

Advanced Programming Practices (SOEN 6441)

Summer 2019

Project - Build3

Battleship Game

Coding Standards

Submitted By: Team1

Aruni Patel - 40077021

Dhvani Agola - 40081593

Sanjana Udar - 40094029

Sahil Savaliya - 40080380

















































Sahana Shankar - 40092026

Submitted To:

Nagi Basha

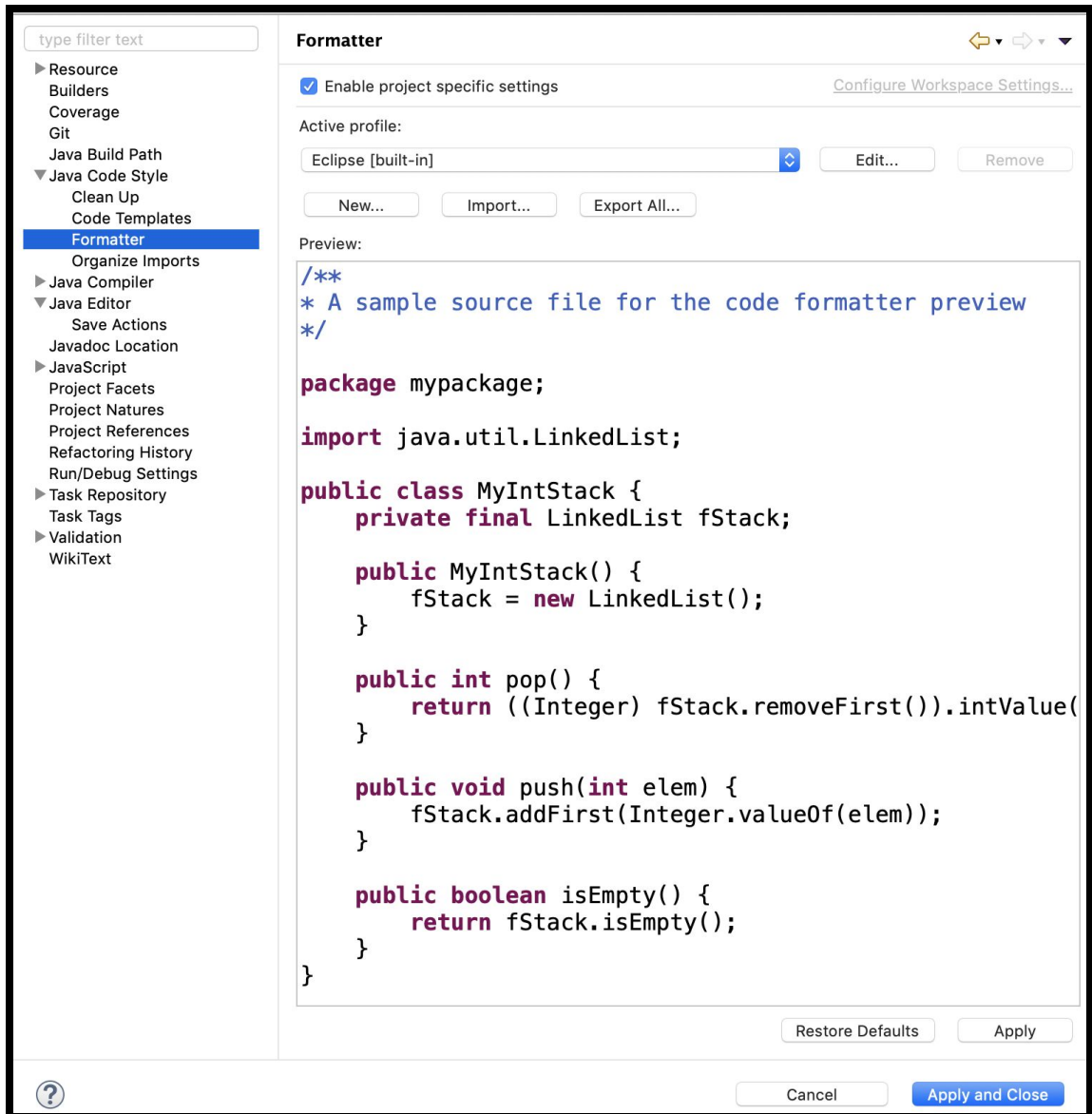
File Structure

- The packages 'Controller', 'Models', 'View' and 'test' are included inside the 'application' package.
- The 'Controller' package has controller file 'Main.java'.
- The 'Models' package has several java files including server part which is shown in figure.
- The 'View' package contains battleship.fxml and login.fxml file.
- The 'test' package contains all unit test files.

- ▼  > Battleship [APP_BattleShip_Project_3 Branch2.2]
 - >  JavaScript Resources
 - >  JRE System Library [Java]
 - ▼  > src
 - >  > (default package)
 - >  > application
 - ▼  > application.Controller
 - ▼  > Main.java
 - >  > Main
 - ▼  Main2.java
 - >  Main2
 - >  > application.Models
 - >  allShipPlacedCorrectlyExc.java
 - >  > BattleFieldComputer.java
 - >  > BattleFieldPlayer.java
 - >  > BattleFieldsParent.java
 - >  > Battleship.java
 - >  Battleship2.java
 - >  Block.java
 - >  Block2.java
 - >  DataCoordinates.java
 - >  fileNotExistExc.java
 - >  nullSerializedResponseExc.java
 - >  SaveAndLoadData.java
 - >  > Server.java
 - >  > ServerData.java
 - >  ServerData2.java
 - >  Ship2.java
 - >  ShipLatestLocation.java
 - >  ShipLatestLocation2.java
 - >  userAlreadyExistExc.java
 - ▼  > application.test
 - ▼  AddUserTest.java
 - >  AddUserTest
 - >  AIValidationTest.java
 - >  AttackTest.java
 - >  CorrectStartUpTest.java
 - >  setUsernameTest.java
 - >  ShipPlacementTest.java
 - >  TestCorrectHumanPlay.java
 - >  TestRunner.java
 - >  WinnerTest.java
 - ▼  > application.View
 -  battleship.fxml
 -  battleship2.fxml
 -  login.fxml
 - >  Referenced Libraries
 - >  javadoc
 - Coding Standards.pdf

- **Code Style:**

- Open curly braces written in the same line of the respective code block to reduce the number of lines of code.
- Close curly braces written in the line to overcome the issue of readability.
- Indentation: After every open curly brace, the new code block will start by left one tab space.
- In between two methods, one single line space is maintained for readability purpose.



