

BATTLESHIP MINI PROJECT

SOFTWARE ENGINEERING CSIS 3275 – Section 02

Douglas College

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Group Five

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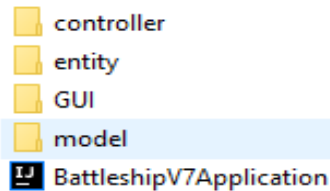
Contents

BATTLESHIP MINI PROJECT	1
Introduction	3
Project Structure	4
Appendix - Technical Environment and Documentation	9

Introduction

The mini project is a simple battleship Java game with a structured pattern based on Model-View-Controller (MVC) architecture. The program is written for the desktop using Java programming language, following MVC architecture. The project is available on Github on the following URL and is fully functional in any IDE.

<https://github.com/hhkkgg/CSIS3275-Battleship-v7>



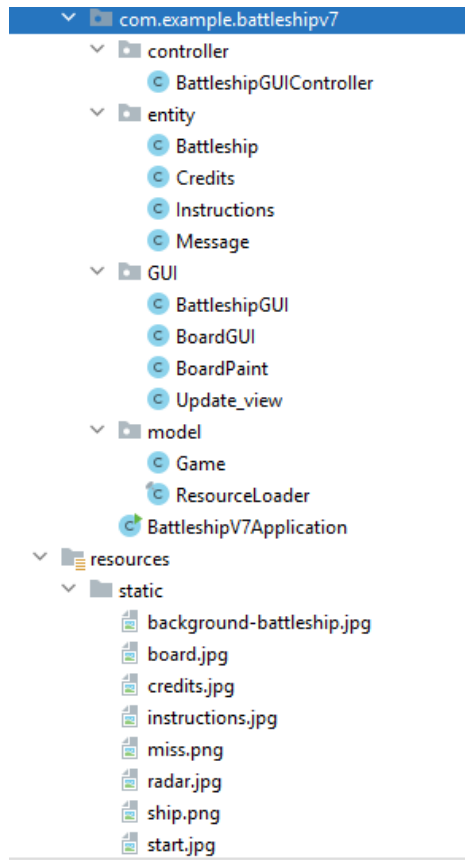
Class Hierarchy

- java.lang.Object
 - com.example.battleshipv7.entity.**Battleship**
 - com.example.battleshipv7.controller.**BattleshipGUIController** (implements java.awt.event.MouseListener)
 - java.awt.Component (implements java.awt.image.ImageObserver, java.awt.MenuContainer, java.io.Serializable)
 - java.awt.Container
 - javax.swing.JComponent (implements java.io.Serializable)
 - javax.swing.JPanel (implements javax.accessibility.Accessible)
 - com.example.battleshipv7.GUI.**BoardPaint**
 - java.awt.Window (implements javax.accessibility.Accessible)
 - java.awt.Frame (implements java.awt.MenuContainer)
 - javax.swing.JFrame (implements javax.accessibility.Accessible, javax.swing.RootPaneContainer, javax.swing.WindowConstants)
 - com.example.battleshipv7.GUI.**BattleshipGUI**
 - com.example.battleshipv7.**BattleshipV7Application**
 - com.example.battleshipv7.GUI.**BoardGUI**
 - com.example.battleshipv7.entity.**Credits**
 - com.example.battleshipv7.entity.**Instructions**
 - com.example.battleshipv7.entity.**Message**
 - com.example.battleshipv7.GUI.**Update_view** (implements java.awt.event.ActionListener)
 - com.example.battleshipv7.model.**Game**
 - com.example.battleshipv7.model.**ResourceLoader**

Project Structure

	Package Name	Class Name	Class Description
1	controller	BattleshipGUIController	The controller class, implements MouseListener , decides if the position clicked on map is a hit or miss.
2	entity	Battleship	Creates battleship entity
3	entity	Credits	Contains the names of group members
4	entity	Instructions	Contains the game instructions
5	entity	Message	Creates the message boxes
6	GUI	BattleshipGUI	The Game Board containing the radar image and position of battleships
7	GUI	BoardGUI	The Main Board, containing Start, instructions and credit button
8	GUI	BoardPaint	A class to import images
9	GUI	Update_view	ActionListener class
10	model	Game	
11	model	ResourceLoader	A class to import any file

This game creates three battleship entities in random positions on the game board. At the beginning of the game, on the main board (BoardGUI) user can choose to click three buttons, "START" to begin the game, "Guide" to display the game instructions and "Credits" to display group five members. The following is a description of our two game boards and the relationship between the classes.



