every call of print methods fills the current cell with the passed value and increments the column number Every call of println increments the row number and resets the column number to the initial value

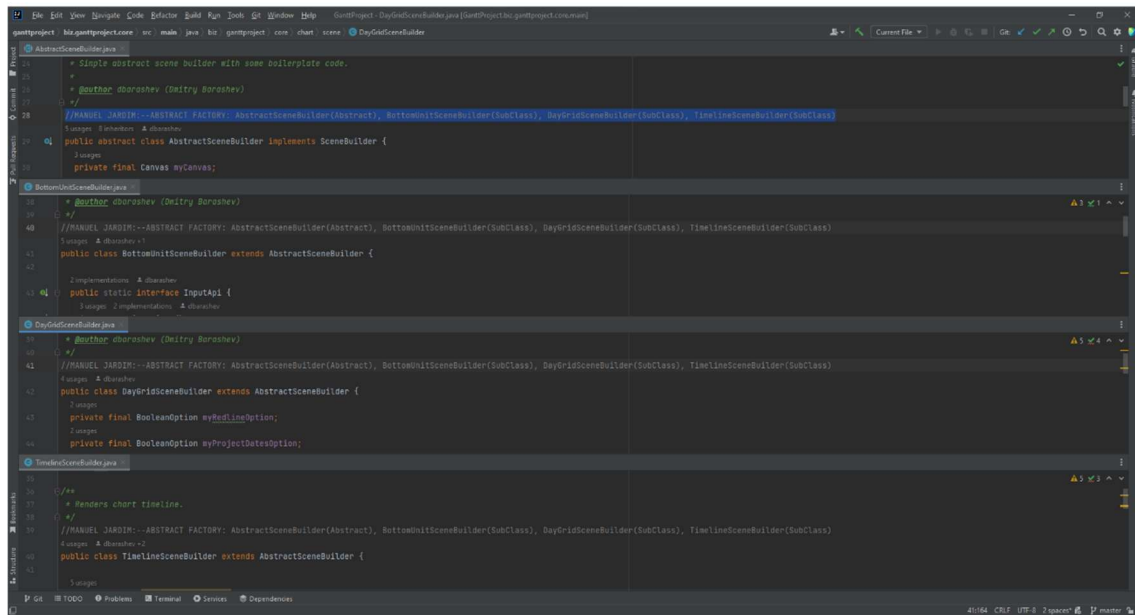
biz.ganttproject.impex.csv
Spreadsheet.kt

Reviewer: Sebastião Jerónimo

3. Abstract Factory

Localização: ganttproject\bizz.ganttproject.core\src\main\java\biz.ganttproject\core\chart\scene\DayGridSceneBuilder.java

Este pattern é uma Abstract Factory, pois através de uma classe abstrata para dar origem a várias classes que a estendem.