- **Naming Conventions:**

- Package Name: All package names start with uppercase letter and the first letter of each word is in capital letter
- Class name: All class names starts with uppercase letter and first letter each word is in capital letter.
- Variable and parameter name: All variable names are in camelCase and starts with its datatype.
- Method name: All method names are in camelCase.
- Constant name: All characters are in capital letters and each word separated by underscore ('_')

```
39 public class Main implements Initializable {
40     public static BattlefieldPlayer bfPlayer;
41     public static BattlefieldComputer bfComputer;
42     private double CELL_SIZE = 30.0;
43     private boolean boolIsClicked = false;
44     private boolean boolIsRequiredToRotate = true;
45     private boolean isRotated = false;
46     private Rectangle currentShip;
47     public boolean boolIsComputerTurn = false;
48     public boolean boolIsSalvaVariation = false;
49     public int intNoOfTurns = 1;
50     private long longTime = System.currentTimeMillis();
51     public static List<Rectangle> lstNodeToSelect = new ArrayList<>();
52     private HashMap<Node, ShipLatestLocation> mapShipLocation = new HashMap<>();
53 }
```

○

- **Comments:**

- To fulfill the purpose of readability and creating a Javadoc, we have put detailed comments over each and every class, constructor and methods.
- Written comments to each class, constructor and methods to describe which functionality(ies) is included in the class, constructor and methods.
- These comments include
 - Brief description of the class, constructor and method.
 - The list of parameters and also brief description of those parameters.
 - What the method is returning.
 - Author(s) of the class.

```
/**
 * This method checks that the hit is successful or missed and update the result
 * in data structure and also update the UI.
 *
 * @param x x-coordinate of hit
 * @param y y-coordinate of hit
 * @param isSalva the game is normal or salva variation
 *
 * @param i| Index of the list
 * @return Returns true is player hit on ship or on already hit place else
 *         returns false
 */
public ServerData isHit(int x, int y, boolean isSalva, int i) {
    ServerData sd = new ServerData(1, 0, false, 0, 0, 0, 0, '\0', x, y, false);
    char c = '\0';
    Random rand = new Random();
    int point = rand.nextInt(5) + 1;
    point = (int) (15 / point);
    if (this.id == 1) {
        Server.bfComputer.intScore += point;
    } else
        Server.bfPlayer.intScore += point;
    if (this.gameBoard.get(x).get(y).getCharOccupiedFor() == 'M'
```

Absence of Commented Out Code

- To increase the readability we remove commented out code from all the files of the application.

BEFORE

```
293         int intY = GridPane.getColumnIndex(LstNodeToSelect.get(0)); // y
294         int intX = GridPane.getRowIndex(LstNodeToSelect.get(0)); // x
295         try {
296             ServerData sd = new ServerData(1, 5, intX, intY, boolIsSalvaVariation, 0);
297             sendMessageToServer(sd);
298         } catch (IOException e) {
299             e.printStackTrace();
300         }
301         // if (bfComputer.isHit(intX, intY, boolIsSalvaVariation,
302         // LstNodeToSelect.get(i), i)) {
303         // taShipCntComputer.clear();
304         // taShipCntComputer.setText(bfComputer.intTotalAliveShips + "");
305         // taPlayerScore.clear();
306         // taPlayerScore.setText(bfPlayer.intScore + "");
307         // return;
308         // }
309
310         // taShipCntComputer.clear();
311         // taShipCntComputer.setText(bfComputer.intTotalAliveShips + "");
312         // taPlayerScore.clear();
313         // taPlayerScore.setText(bfPlayer.intScore + "");
314         LstNodeToSelect.remove(0);
315     }
316
317     // LstNodeToSelect.clear();
318     ServerData sd = new ServerData(1, 6, true, false);
319     try {
320         sendMessageToServer(sd);
321     } catch (IOException e) {
322         e.printStackTrace();
323     }
```

AFTER

```
293         int intY = GridPane.getColumnIndex(LstNodeToSelect.get(0)); // y
294         int intX = GridPane.getRowIndex(LstNodeToSelect.get(0)); // x
295         try {
296             ServerData sd = new ServerData(1, 5, intX, intY, boolIsSalvaVariation, 0);
297             sendMessageToServer(sd);
298         } catch (IOException e) {
299             e.printStackTrace();
300         }
301         LstNodeToSelect.remove(0);
302     }
303
304     ServerData sd = new ServerData(1, 6, true, false);
305     try {
306         sendMessageToServer(sd);
307     } catch (IOException e) {
308         e.printStackTrace();
309     }
310     longTime = System.currentTimeMillis();
311 } else
312     return;
313 }
314 });
315
316 }
```

References :

- <https://www.geeksforgeeks.org/java-naming-conventions/>
- <https://battleship-game.org/en/>
- <https://github.com/pip-/Battleship>
- <https://stackoverflow.com/questions/10872444/mvc-pattern-in-javafx-with-scene-builder>
- <https://www.thesprucecrafts.com/the-basic-rules-of-battleship-411069>