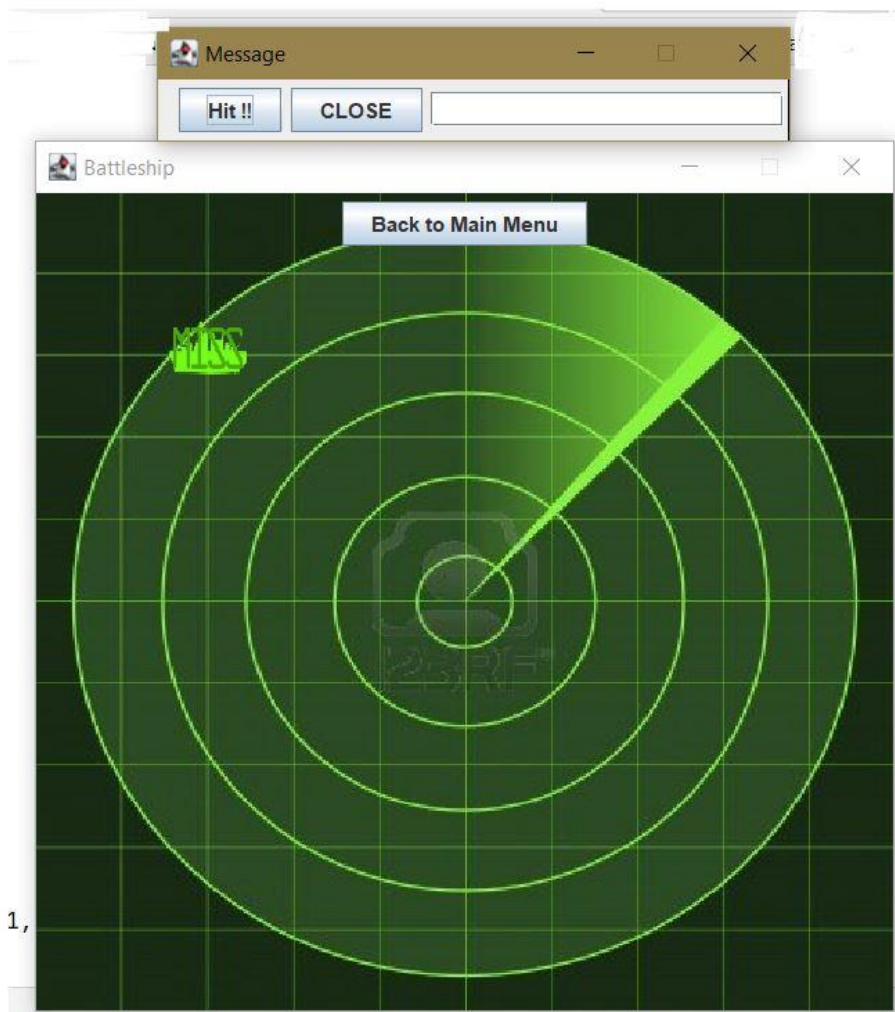
BoardGUI Class

This class displays a background image by help of BoardPaint class also three buttons with background images.