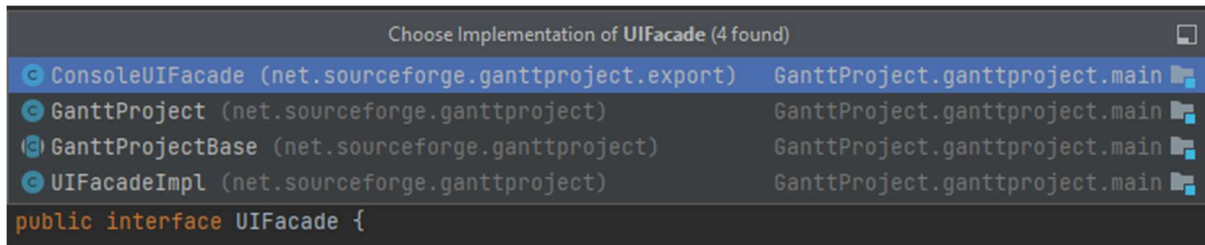
```
21  * Simple abstract scene builder with some boilerplate code.
22  *
23  * @author dbarashev (Dmitry Barashev)
24  */
25  //MANUEL JARDIM:--ABSTRACT FACTORY: AbstractSceneBuilder(Abstract), BottomUnitSceneBuilder(SubClass), DayGridSceneBuilder(SubClass), TimelineSceneBuilder(SubClass)
26
27  @SuppressWarnings("unchecked")
28  public abstract class AbstractSceneBuilder implements SceneBuilder {
29      1 usage
30      private final Canvas myCanvas;
31
32  }
33
34  BottomUnitSceneBuilder.java
35  * @author dbarashev (Dmitry Barashev)
36  */
37  //MANUEL JARDIM:--ABSTRACT FACTORY: AbstractSceneBuilder(Abstract), BottomUnitSceneBuilder(SubClass), DayGridSceneBuilder(SubClass), TimelineSceneBuilder(SubClass)
38
39  @SuppressWarnings("unchecked")
40  public class BottomUnitSceneBuilder extends AbstractSceneBuilder {
41      1 usage
42      2 implementations
43      3 usage
44      public static interface InputApi {
45          1 usage
46          2 implementations
47          3 usage
48      }
49
50  }
51
52  DayGridSceneBuilder.java
53  * @author dbarashev (Dmitry Barashev)
54  */
55  //MANUEL JARDIM:--ABSTRACT FACTORY: AbstractSceneBuilder(Abstract), BottomUnitSceneBuilder(SubClass), DayGridSceneBuilder(SubClass), TimelineSceneBuilder(SubClass)
56
57  @SuppressWarnings("unchecked")
58  public class DayGridSceneBuilder extends AbstractSceneBuilder {
59      1 usage
60      private final BooleanOption myHidingOption;
61      2 usage
62      private final BooleanOption myProjectDatesOption;
63
64  }
65
66  TimelineSceneBuilder.java
67  * @author dbarashev (Dmitry Barashev)
68  */
69  //MANUEL JARDIM:--ABSTRACT FACTORY: AbstractSceneBuilder(Abstract), BottomUnitSceneBuilder(SubClass), DayGridSceneBuilder(SubClass), TimelineSceneBuilder(SubClass)
70
71  @SuppressWarnings("unchecked")
72  public class TimelineSceneBuilder extends AbstractSceneBuilder {
73      1 usage
74      2 implementations
75      3 usage
76      4 usage
77      5 usage
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1208    1
```

Autor: Martim Gamboa

1. Facade

Localização: ganttproject\ganttproject\src\main\java\net\sourceforge\ganttproject\gui

Esta interface oferece acessibilidade simplificada aos métodos mais relevantes de quatro classes.



Reviewer: Manuel Jardim

2. Iterator

Localização: ganttproject\ganttproject\src\main\java\biz\ganttproject\impex\csv\GanttCSVOpen.java

Este método contém um iterador que permite percorrer uma estrutura de dados de forma mais simplificada dentro do mesmo.

```
1 usage  dbarashev +2 *
private int doLoad(SpreadsheetReader reader, int numGroup, int linesToSkip) {
    final Logger logger = GPLogger.getLogger(GanttCSVOpen.class);
    int lineCounter = 0;
    RecordGroup currentGroup = myRecordGroups.get(numGroup);
    boolean searchHeader = currentGroup.getHeader() == null;
    if (searchHeader) {
        debug(logger, format: "[CSV] Searching for a header of %s", currentGroup);
    } else {
        debug(logger, format: "[CSV] Expecting to read records of group %s", currentGroup);
        numGroup++;
    }

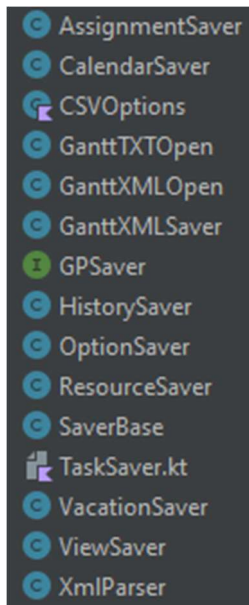
    for (Iterator<SpreadsheetRecord> it = reader.iterator(); it.hasNext(); ) {
        SpreadsheetRecord record = it.next();
    }
}
```

Reviewer: Gonalo Silva

3. Composite

Localização: ganttproject\ganttproject\src\main\java\net\sourceforge\ganttproject\io

Existe uma classe que serve de raiz com outras subclasses a servirem de folhas, apresentado uma estrutura em árvore.



```
13 inheritors  dbarashev +2  
public class SaverBase {
```

Reviewer: Sebastião Jerónimo

Autor: Simão Pires

1. Template

Localização: ganttproject\biz.ganttproject.core\src\main\java\biz\ganttproject\core\calendar

Na class “GPCalendarBase” estão implementados métodos gerais que se aplicam a qualquer objeto que estenda esta class e temos métodos que são abstratos, pois cada uma das classes “WeekendCalendarImpl” e “AlwaysWorkingTimeCalendarImpl” (que estendem a class “GPCalendarBase”), implementa-os de forma diferente.

```
abstract class GPCalendarBase implements GPCalendarCalc {  
    usage 2 implementations dbarashev  
    protected abstract List<GPCalendarActivity> getActivitiesBackward(Date startDate, TimeUnit timeUnit, long unitCount);  
  
    1 usage 2 implementations dbarashev  
    protected abstract List<GPCalendarActivity> getActivitiesForward(Date startDate, TimeUnit timeUnit, long unitCount);  
}
```

Reviewer: Martim Gamboa

2. Abstract Factory

Localização: ganttproject\biz.ganttproject.core\src\main\java\biz\ganttproject\core\chart\text

Esta class vai criar vários tipos de formatos de textos a partir de uma única interface, “TimeFormatter”, como por exemplo:

```
public TimeFormatters(LocaleApi localeApi) {  
    Map<String, TimeFormatter> commonFormatters = new HashMap<String, TimeFormatter>();  
  
    commonFormatters.put(GPTimeUnitStack.DAY.getName(), new DayTextFormatter());  
    commonFormatters.put(GPTimeUnitStack.QUARTER.getName(), new QuarterTextFormatter());  
    commonFormatters.put(GPTimeUnitStack.YEAR.getName(), new YearTextFormatter());  
  
    ourUpperFormatters.putAll(commonFormatters);  
    ourUpperFormatters.put(GPTimeUnitStack.MONTH.getName(), new MonthTextFormatter(localeApi, longPatterns: "MMMM yyyy", mediumPatterns: "MMM 'yyyy", shortPatterns: "MM 'yy"));  
    ourUpperFormatters.put(GPTimeUnitStack.WEEK.getName(), new WeekTextFormatter());  
  
    ourLowerFormatters.putAll(commonFormatters);  
    ourLowerFormatters.put(GPTimeUnitStack.MONTH.getName(), new MonthTextFormatter(localeApi, longPatterns: "MMMM", mediumPatterns: "MMM", shortPatterns: "MM"));  
    ourLowerFormatters.put(GPTimeUnitStack.WEEK.getName(), new WeekTextFormatter());  
    setLocaleApi(localeApi);  
}
```

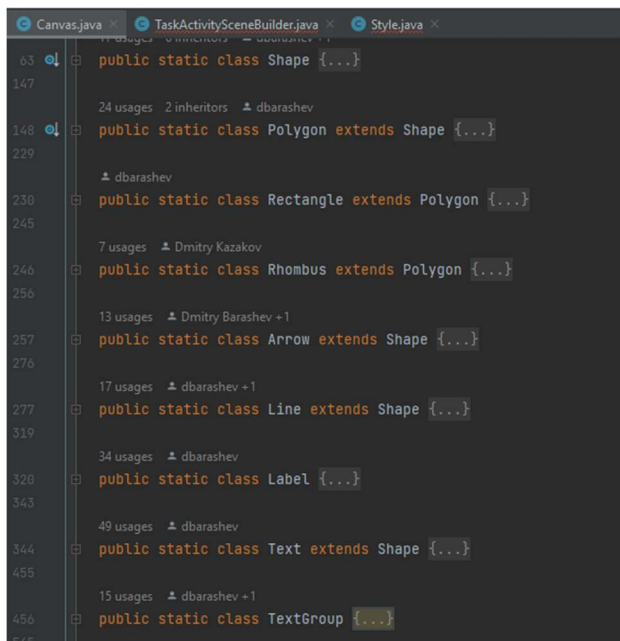
DayTextFormatter	public class QuarterTextFormatter extends CachingTextFormatter implements TimeFormatter
MonthTextFormatter	public class MonthTextFormatter extends CachingTextFormatter implements TimeFormatter
QuarterTextFormatter	public class QuarterTextFormatter extends CachingTextFormatter implements TimeFormatter

Reviewer: Sebastião Jerónimo

3. Facade

Localização: ganttproject\biz.ganttproject.core\src\main\java\biz\ganttproject\core\chart\canvas

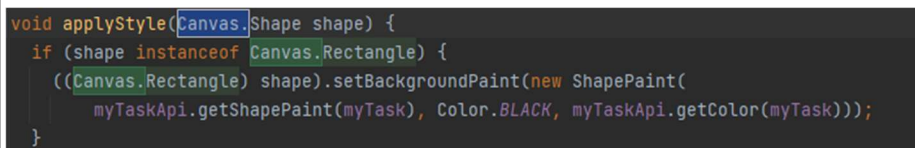
Neste caso a class Facade seria a class “Canvas” pois é a partir desta que podemos aceder às classes “Rectangle”, “Text”, “Line”, ..., a partir de uma única class, como mostram as figuras abaixo:



```
63 public static class Shape {...}
147
24 usages 2 inheritors dbarashev
148 public static class Polygon extends Shape {...}
229
dbarashev
130 public static class Rectangle extends Polygon {...}
245
7 usages Dmitry Kazakov
246 public static class Rhombus extends Polygon {...}
256
13 usages Dmitry Barashev +1
257 public static class Arrow extends Shape {...}
276
17 usages dbarashev +1
277 public static class Line extends Shape {...}
319
34 usages dbarashev
320 public static class Label {...}
343
49 usages dbarashev
344 public static class Text extends Shape {...}
455
15 usages dbarashev +1
456 public static class TextGroup {...}
666
```



```
3 usages dbarashev +1
public Borders getBorder(Canvas.Shape shape) {
    if ((shape instanceof Canvas.Line || shape instanceof Canvas.Text) && shape.getForegroundColor() != null) {
        return myBorders == null ? new Borders(shape.getForegroundColor()) : myBorders.withColor(shape.getForegroundColor());
    }
    return myBorders;
}
```



```
void applyStyle(Canvas.Shape shape) {
    if (shape instanceof Canvas.Rectangle) {
        ((Canvas.Rectangle) shape).setBackgroundPaint(new ShapePaint(
            myTaskApi.getShapePaint(myTask), Color.BLACK, myTaskApi.getColor(myTask)));
    }
}
```

Reviewer: Gonalo Silva

Autor: Sebastião Jerónimo

1. Memento

Localização: ganttproject\biz.ganttproject.core\src\main\java\biz.ganttproject\core\option\ChangeValueEvent.java

Pattern memento pois permite recuperar os valores e estados antigos de um objeto.

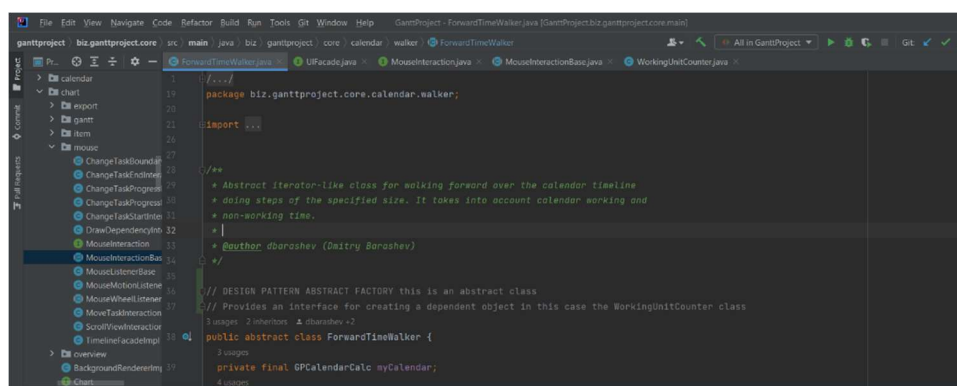
```
28 //Sebastiao Jerónimo 60840 this class corresponds to the Design pattern Memento
29 // because it lets you save and restore the previous state of an object without showing the implementation
30 public class ChangeValueEvent {
31
32     private final Object myID;
33
34     private final Object myOldValue;
35
36     private final Object myNewValue;
37
38     private final Object myTriggerID;
39
40     public ChangeValueEvent(Object id, Object oldValue, Object newValue, Object triggerId) {
41         myID = id;
42         myOldValue = oldValue;
43         myNewValue = newValue;
44         myTriggerID = triggerId;
45     }
46
47     public Object getID() {
48         return myID;
49     }
50
51     public Object getOldValue() {
52         return myOldValue;
53     }
54
55     public Object getNewValue() {
56         return myNewValue;
57     }
58
59     public Object getTriggerID() {
60         return myTriggerID;
61     }
62     @Override
63     public String toString() {
64         return "[id: " + myID + ", old: " + myOldValue + ", new: " + myNewValue + "]";
65     }
66 }
```

Reviewer: Manuel Jardim

2. Abstract Iterator

Localização: ganttproject\biz.ganttproject.core\src\main\java\biz\ganttproject\core\calendar\walker\ForwardTimeWalker.java

Design pattern abstract iterator pois é uma classe abstrata de onde é possível criar várias subclasses.

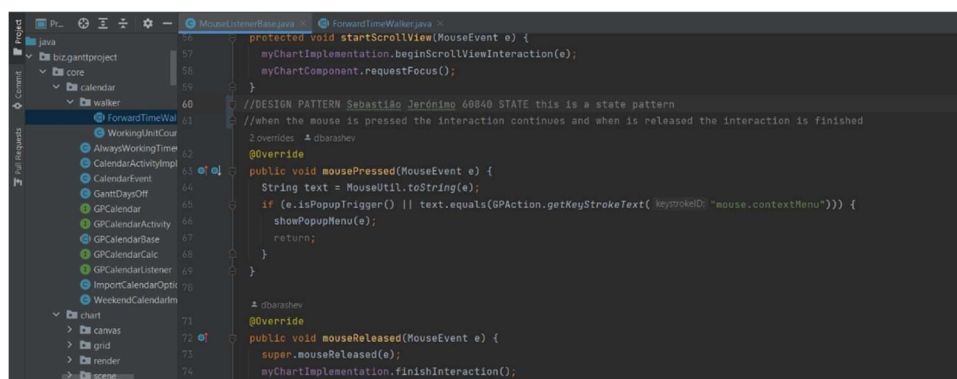


Reviewer: Gonalo Silva

3. State

Localização: ganttproject\ganttproject\src\main\java\net\sourceforge\ganttproject\chart\mouse\MouseListenerBase.java

Design pattern state é a classe do mouse onde o estado muda consoante ele est premido ou no.



Reviewer: Simo Pires