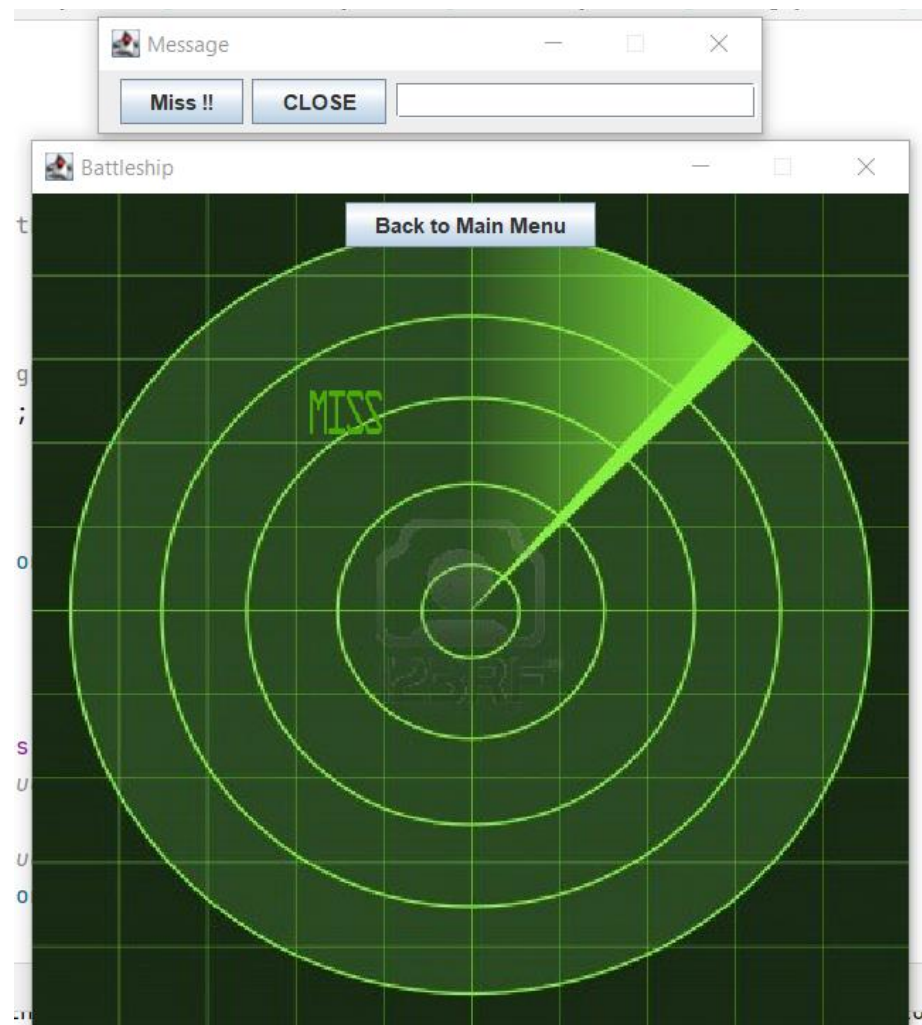
BattleshipGUI Class

This class is visible after “Start Button” is clicked and displays a radar image by the help of BoardPaint class. The JFrame on this class has a “MouseListener” implemented in “BattleshipGUIController” class which gets the pointer position clicked by user from the JFrame, and compares it with the location of battleships. If the location is right, it calls message class to show the Hit message and displays the green battleship image. Else, it is a miss and a miss image and message is displayed.

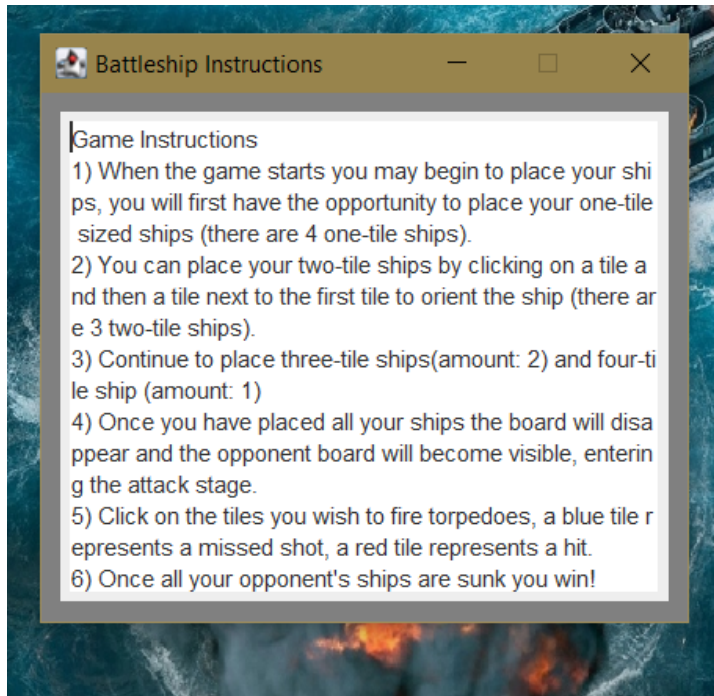
HIT:



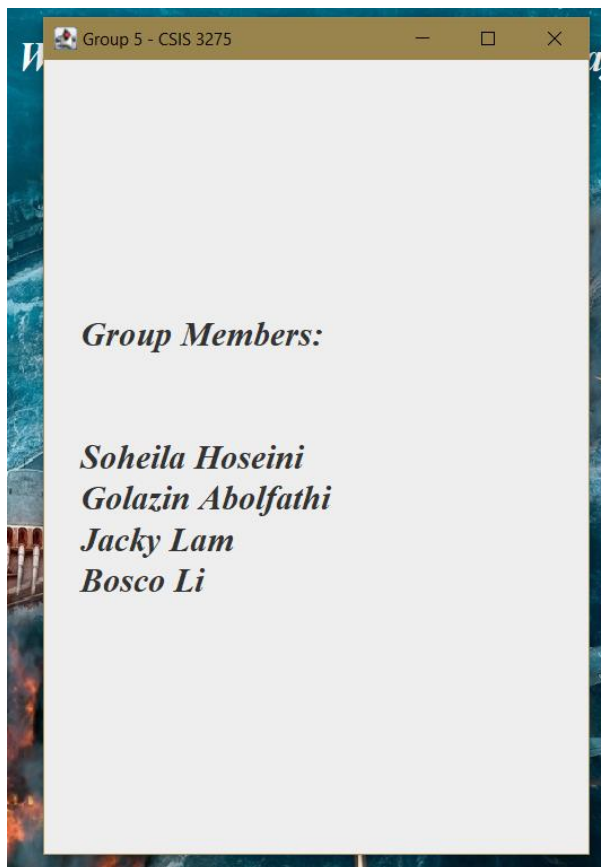
MISS:



Instruction Class



Credit Class



Appendix - Technical Environment and Documentation

Package `com.example.battleshipv7`

Class BattleshipV7Application

```
java.lang.Object
  java.awt.Component
    java.awt.Container
      java.awt.Window
        java.awt.Frame
          javax.swing.JFrame
            com.example.battleshipv7.BattleshipV7Application
```

All Implemented Interfaces:

`java.awt.image.ImageObserver`, `java.awt.MenuContainer`, `java.io.Seri`

`@SpringBootApplication`

```
public class BattleshipV7Application
extends javax.swing.JFrame
```

Package `com.example.battleshipv7.controller`

Class BattleshipGUIController

```
java.lang.Object
  com.example.battleshipv7.controller.BattleshipGUIController
```

All Implemented Interfaces:

`java.awt.event.MouseListener`, `java.util.EventListener`

```
public class BattleshipGUIController
extends java.lang.Object
implements java.awt.event.MouseListener
```

Constructor Summary

Constructors

Constructor

```
BattleshipGUIController()
```

```
BattleshipGUIController(int x1, int y1, int x2, int y2, int x3, int y3)
```

Package com.example.battleshipv7.entity

Class Battleship

java.lang.Object
com.example.battleshipv7.entity.Battleship

```
public class Battleship
extends java.lang.Object
```

Field Summary

Fields	
Modifier and Type	Field
static int	HORIZONTAL
static int	VERTICAL

Constructor Summary

Constructors	
Constructor	
Battleship(int length, int x, int y, int orientation)	

Package com.example.battleshipv7.entity

Class Credits

java.lang.Object
 java.awt.Component
 java.awt.Container
 java.awt.Window
 java.awt.Frame
 javax.swing.JFrame
 com.example.battleshipv7.entity.Credits

All Implemented Interfaces:

java.awt.image.ImageObserver, java.awt.MenuContainer, java.io.Serializable, javax.accessi

```
public class Credits
extends javax.swing.JFrame
```

Package com.example.battleshipv7.entity

Class Instructions

```
java.lang.Object
  java.awt.Component
    java.awt.Container
      java.awt.Window
        java.awt.Frame
          javax.swing.JFrame
            com.example.battleshipv7.entity.Instructions
```

All Implemented Interfaces:

java.awt.image.ImageObserver, java.awt.MenuContainer, java.io.Serializable, javax.accessibility.Accessible

```
public class Instructions
extends javax.swing.JFrame
```

```
^  ^  ^
```

Package com.example.battleshipv7.entity

Class Message

```
java.lang.Object
  java.awt.Component
    java.awt.Container
      java.awt.Window
        java.awt.Frame
          javax.swing.JFrame
            com.example.battleshipv7.entity.Message
```

All Implemented Interfaces:

java.awt.image.ImageObserver, java.awt.MenuContainer, java.io.Serializable, javax.accessibility.Accessible

```
public class Message
extends javax.swing.JFrame
```

Package com.example.battleshipv7.GUI

Class BattleshipGUI

```
java.lang.Object
  java.awt.Component
    java.awt.Container
      java.awt.Window
        java.awt.Frame
          javax.swing.JFrame
            com.example.battleshipv7.GUI.BattleshipGUI
```

All Implemented Interfaces:

java.awt.image.ImageObserver, java.awt.MenuContainer, java.io.Serializable, javax.accessibi

```
public class BattleshipGUI
extends javax.swing.JFrame
```

Package com.example.battleshipv7.GUI

Class BoardGUI

```
java.lang.Object
  java.awt.Component
    java.awt.Container
      java.awt.Window
        java.awt.Frame
          javax.swing.JFrame
            com.example.battleshipv7.GUI.BoardGUI
```

All Implemented Interfaces:

java.awt.image.ImageObserver, java.awt.MenuContainer, java.io.Serializable, javax.

```
public class BoardGUI
extends javax.swing.JFrame
```

Package `com.example.battleshipv7.GUI`

Class BoardPaint

```
java.lang.Object
  java.awt.Component
    java.awt.Container
      javax.swing.JComponent
        javax.swing.JPanel
          com.example.battleshipv7.GUI.BoardPaint
```

All Implemented Interfaces:

`java.awt.image.ImageObserver, java.awt.MenuContainer, java.io.Serializable, javax.accessibility.Accessible`

```
public class BoardPaint
extends javax.swing.JPanel
```

Package `com.example.battleshipv7.GUI`

Class Update_view

```
java.lang.Object
  java.awt.Component
    java.awt.Container
      java.awt.Window
        java.awt.Frame
          javax.swing.JFrame
            com.example.battleshipv7.GUI.Update_view
```

All Implemented Interfaces:

`java.awt.event.ActionListener, java.awt.image.ImageObserver, java.awt.MenuContainer, java.awt.WindowConstants, javax.swing.RootPaneContainer, javax.swing.WindowConstants`

```
public class Update_view
extends javax.swing.JFrame
implements java.awt.event.ActionListener
```

Package com.example.battleshipv7.model

Class Game

java.lang.Object
com.example.battleshipv7.model.Game

public class Game
extends java.lang.Object

Field Summary

Fields	
Modifier and Type	Field
int	xClickPosition
int	xShipPosition
int	yClickPosition
int	yShipPosition

Constructor Summary

Constructors	
Constructor	
Game(int xShipPosition, int yShipPosition, int xClickPosition, int yClickPosition)	

Package com.example.battleshipv7.model

Class ResourceLoader

java.lang.Object
com.example.battleshipv7.model.ResourceLoader

public final class ResourceLoader
extends java.lang.Object

Constructor Summary

Constructors
Constructor
ResourceLoader()

Method Summary

All Methods	Static Methods	Concrete Methods
Modifier and Type	Method	
static java.io.InputStream	load(java.lang.String path)	

Methods inherited from class java.lang.Object
clone, equals, finalize, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait