

AnimationWrapper

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
AnimationWrapper()		0%		n/a	1	1	3	3	1	1
setOnFinished(EventHandler)		0%		n/a	1	1	2	2	1	1
play()		0%		n/a	1	1	2	2	1	1
getChildren()		0%		n/a	1	1	1	1	1	1
Total	21 of 21	0%	0 of 0	n/a	4	4	8	8	4	4

Created with JaCoCo 0.8.12.202403310830

AnimationWrapper.java

```
1. package com.example.project.controllers.gameScreens.animations;
2.
3. import javafx.animation.Animation;
4. import javafx.animation.SequentialTransition;
5. import javafx.collections.ObservableList;
6. import javafx.event.ActionEvent;
7. import javafx.event.EventHandler;
8.
9. /**
10. * Animation wrapper class for our projects animations that get used.
11. */
12. public abstract class AnimationWrapper
13. {
14.     protected final SequentialTransition sequentialAnimation;
15.
16.     protected AnimationWrapper() {
17.         this.sequentialAnimation = new SequentialTransition();
18.     }
19.
20.     /**
21.      * play.
22.     */
23.     public void play() {
24.         sequentialAnimation.play();
25.     }
26.
27.     /**
28.      * Set on finished.
29.      * @param handler actions to do.
30.     */
31.     public void setOnFinished(EventHandler<ActionEvent> handler) {
32.         sequentialAnimation.setOnFinished(handler);
33.     }
34.
35.     /**
36.      * returns animations children.
37.      * @return list of animations.
38.     */
39.     public ObservableList<Animation> getChildren(){
40.         return this.sequentialAnimation.getChildren();
41.     }
42. }
```

TextEmphasisAnimation

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
TextEmphasisAnimation(Label, Paint, Paint, Duration)		0%	n/a	1	1	16	16	1	1	1
lambda\$new\$1(Label, Paint, ActionEvent)		0%	n/a	1	1	1	1	1	1	1
lambda\$new\$0(Label, Paint, ActionEvent)		0%	n/a	1	1	1	1	1	1	1
Total	82 of 82	0%	0 of 0	n/a	3	3	16	16	3	3

Created with JaCoCo 0.8.12.202403310830

UpgradeEffects.java

```
1. package com.example.project.models.tiles;
2.
3. import com.example.project.models.gameScreens.LevelModel;
4. import com.example.project.services.Session;
5.
6. import java.util.Random;
7.
8. /**
9. * upgrade effect methods
10.*/
11. public class UpgradeEffects {
12. {
13. /**
14. * Adds +2 to the score multiplier for every identical pair of letters next to each other
15. * @param levelModel model to use.
16. */
17. public static void glassesEffect(LevelModel levelModel) {
18.     // for each letter in word, if the current letter matches the previous letter add 2 to the modifier
19.     ◆◆ for (int i = 1; i < levelModel.getWordWindowTilesProperty().size(); i++) {
20.         Character previousLetter = levelModel.getWordWindowTilesProperty().get(i-1).getLetter();
21.         Character currentLetter = levelModel.getWordWindowTilesProperty().get(i).getLetter();
22.         ◆◆ if (previousLetter.equals(currentLetter)) {
23.             int newMulti = levelModel.wordMultiProperty().get() + 2;
24.             levelModel.setWordMulti(newMulti);
25.         }
26.     }
27. }
28.
29. /**
30. * Value is doubled for a random letter in the played word
31. * @param levelModel model to use.
32. */
33. public static void diceEffect(LevelModel levelModel) {
34.     Random random = new Random();
35.     int randomNum = random.nextInt(levelModel.getWordWindowTilesProperty().size());
36.     int newScore = levelModel.wordPointsProperty().get() + levelModel.getWordWindowTilesProperty().get(randomNum).getValue();
37.     levelModel.setWordPoints(newScore);
38. }
39.
40. /**
41. * 20% Chance the total word score is doubled
42. * @param levelModel model to use.
43. */
44. public static void coinEffect(LevelModel levelModel) {
45.     Random random = new Random();
46.     double chance = 0.2;
47.     ◆◆ if (random.nextDouble() < chance) {
48.         int newScore = levelModel.wordPointsProperty().get() * 2;
49.         levelModel.setWordPoints(newScore);
50.     }
51. }
52.
53. /**
54. * If played word is a palindrome, doubles word score.
55. * @param levelModel model to use.
56. */
57. public static void mirrorEffect(LevelModel levelModel) {
58.     String word = levelModel.getCurrentWord();
59.     String reversedWord = new StringBuilder(word).reverse().toString();
60.
61.     ◆◆ if (word.equals(reversedWord)) {
62.         int newScore = levelModel.wordPointsProperty().get() * 2;
63.         levelModel.setWordPoints(newScore);
64.     }
65. }
66.
67. /**
68. * Add +1 to score multiplier for every consecutive letter alphabetical order.
69. * @param levelModel model to use.
70. */
71. public static void braceletEffect(LevelModel levelModel) {
72.
73.     String alphabet = "ABCDEFGHIJKLMNOPQRSTUVWXYZ";
74.
75.     // for each letter in the word, if the next letter matches the next letter in the alphabet, add 1 to modifier
76.     ◆◆ for (int i = 0; i < levelModel.getWordWindowTilesProperty().size()-1; i++) {
77.
78.         Character currentLetter = levelModel.getWordWindowTilesProperty().get(i).getLetter();
79.         Character nextLetter = levelModel.getWordWindowTilesProperty().get(i+1).getLetter();
80.
81.         ◆◆ if (currentLetter.equals('Z')) { continue; }
82.
83.         Character nextAlphabeticalLetter = alphabet.charAt(alphabet.indexOf(currentLetter)+1);
```

```
84.
85.         ◆     if (nextLetter.equals(nextAlphabeticalLetter)) {
86.             int newMulti = levelModel.wordMultiProperty().get() + 1;
87.             levelModel.setWordMulti(newMulti);
88.         }
89.     }
90.
91.
92. /**
93. * adds 5 to the word score for every x in the tile rack.
94. * @param levelModel model to use effect on.
95. */
96. public static void buttonEffect(LevelModel levelModel) {
97.     ◆     for (LetterTileModel tile : levelModel.getTileRackTilesProperty()) {
98.         ◆     if (tile.getLetter().equals('X')) {
99.             int newScore = levelModel.wordPointsProperty().get() + 5;
100.            levelModel.setWordPoints(newScore);
101.        }
102.    }
103. }
104. }
```

Created with JaCoCo 0.8.12.202403310830

UpgradeTileModel.UpgradeBuilder

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
description(String)	100%		n/a		0	1	0	1	0	1
name(String)	100%		n/a		0	1	0	1	0	1
imagePath(String)	100%		n/a		0	1	0	1	0	1
cost(double)	100%		n/a		0	1	0	1	0	1
upgradeEffect(Consumer)	100%		n/a		0	1	0	1	0	1
build()	100%		n/a		0	1	0	1	0	1
UpgradeTileModel.UpgradeBuilder()	100%		n/a		0	1	0	1	0	1
Total	0 of 33	100%	0 of 0	n/a	0	7	0	7	0	7

Created with JaCoCo 0.8.12.202403310830

UpgradeTileModel

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
UpgradeTileModel(UpgradeTileModel.UpgradeBuilder)	100%	n/a	0	1	0	7	0	1	0	1
runUpgradeEffect(LevelModel)	100%	n/a	0	1	0	2	0	1	0	1
getName()	100%	n/a	0	1	0	1	0	1	0	1
getDescription()	100%	n/a	0	1	0	1	0	1	0	1
getCost()	100%	n/a	0	1	0	1	0	1	0	1
getAbilityImagePath()	100%	n/a	0	1	0	1	0	1	0	1
getFXMLPath()	100%	n/a	0	1	0	1	0	1	0	1
Total	0 of 42	100%	0 of 0	n/a	0	7	0	14	0	7

Created with JaCoCo 0.8.12.202403310830

UpgradeTileModel.java

```
1. package com.example.project.models.tiles;
2.
3. import com.example.project.models.gameScreens.LevelModel;
4.
5. import java.util.function.Consumer;
6.
7. /**
8. * Represents the upgrade tiles sold at the shop.
9. */
10. public class UpgradeTileModel extends TileModel
11. {
12.     private final String description;
13.     private final String name;
14.     private final String imagePath;
15.     private final double cost;
16.     private final Consumer<LevelModel> upgradeEffect;
17.
18. /**
19. * public upgrade constructor.
20. * @param builder upgrade builder
21. */
22. public UpgradeTileModel(UpgradeBuilder builder)
23. {
24.     this.description = builder.description;
25.     this.name = builder.name;
26.     this.imagePath = builder.imagePath;
27.     this.cost = builder.cost;
28.     this.upgradeEffect = builder.upgradeEffect;
29. }
30.
31. /**
32. * builder class for the upgrades
33. */
34. public static class UpgradeBuilder {
35.     private String description;
36.     private String name;
37.     private String imagePath;
38.     private double cost;
39.     private Consumer<LevelModel> upgradeEffect;
40.
41. /**
42. * upgrade description builder
43. * @param description new upgrade description
44. * @return description
45. */
46. public UpgradeBuilder description(String description) {this.description = description; return this; }
47.
48. /**
49. * upgrade name builder
50. * @param name new upgrade name
51. * @return name
52. */
53. public UpgradeBuilder name(String name) {this.name = name; return this; }
54.
55. /**
56. * upgrade image path builder
57. * @param imagePath new upgrade image path
58. * @return image path
59. */
60. public UpgradeBuilder imagePath(String imagePath) {this.imagePath = imagePath; return this; }
61.
62. /**
63. * upgrade cost builder
64. * @param cost new upgrade cost
65. * @return cost
66. */
67. public UpgradeBuilder cost(double cost) {this.cost = cost; return this; }
68.
69. /**
70. * upgrade effect builder
71. * @param upgradeEffect new upgrade effect
72. * @return upgrade effect
73. */
74. public UpgradeBuilder upgradeEffect(Consumer<LevelModel> upgradeEffect) { this.upgradeEffect = upgradeEffect; return this; }
75.
76. /**
77. * build upgrade
78. * @return new upgrade
79. */
80. public UpgradeTileModel build() { return new UpgradeTileModel(this); }
81. }
82.
83. /**
84. * gets the name.
85. * @return return name.
```

```
86.      */
87.     public String getName(){
88.         return this.name;
89.     }
90.
91.    /**
92.     * gets the description.
93.     * @return description.
94.     */
95.    public String getDescription(){
96.        return this.description;
97.    }
98.
99.    /**
100.     * gets the cost
101.     * @return return cost.
102.     */
103.    public double getCost()
104.    {
105.        return this.cost;
106.    }
107.
108.    /**
109.     * gets upgrade tile image path.
110.     * @return returns loaded Image for this tile.
111.     */
112.    public String getAbilityImagePath() { return imagePath; }
113.
114.    /**
115.     * gets the effect for this tile.
116.     * @param model level model.
117.     */
118.    public void runUpgradeEffect(LevelModel model)
119.    {
120.        upgradeEffect.accept(model);
121.    }
122.
123.    @Override
124.    public String getFXMLPath() {
125.        return "/com/example/project/SingleTiles/upgradeTileView.fxml";
126.    }
127.}
```

com.example.project.models.tiles

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods	Missed	Classes
C UpgradeEffects		0%		0%	16	16	41	41	7	7	1	1
C ScrabbleTileProvider		100%		100%	0	7	0	45	0	5	0	1
C UpgradeTileModel		100%		n/a	0	7	0	14	0	7	0	1
C UpgradeTileModel.UpgradeBuilder		100%		n/a	0	7	0	7	0	7	0	1
C LetterTileModel		100%		n/a	0	4	0	8	0	4	0	1
C TileModel		100%		n/a	0	3	0	5	0	3	0	1
C EmptyTileSlotModel		100%		n/a	0	4	0	6	0	4	0	1
C ScrabbleTileProvider.ScrabbleTileData		100%		n/a	0	1	0	1	0	1	0	1
Total	200 of 736	72%	18 of 22	18%	16	49	41	127	7	38	1	8

Created with JaCoCo 0.8.12.202403310830

com.example.project.models.tiles

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods	Missed	Classes
UpgradeEffects.java		0%		0%	16	16	41	41	7	7	1	1
ScrabbleTileProvider.java		100%		100%	0	8	0	46	0	6	0	2
UpgradeTileModel.java		100%		n/a	0	14	0	21	0	14	0	2
LetterTileModel.java		100%		n/a	0	4	0	8	0	4	0	1
TileModel.java		100%		n/a	0	3	0	5	0	3	0	1
EmptyTileSlotModel.java		100%		n/a	0	4	0	6	0	4	0	1
Total	200 of 736	72%	18 of 22	18%	16	49	41	127	7	38	1	8

Created with [JaCoCo](#) 0.8.12.202403310830

User

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
User(String, String, int)	100%		n/a		0	1	0	5	0	1
getHighscore()	100%		n/a		0	1	0	1	0	1
getUsername()	100%		n/a		0	1	0	1	0	1
getPassword()	100%		n/a		0	1	0	1	0	1
Total	0 of 23	100%	0 of 0	n/a	0	4	0	8	0	4

Created with JaCoCo 0.8.12.202403310830

User.java

```
1. package com.example.project.models;
2.
3. /**
4.  * Represents a user in the application that can log in.
5. */
6. public class User {
7.
8.     private final String username;
9.
10.    private final String password;
11.
12.    private final Integer highscore;
13.
14.    /**
15.     * Constructor.
16.     * @param username username.
17.     * @param password password.
18.     * @param highscore highscore.
19.     */
20.    public User(String username, String password, int highscore)
21.    {
22.        this.hightscore = highscore;
23.        this.username = username;
24.        this.password = password;
25.    }
26.
27.    /**
28.     * get username.
29.     * @return username.
30.     */
31.    public String getUsername(){
32.        return username;
33.    }
34.
35.    /**
36.     * get password.
37.     * @return password.
38.     */
39.    public String getPassword(){
40.        return password;
41.    }
42.
43.    /**
44.     * get highscore.
45.     * @return returns highscore.
46.     */
47.    public int getHighscore(){
48.        return this.hightscore;
49.    }
50.
51. }
```

com.example.project.models

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed Cxty	Missed Lines	Missed Methods	Missed Classes
G User	<div style="width: 100%;">100%</div>	100%	n/a	0	4	0	8	0
Total	0 of 23	100%	0 of 0	n/a	0	4	0	4

Created with JaCoCo 0.8.12.202403310830

com.example.project.models

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods	Missed	Classes
User.java	<div style="width: 100%;">100%</div>		n/a		0	4	0	8	0	4	0	1
Total	0 of 23	100%	0 of 0	n/a	0	4	0	8	0	4	0	1

Created with JaCoCo 0.8.12.202403310830

TextEmphasisAnimation.java

```
1. package com.example.project.controllers.gameScreens.animations;
2.
3. import javafx.animation.PauseTransition;
4. import javafx.animation.ScaleTransition;
5. import javafx.scene.control.Label;
6. import javafx.scene.paint.Paint;
7. import javafx.util.Duration;
8.
9. /**
10. * An animation to quickly enlarge text and then return it to its original scale.
11. */
12. public class TextEmphasisAnimation extends AnimationWrapper
13. {
14.     /**
15.      * create the animations for text growing then shrinking
16.      * @param textToAnimate Label.
17.      * @param colorAtStart initial colour change.
18.      * @param changeColourAtEnd colour change after finished.
19.      * @param timePauseAfterAnim time delay after animation until animation finished.
20.      */
21.     public TextEmphasisAnimation(Label textToAnimate, Paint colorAtStart, Paint changeColourAtEnd, Duration timePauseAfterAnim)
22.     {
23.         super();
24.
25.         var colourTextAtStart = new PauseTransition(Duration.seconds(0));
26.         colourTextAtStart.setOnFinished(e -> textToAnimate.setTextFill(colorAtStart));
27.         this.sequentialAnimation.getChildren().add(colourTextAtStart);
28.
29.         var revertSizeTransition = new ScaleTransition(Duration.seconds(0.2), textToAnimate);
30.         revertSizeTransition.setToY(1);
31.         revertSizeTransition.setToX(1);
32.
33.         var doubleSizeTransition = new ScaleTransition(Duration.seconds(0.2), textToAnimate);
34.         doubleSizeTransition.setToY(2);
35.         doubleSizeTransition.setToX(2);
36.
37.         var pauseAfter = new PauseTransition(timePauseAfterAnim);
38.         pauseAfter.setOnFinished(e -> textToAnimate.setTextFill(changeColourAtEnd));
39.
40.         this.sequentialAnimation.getChildren().add(doubleSizeTransition);
41.         this.sequentialAnimation.getChildren().add(revertSizeTransition);
42.         this.sequentialAnimation.getChildren().add(pauseAfter);
43.     }
44. }
```

UpgradeTiles

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
getUpgradeByName(String)		0%		0%	3	3	5	5	1	1
UpgradeTiles()		0%	n/a	n/a	1	1	1	1	1	1
static {...}		100%	n/a	n/a	0	1	0	38	0	1
getRandomUpgradeTile()		100%	n/a	n/a	0	1	0	2	0	1
Total	23 of 145	84%	4 of 4	0%	4	6	6	46	2	4

Created with JaCoCo 0.8.12.202403310830

UpgradeTiles.java

```

1. package com.example.project.services.shopItems;
2.
3. import com.example.project.models.tiles.UpgradeEffects;
4. import com.example.project.models.tiles.UpgradeTileModel;
5.
6. import java.util.Arrays;
7. import java.util.List;
8. import java.util.Objects;
9. import java.util.Random;
10.
11. /**
12.  * Static class to store all the possible upgrade tiles available in the game.
13. */
14. public class UpgradeTiles {
15.
16.     private static final List<UpgradeTileModel> upgradeTiles = Arrays.asList(
17.         new UpgradeTileModel.UpgradeBuilder()
18.             .name("Grandma's Glasses")
19.             .description("Add +2 to the score multiplier for every identical pair of letters next to each other.")
20.             .imagePath("/com/example/project/upgradeTileImages/GrandmasGlasses_small.png")
21.             .cost(2)
22.             .upgradeEffect(UpgradeEffects::glassesEffect)
23.             .build(),
24.
25.         new UpgradeTileModel.UpgradeBuilder()
26.             .name("Loaded Dice")
27.             .description("Value is doubled for a random letter in your word.")
28.             .imagePath("/com/example/project/upgradeTileImages/LoadedDice_small.png")
29.             .cost(2)
30.             .upgradeEffect(UpgradeEffects::diceEffect)
31.             .build(),
32.
33.         new UpgradeTileModel.UpgradeBuilder()
34.             .name("Lucky Coin")
35.             .description("20% Chance your total word score is doubled.")
36.             .imagePath("/com/example/project/upgradeTileImages/LuckyCoin_small.png")
37.             .cost(2)
38.             .upgradeEffect(UpgradeEffects::coinEffect)
39.             .build(),
40.
41.         new UpgradeTileModel.UpgradeBuilder()
42.             .name("Compact Mirror")
43.             .description("Whenever a palindrome is played, double the word's base score. (A palindrome is a word that is spelt the same backwards as forwards, e.g. LEVEL.)")
44.             .imagePath("/com/example/project/upgradeTileImages/CompactMirror.png")
45.             .cost(2)
46.             .upgradeEffect(UpgradeEffects::mirrorEffect)
47.             .build(),
48.
49.         new UpgradeTileModel.UpgradeBuilder()
50.             .name("Friendship Bracelet")
51.             .description("Add +1 to the score multiplier for every consecutive letter in alphabetical order.")
52.             .imagePath("/com/example/project/upgradeTileImages/FriendshipBracelet.png")
53.             .cost(2)
54.             .upgradeEffect(UpgradeEffects::braceletEffect)
55.             .build(),
56.
57.         new UpgradeTileModel.UpgradeBuilder()
58.             .name("Lost Button")
59.             .description("Add +5 to the base word score for every X on the tile rack.")
60.             .imagePath("/com/example/project/upgradeTileImages/LostButton.png")
61.             .cost(2)
62.             .upgradeEffect(UpgradeEffects::buttonEffect)
63.             .build()
64.
65.     );
66.
67.     private static final Random random = new Random();
68.
69.     /**
70.      * Gets random upgrade tile.
71.      * @return returns upgrade tile.
72.     */
73.     public static UpgradeTileModel getRandomUpgradeTile() {
74.         var randomNum = random.nextInt(0, upgradeTiles.size());
75.         return upgradeTiles.get(randomNum);
76.     }
77.
78.     /**
79.      * Gets upgrade by name.
80.      * @param name name.
81.      * @return tile.
82.     */
83.     public static UpgradeTileModel getUpgradeByName(String name) {
84.         {
85.             for (UpgradeTileModel item : upgradeTiles)
86.             {
87.                 if (Objects.equals(item.getName(), name)){
88.                     return item;
89.                 }
90.             }
91.
92.             return null;
93.         }
94.     }
95.
96.

```

com.example.project.services.shopItems

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods	Missed	Classes
G UpgradeTiles	 84%		 0%		4	6	6	46	2	4	0	1
Total	23 of 145	84%	4 of 4	0%	4	6	6	46	2	4	0	1

Created with JaCoCo 0.8.12.202403310830

com.example.project.services.shopItems

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods	Missed	Classes
UpgradeTiles.java	 84%	84%	 0%	0%	4	6	6	46	2	4	0	1
Total	23 of 145	84%	4 of 4	0%	4	6	6	46	2	4	0	1

Created with JaCoCo 0.8.12.202403310830

GameMusicPlayer

Element	Missed Instructions Cov.	Missed Branches Cov.	Missed Cxtys	Missed Lines	Missed Methods
GameMusicPlayer()	100%	n/a	0 1	0 2	0 1
playGameMusicLoop()	100%	n/a	0 1	0 2	0 1
Total	0 of 10	100%	0 of 0	n/a	0 2

Created with JaCoCo 0.8.12.202403310830

GameMusicPlayer.java

```
1. package com.example.project.services.sound;
2.
3. import javax.sound.sampled.*;
4.
5. /**
6.  * Plays the game music track on repeat.
7. */
8. public class GameMusicPlayer extends GameSoundPlayer
9. {
10.     private static final String clipPath = "/com/example/project/Sounds/puzzleMusic_converted.wav";
11.
12.     /**
13.      * Create new instance of game music player.
14.      */
15.     public GameMusicPlayer()
16.     {
17.         super(clipPath, -3);
18.     }
19.
20.     /**
21.      * play game music loop continuously.
22.      */
23.     public void playGameMusicLoop()
24.     {
25.         clip.loop(Clip.LOOP_CONTINUOUSLY);
26.     }
27. }
```

GameSoundPlayer

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
convertFile(String)		100%		100%	0	2	0	21	0	1
GameSoundPlayer(String, Logger, float)		100%		n/a	0	1	0	8	0	1
GameSoundPlayer(String, Logger)		100%		n/a	0	1	0	6	0	1
GameSoundPlayer(String)		100%		n/a	0	1	0	5	0	1
GameSoundPlayer(String, float)		100%		n/a	0	1	0	4	0	1
changeVolume(float)		100%		n/a	0	1	0	3	0	1
replay()		100%		n/a	0	1	0	3	0	1
unMute()		100%		n/a	0	1	0	2	0	1
mute()		100%		n/a	0	1	0	2	0	1
Total	0 of 174	100%	0 of 2	100%	0	10	0	50	0	9

Created with JaCoCo 0.8.12.202403310830

GameSoundPlayer.java

```
1. package com.example.project.services.sound;
2.
3. import com.example.project.services.Logger;
4.
5. import javax.sound.sampled.*;
6. import java.io.BufferedInputStream;
7. import java.io.IOException;
8. import java.io.InputStream;
9.
10.
11. /**
12.  * plays an audio clip as a sound effect for the game.
13. */
14. public class GameSoundPlayer
15. {
16.     private Logger logger = new Logger();
17.     protected final Clip clip;
18.     private float defaultGain = 0f;
19.
20.     /**
21.      * creates a new instance of GameSoundPlayer
22.      * @param filePath filepath to sound.
23.     */
24.     public GameSoundPlayer(String filePath)
25.     {
26.         clip = convertFile(filePath);
27.     }
28.
29.     protected GameSoundPlayer(String filePath, Logger logger)
30.     {
31.         this.logger = logger;
32.         clip = convertFile(filePath);
33.     }
34.
35.     protected GameSoundPlayer(String filePath, Logger logger, float gainAmount)
36.     {
37.         this.logger = logger;
38.         clip = convertFile(filePath);
39.         defaultGain = gainAmount;
40.         changeVolume(gainAmount);
41.     }
42.
43.     /**
44.      * creates a new instance of GameSoundPlayer
45.      * @param filePath filepath to sound.
46.      * @param gainAmount volume to set the clip at
47.     */
48.     public GameSoundPlayer(String filePath, float gainAmount)
49.     {
50.         this(filePath);
51.         defaultGain = gainAmount;
52.         changeVolume(gainAmount);
53.     }
54.
55.     /**
56.      * Reset clip and then play.
57.     */
58.     public void replay() {
59.         clip.setFramePosition(0);
60.         clip.start();
61.     }
62.
63.     /**
64.      * Change the current clips volume. -80f muted 0f is normal volume.
65.      * @param vol volume.
66.     */
67.     private void changeVolume(float vol)
68.     {
69.         FloatControl volumeControl = (FloatControl) clip.getControl(FloatControl.Type.MASTER_GAIN);
70.         volumeControl.setValue(vol);
71.     }
72.
73.     /**
74.      * set clip volume to mute.
75.     */
76.     public void mute()
77.     {
78.         changeVolume(-80f);
```

```

79. }
80.
81. /**
82. * Set clip to its default volume.
83. */
84. public void unMute(){
85.     changeVolume(defaultGain);
86. }
87.
88. /**
89. * File must be in a specific format for javax.sound.samples library. :(
90. * @param filePath file location.
91. * @return returns clip in correct format.
92. */
93. private Clip convertFile(String filePath) {
94.     Clip convertedClip;
95.
96.     InputStream resourceStream = GameMusicPlayer.class.getResourceAsStream(filePath);
97.     if (resourceStream == null)
98.     {
99.         var errorMessage = String.format("Sound file not found. No sound file at %s", filePath);
100.        this.logger.logError(errorMessage);
101.        throw new IllegalArgumentException(errorMessage);
102.    }
103.
104.    try {
105.        BufferedInputStream bufferedStream = new BufferedInputStream(resourceStream);
106.        AudioInputStream originalStream = AudioSystem.getAudioInputStream(bufferedStream);
107.
108.        AudioFormat targetFormat = new AudioFormat(
109.            AudioFormat.Encoding.PCM_SIGNED,
110.            44100.0f, 16, 2, 4, 44100.0f, false
111.        );
112.
113.        AudioInputStream convertedStream = AudioSystem.getAudioInputStream(targetFormat, originalStream);
114.
115.        convertedClip = AudioSystem.getClip();
116.        convertedClip.open(convertedStream);
117.
118.        convertedStream.close();
119.        originalStream.close();
120.        bufferedStream.close();
121.        resourceStream.close();
122.    }
123.    catch (UnsupportedAudioFileException | IOException | LineUnavailableException e)
124.    {
125.        var message = "Error loading sound file: " + e.getMessage();
126.        this.logger.logError(message);
127.        throw new IllegalArgumentException(message);
128.    }
129.
130.    return convertedClip;
131. }
132. }

```

com.example.project.services.sound

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods	Missed	Classes
C GameSoundPlayer	100%	100%	100%	n/a	0	10	0	50	0	9	0	1
C GameMusicPlayer	100%	100%		n/a	0	2	0	4	0	2	0	1
Total	0 of 184	100%	0 of 2	100%	0	12	0	54	0	11	0	2

Created with JaCoCo 0.8.12.202403310830

com.example.project.services.sound

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods	Missed	Classes
GameSoundPlayer.java	 100%	100%	 100%	n/a	0	10	0	50	0	9	0	1
GameMusicPlayer.java	 100%	n/a	0	2	0	4	0	2	0	2	0	1
Total	0 of 184	100%	0 of 2	100%	0	12	0	54	0	11	0	2

Created with JaCoCo 0.8.12.202403310830

com.example.project.controllers.gameScreens.animations

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods	Missed	Classes
C LevelScoreSequence		0%		0%	3	3	19	19	2	2	1	1
C TextEmphasisAnimation		0%		n/a	3	3	16	16	3	3	1	1
C ConfettiAnimation		0%		0%	3	3	15	15	2	2	1	1
C ScoreTimeline		0%		0%	5	5	17	17	4	4	1	1
C InfiniteFloatingAnimation		0%		n/a	4	4	14	14	4	4	1	1
C AnimationWrapper		0%		n/a	4	4	8	8	4	4	1	1
Total	416 of 416	0%	6 of 6	0%	22	22	89	89	19	19	6	6

Created with JaCoCo 0.8.12.202403310830

DictionaryDAO

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
getWordDefinition(String)	100%	100%	100%	100%	0	3	0	20	0	1
isWordInDictionary(String)	100%	100%	n/a	n/a	0	1	0	9	0	1
DictionaryDAO()	100%	100%	n/a	n/a	0	1	0	4	0	1
DictionaryDAO(Connection, Logger)	100%	100%	n/a	n/a	0	1	0	4	0	1
Total	0 of 137	100%	0 of 4	100%	0	6	0	37	0	4

Created with JaCoCo 0.8.12.202403310830

DictionaryDAO.java

```
1. package com.example.project.services.sqlite.dAOs;
2.
3. import com.example.project.services.Logger;
4. import com.example.project.services.SQLiteDictionaryConnection;
5.
6. import java.sql.*;
7. import java.util.ArrayList;
8. import java.util.List;
9.
10. /**
11. * The SQLite Dictionary. The connection returned from SQLiteDictionaryConnection().getInstance() is always the same.
12. */
13. public class DictionaryDAO
14. {
15.     private final Connection connection;
16.     private final Logger logger;
17.
18.     /**
19.      * Constructor for this class SQLLiteDictionary.
20.     */
21.     public DictionaryDAO()
22.     {
23.         this.connection = new SQLiteDictionaryConnection().getInstance();
24.         this.logger = new Logger();
25.     }
26.
27.     /**
28.      * constructor with injection for tests.
29.      * @param connection mock connection.
30.      * @param logger a mock logger.
31.     */
32.     public DictionaryDAO(Connection connection, Logger logger) {
33.         this.connection = connection;
34.         this.logger = logger;
35.     }
36.
37.     /**
38.      * gets the words definition.
39.      * @param wordToFind Word to get definition of.
40.      * @return Returns the definition.
41.     */
42.     public String getWordDefinition(String wordToFind)
43.     {
44.         List<String> definitions = new ArrayList<>();
45.         try
46.         {
47.             wordToFind = wordToFind.trim();
48.             PreparedStatement query = connection.prepareStatement("SELECT wordtype, definition FROM entries WHERE word = ? COLLATE NOCASE");
49.             query.setString(1, wordToFind);
50.             ResultSet result = query.executeQuery();
51.
52.             while (result.next())
53.             {
54.                 definitions.add("Wordtype: " +
55.                     result.getString("wordtype") +
56.                     System.lineSeparator() +
57.                     "Definition: " +
58.                     result.getString("definition"));
59.             }
60.             if (definitions.isEmpty())
61.             {
62.                 this.logger.LogError(String.format("No rows in database for word: %s", wordToFind));
63.                 definitions.add("No Definition");
64.             }
65.         }
66.         catch (SQLException e)
67.         {
68.             this.logger.LogError(String.format("Definition not found for word: %s", wordToFind));
69.             this.logger.LogError("Error message: " + e.getMessage());
70.             definitions.add("No Definition");
71.         }
72.         String doubleLineSeparator = System.lineSeparator() + System.lineSeparator();
73.         return String.join(doubleLineSeparator, definitions);
74.     }
75.
76.     /**
77.      * gets if word is in dictionary.
78.      * @param wordToCheck Word to check.
79.      * @return returns the boolean value indicating whether the word exists in our database.
80.     */
81.     public boolean isWordInDictionary(String wordToCheck)
82.     {
83.         wordToCheck = wordToCheck.toLowerCase();
84.
85.         try
86.         {
87.             PreparedStatement doesWordExistQuery = connection.prepareStatement("SELECT 1 FROM entries WHERE word = ? LIMIT 1");
88.             doesWordExistQuery.setString(1, wordToCheck);
89.             ResultSet doesWordExistResult = doesWordExistQuery.executeQuery();
90.             return doesWordExistResult.next();
91.         }
```

```
91.     }
92.     catch (SQLException e)
93.     {
94.         this.logger.logError("word not found due to exception");
95.         this.logger.logError("Error message:" + e.getMessage());
96.     }
97.
98.     return false;
99. }
100.
```

UsersDAO

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
hasSaveData(User)		0%		0%	5	5	17	17	1	1
saveSessionData(String, String)		0%		0%	2	2	15	15	1	1
getSessionDataJson(String)		0%		0%	2	2	14	14	1	1
addSessionDataColumn()		0%		0%	2	2	11	11	1	1
doesUserExist(String)		87%		50%	1	2	0	1	0	1
addUser(User)		100%		n/a	0	1	0	12	0	1
queryByUsername(String)		100%		100%	0	2	0	13	0	1
UsersDAO()		100%		n/a	0	1	0	5	0	1
UsersDAO(Connection, Logger)		100%		n/a	0	1	0	5	0	1
UsersDAO>PasswordHasher, Connection, Logger)		100%		n/a	0	1	0	3	0	1
getUser(String)		100%		n/a	0	1	0	1	0	1
Total	291 of 475	38%	15 of 18	16%	12	20	57	96	4	11

Created with JaCoCo 0.8.12.202403310830

UsersDAO.java

```
1. package com.example.project.services.sqlite.dAOs;
2.
3. import com.example.project.services.Logger;
4. import com.example.project.services.PasswordHasher;
5. import com.example.project.models.User;
6. import com.example.project.services.sqlite.SQLiteUsersConnection;
7.
8. import java.sql.*;
9.
10. /**
11. * SQLite Users database. with a table `users` 2 columns. 'username', 'password'. Which are both defined as unique
12. * not null Strings in sqlite.
13. */
14. public class UsersDAO
15. {
16.     private final Logger logger;
17.     private final Connection connection;
18.     PasswordHasher passwordHasher = new PasswordHasher();
19.
20.     /**
21.      * Constructor for this class SQLiteDictionary.
22.      */
23.     public UsersDAO()
24.     {
25.         this.logger = new Logger();
26.         this.connection = new SQLiteUsersConnection().getInstance();
27.     }
28.
29.     protected UsersDAO(PasswordHasher hasher, Connection connection, Logger logger)
30.     {
31.         this(connection, logger);
32.         this.passwordHasher = hasher;
33.     }
34.
35.     /**
36.      * Constructor with injection for unit tests.
37.      * @param connection Connection
38.      * @param logger logger.
39.      */
40.     public UsersDAO(Connection connection, Logger logger)
41.     {
42.         this.logger = logger;
43.         this.connection = connection;
44.     }
45.
46.     /**
47.      * Adds user to the user.db.
48.      * password will be hashed before storing to ensure greater security (no plain text passwords)
49.      * @param user user to add.
50.      */
51.     public void addUser(User user)
52.     {
53.         String sql = "INSERT INTO users (username, password, highscore) VALUES (?, ?, ?)";
54.
55.         try
56.         {
57.             PreparedStatement query = this.connection.prepareStatement(sql);
58.             query.setString(1, user.getUsername());
59.
60.             query.setString(2, this.passwordHasher.hashPassword(user.getPassword())); //hashes password before storing
61.
62.             query.setInt(3, user.getHighscore());
63.             query.executeUpdate();
64.             this.logger.logMessage(String.format("added user: %s to the database", user.getUsername()));
65.         }
66.         catch (SQLException e)
67.         {
68.             this.logger.LogError(String.format("Failed to add user: %s to the database", user.getUsername()));
69.             throw new RuntimeException(String.format("Failed to add user to the database. SQL Error details: %s", e.getMessage()));
70.         }
71.     }
72.
73.     /**
74.      * @param username username
75.      * @return returns bool indicating whether use is in database already.
76.      */
77.     public boolean doesUserExist(String username)
78.     {
79.         return queryByUsername(username) != null;
80.     }
81.
82.     private User queryByUsername(String username)
83.     {
84.         String sql = "SELECT username, password, highscore FROM users WHERE username = ?";
```

```

85.
86.     try {
87.         PreparedStatement statement = connection.prepareStatement(sql);
88.         statement.setString(1, username);
89.         ResultSet result = statement.executeQuery();
90.
91.         if (!result.next()) { // if user does not exist in database return null.
92.             return null;
93.         }
94.
95.         int highscore = result.getInt("highscore");
96.         String usersPassword = result.getString("password");
97.         return new User(username, usersPassword, highscore);
98.     }
99.     catch (SQLException e) {
100.         {
101.             this.logger.logError(String.format("SQL Exception. Failed to get user username: %s", username));
102.             this.logger.logError(String.format("%s", e.getMessage()));
103.             throw new RuntimeException("Failed to get user by username", e);
104.         }
105.     }
106.
107. /**
108. * @param username username.
109. * @return returns user with matching username.
110. */
111. public User getUser(String username)
112. {
113.     return queryByUsername(username);
114. }
115.
116. /**
117. * Saves the session data as JSON for a specific user.
118. * @param username the username to save data for
119. * @param sessionJson the JSON string containing session data
120. */
121. public void saveSessionData(String username, String sessionJson)
122. {
123.     this.addSessionDataColumn();
124.     String sql = "UPDATE users SET session_data = ? WHERE username = ?";
125.
126.     try {
127.         PreparedStatement statement = connection.prepareStatement(sql);
128.         statement.setString(1, sessionJson);
129.         statement.setString(2, username);
130.
131.         int rowsAffected = statement.executeUpdate();
132.
133.         if (rowsAffected > 0) {
134.             logger.logMessage(String.format("Saved session data for user: %s", username));
135.         } else {
136.             logger.logError(String.format("No user found with username: %s", username));
137.         }
138.
139.     } catch (SQLException e) {
140.         logger.logError(String.format("Failed to save session data for user: %s", username));
141.         logger.logError(String.format("SQL Error: %s", e.getMessage()));
142.         throw new RuntimeException("Failed to save session data", e);
143.     }
144. }
145.
146. /**
147. * Get session saved data.
148. * @param username user.
149. * @return returns string.
150. */
151. public String getSessionDataJson(String username) {
152.     String sql = "SELECT session_data FROM users WHERE username = ?";
153.
154.     try {
155.         PreparedStatement statement = connection.prepareStatement(sql);
156.         statement.setString(1, username);
157.         ResultSet result = statement.executeQuery();
158.
159.         if (result.next()) {
160.             String sessionData = result.getString("session_data");
161.             logger.logMessage(String.format("Loaded session data for user: %s", username));
162.             return sessionData;
163.         } else {
164.             logger.logMessage(String.format("No session data found for user: %s", username));
165.             return null;
166.         }
167.
168.     } catch (SQLException e) {
169.         logger.logError(String.format("Failed to load session data for user: %s", username));
170.         logger.logError(String.format("SQL Error: %s", e.getMessage()));
171.         throw new RuntimeException("Failed to load session data", e);
172.     }
173. }
174.
```

```

175.     private void addSessionDataColumn() {
176.         String sql = "ALTER TABLE users ADD COLUMN session_data TEXT";
177.
178.         try {
179.             Statement statement = connection.createStatement();
180.             statement.executeUpdate(sql);
181.             logger.logMessage("Added session_data column to users table");
182.         } catch (SQLException e) {
183.             // Column might already exist
184.             if (e.getMessage().contains("duplicate column")) {
185.                 logger.logMessage("session_data column already exists");
186.             } else {
187.                 logger.logError("Error adding session_data column: " + e.getMessage());
188.                 throw new RuntimeException("Failed to add session_data column", e);
189.             }
190.         }
191.     }
192.
193. /**
194. * Does user have save data.
195. * @param user user.
196. * @return returns true if save data exists.
197. */
198. public boolean hasSaveData(User user)
199. {
200.     addSessionDataColumn();
201.
202.     String sql = "SELECT session_data FROM users WHERE username = ?";
203.
204.     try {
205.         PreparedStatement statement = connection.prepareStatement(sql);
206.         statement.setString(1, user.getUsername());
207.         ResultSet result = statement.executeQuery();
208.
209.         if (result.next()) {
210.             String sessionData = result.getString("session_data");
211.             // Check if session_data is not null and not empty
212.             boolean hasSave = sessionData != null && !sessionData.trim().isEmpty();
213.             logger.logMessage(String.format("User %s %s save data",
214.                 user.getUsername(), hasSave ? "has" : "does not have"));
215.             return hasSave;
216.         } else {
217.             logger.logError(String.format("User not found: %s", user.getUsername()));
218.             return false;
219.         }
220.
221.     } catch (SQLException e) {
222.         logger.logError(String.format("Failed to check save data for user: %s", user.getUsername()));
223.         logger.logError(String.format("SQL Error: %s", e.getMessage()));
224.         return false; // Return false instead of throwing to handle missing column gracefully
225.     }
226. }
227. }

```

com.example.project.services.sqlite.dAOs

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed Cxty	Missed Lines	Missed Methods	Missed Classes
C UsersDAO	 38%	 16%	12	20	57	96	4	11
C DictionaryDAO	 100%	 100%	0	6	0	37	0	4
Total	291 of 612	52%	15 of 22	31%	12	26	57	133

Created with JaCoCo 0.8.12.202403310830

com.example.project.services.sqlite.dAOs

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods	Missed	Classes
UsersDAO.java	38%	16%	12	20	57	96	4	11	0	1	0	1
DictionaryDAO.java	100%	100%	0	6	0	37	0	4	0	4	0	1
Total	291 of 612	52%	15 of 22	31%	12	26	57	133	4	15	0	2

Created with JaCoCo 0.8.12.202403310830

SQLiteConnection

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
getInstance()		57%		75%	1	3	2	7	0	1
createConnection()		36%		n/a	0	1	3	5	0	1
static {...}		100%		n/a	0	1	0	1	0	1
SQLiteConnection()		100%		n/a	0	1	0	1	0	1
Total	28 of 65	56%	1 of 4	75%	1	6	5	14	0	4

Created with JaCoCo 0.8.12.202403310830

SQLiteConnection.java

```
1. package com.example.project.services.sqlite;
2.
3. import com.example.project.services.Logger;
4.
5. import java.nio.file.Files;
6. import java.nio.file.Paths;
7. import java.sql.Connection;
8. import java.sql.DriverManager;
9. import java.sql.SQLException;
10.
11. /**
12. * Abstract SQLiteConnection class.
13. */
14. public abstract class SQLiteConnection {
15.     private static final Logger logger = new Logger();
16.
17.     protected abstract Connection getSQLiteInstance();
18.
19.     protected abstract void setSQLiteInstance(Connection newInstance);
20.
21.     /**
22.      * Each subclass provides its database path.
23.      */
24.     protected abstract String getDatabasePath();
25.
26.     /**
27.      * Gets the database connection from an existing readonly resource .db
28.      * @return returns the connection is already made or creates new one.
29.      */
30.     public Connection getInstance()
31.     {
32.         if (getSQLiteInstance() != null){
33.             return getSQLiteInstance();
34.         }
35.
36.         if (!Files.exists(Paths.get(getDatabasePath())))
37.         {
38.             logger.logError(String.format("Database connection failed: Database file not found: %s", getDatabasePath()));
39.             throw new RuntimeException("Cannot initialize connection");
40.         }
41.
42.         setSQLiteInstance(createConnection());
43.         return getSQLiteInstance();
44.     }
45.
46.     private Connection createConnection()
47.     {
48.         String dbUrl = "jdbc:sqlite:" + getDatabasePath();
49.         try
50.         {
51.             return DriverManager.getConnection(dbUrl);
52.         } catch (SQLException sqlEx)
53.         {
54.             logger.logError("Database connection failed: " + sqlEx.getMessage());
55.             throw new RuntimeException("Cannot initialize connection", sqlEx);
56.         }
57.     }
58. }
59. }
```

SQLiteDictionaryConnection

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
SQLiteDictionaryConnection()	100%		n/a		0	1	0	1	0	1
setSQLiteInstance(Connection)	100%		n/a		0	1	0	2	0	1
getSQLiteInstance()	100%		n/a		0	1	0	1	0	1
getDatabasePath()	100%		n/a		0	1	0	1	0	1
Total	0 of 10	100%	0 of 0	n/a	0	4	0	5	0	4

Created with JaCoCo 0.8.12.202403310830

SQLiteDictionaryConnection.java

```
1. package com.example.project.services.sqlite;
2.
3. import java.sql.Connection;
4.
5. /**
6.  * Connection to the dictionary.db
7. */
8. public class SQLiteDictionaryConnection extends SQLiteConnection
9. {
10.     private static Connection instance;
11.
12.     @Override
13.     protected Connection getSQLiteInstance() {
14.         return instance;
15.     }
16.
17.     @Override
18.     protected void setSQLiteInstance(Connection newInstance) {
19.         instance = newInstance;
20.     }
21.
22.     @Override
23.     protected String getDatabasePath()
24.     {
25.         return "databases/English-Dictionary-Open-Source-main/sqlite3/dictionary.db";
26.     }
27. }
```

com.example.project.controllers.gameScreens.animations

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods	Missed	Classes
LevelScoreSequence.java		0%		0%	3	3	19	19	2	2	1	1
TextEmphasisAnimation.java		0%		n/a	3	3	16	16	3	3	1	1
ConfettiAnimation.java		0%		0%	3	3	15	15	2	2	1	1
ScoreTimeline.java		0%		0%	5	5	17	17	4	4	1	1
InfiniteFloatingAnimation.java		0%		n/a	4	4	14	14	4	4	1	1
AnimationWrapper.java		0%		n/a	4	4	8	8	4	4	1	1
Total	416 of 416	0%	6 of 6	0%	22	22	89	89	19	19	6	6

SQLiteUsersConnection

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
SQLiteUsersConnection()		100%		n/a	0	1	0	1	0	1
setSQLiteInstance(Connection)		100%		n/a	0	1	0	2	0	1
getSQLiteInstance()		100%		n/a	0	1	0	1	0	1
getDatabasePath()		100%		n/a	0	1	0	1	0	1
Total	0 of 10	100%	0 of 0	n/a	0	4	0	5	0	4

Created with JaCoCo 0.8.12.202403310830

SQLiteUsersConnection.java

```
1. package com.example.project.services.sqlite;
2.
3. import java.sql.Connection;
4.
5. /**
6. * Connection to the users.db
7. */
8. public class SQLiteUsersConnection extends SQLiteConnection
9. {
10.     private static Connection instance;
11.
12.     @Override
13.     protected Connection getSQLiteInstance() {
14.         return instance;
15.     }
16.
17.     @Override
18.     protected void setSQLiteInstance(Connection newInstance) {
19.         instance = newInstance;
20.     }
21.
22.     @Override
23.     protected String getDatabasePath()
24.     {
25.         return "databases/users.db";
26.     }
27. }
```

com.example.project.services.sqlite

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods	Missed	Classes
C SQLiteConnection	 56%	 75%	1	6	5	14	0	4	0	4	0	1
C SQLiteUsersConnection	 100%	n/a	0	4	0	5	0	4	0	4	0	1
C SQLiteDictionaryConnection	 100%	n/a	0	4	0	5	0	4	0	4	0	1
Total	28 of 85	67%	1 of 4	75%	1	14	5	24	0	12	0	3

Created with JaCoCo 0.8.12.202403310830

com.example.project.services.sqlite

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods	Missed	Classes
SQLiteConnection.java		56%		75%	1	6	5	14	0	4	0	1
SQLiteDictionaryConnection.java		100%		n/a	0	4	0	5	0	4	0	1
SQLiteUsersConnection.java		100%		n/a	0	4	0	5	0	4	0	1
Total	28 of 85	67%	1 of 4	75%	1	14	5	24	0	12	0	3

Created with JaCoCo 0.8.12.202403310830

FXMLPageLoader

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
load(String)	100%		n/a		0	1	0	2	0	1
FXMLPageLoader()	100%		n/a		0	1	0	3	0	1
getController()	100%		n/a		0	1	0	1	0	1
Total	0 of 26	100%	0 of 0	n/a	0	3	0	6	0	3

Created with JaCoCo 0.8.12.202403310830

FXMLPageLoader.java

```
1. package com.example.project.services;
2.
3. import javafx.fxml.FXMLLoader;
4. import javafx.scene.Parent;
5.
6. import java.io.IOException;
7.
8. /**
9. * FXML Loader wrapper class for the project to load the game screen FXML pages.
10.*/
11. public class FXMLPageLoader implements PageLoader
12. {
13.     private FXMLLoader loader;
14.
15.     /**
16.      * constructor.
17.     */
18.     public FXMLPageLoader() {
19.         this.loader = new FXMLLoader();
20.     }
21.
22.     @Override
23.     public Parent load(String fxmlPath) throws IOException
24.     {
25.         this.loader = new FXMLLoader(this.getClass().getResource(fxmlPath));
26.         return loader.load();
27.     }
28.
29.     @Override
30.     public <T> T getController() {
31.         return loader.getController();
32.     }
33. }
```

GameScene

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
static {...}	100%			n/a	0	1	0	6	0	1
Total	0 of 33	100%	0 of 0	n/a	0	1	0	6	0	1

Created with JaCoCo 0.8.12.202403310830

GameScene.java

```
1. package com.example.project.services;
2.
3. /**
4.  * Game Scenes enum.
5. */
6. public enum GameScene
7. {
8.     /**
9.      * Login Screen.
10.     */
11.    LOGIN,
12.
13.    /**
14.     * Main Menu Screen.
15.     */
16.    MAINMENU,
17.
18.    /**
19.     * Daily Reward Spinner Screen.
20.     */
21.    DAILY_REWARD,
22.
23.    /**
24.     * Level Screen
25.     */
26.    LEVEL,
27.
28.    /**
29.     * Shop screen.
30.     */
31.    SHOP,
32. }
```

Logger

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
Logger(ByteArrayOutputStream, ByteArrayOutputStream)		100%	n/a	0	1	0	12	0	1	
Logger()		100%	n/a	0	1	0	9	0	1	
logWithCapture(String, PrintStream, PrintStream)		100%		100%	0	2	0	4	0	1
Logger(ByteArrayOutputStream, ByteArrayOutputStream, PrintStream, PrintStream)		100%	n/a	0	1	0	4	0	1	
logMessage(String)		100%	n/a	0	1	0	2	0	1	
logError(String)		100%	n/a	0	1	0	2	0	1	
setPrintToConsole(boolean)		100%	n/a	0	1	0	2	0	1	
getErrorLogs()		100%	n/a	0	1	0	1	0	1	
getLogs()		100%	n/a	0	1	0	1	0	1	
clearLogs()		100%	n/a	0	1	0	2	0	1	
Total	0 of 145	100%	0 of 2	100%	0	11	0	36	0	10

Created with JaCoCo 0.8.12.202403310830

Logger.java

```
1. package com.example.project.services;
2.
3. import java.io.ByteArrayOutputStream;
4. import java.io.PrintStream;
5.
6. /**
7.  * com.example.project.services.Logger for Application and to show up in test and build CI workflow.
8. */
9. public class Logger
10. {
11.     private PrintStream consoleErrorStream;
12.     private final PrintStream captureErrorStream;
13.     private ByteArrayOutputStream capturedErrorLogs = new ByteArrayOutputStream();
14.
15.     private PrintStream consoleStdOutStream;
16.     private final PrintStream captureStdOutStream;
17.     private ByteArrayOutputStream capturedStdOutLogs = new ByteArrayOutputStream();
18.
19.     private boolean printToConsole = true;
20.
21.     /**
22.      * Default constructor writes to console does not capture. For the project files. Use below for unit tests.
23.      */
24.     public Logger()
25.     {
26.         this.consoleErrorStream = System.err;
27.         this.captureErrorStream = new PrintStream(capturedErrorLogs);
28.
29.         this.consoleStdOutStream = System.out;
30.         this.captureStdOutStream = new PrintStream(capturedStdOutLogs);
31.     }
32.
33.     /**
34.      * Constructor for unit tests. Logger with constructor to input the byte array output stream to write to. (for mocking a log to check get methods.)
35.      * @param capturedErrStream byte array to store error logs.
36.      * @param capturedOutStream byte array to store standard output logs.
37.      */
38.     public Logger(ByteArrayOutputStream capturedErrStream, ByteArrayOutputStream capturedOutStream) {
39.         this.setPrintToConsole(false);
40.         this.consoleErrorStream = System.err;
41.         this.capturedErrorLogs = capturedErrStream;
42.         this.captureErrorStream = new PrintStream(this.capturedErrorLogs);
43.
44.         this.consoleStdOutStream = System.out;
45.         this.capturedStdOutLogs = capturedOutStream;
46.         this.captureStdOutStream = new PrintStream(this.capturedStdOutLogs);
47.     }
48.
49.     protected Logger(ByteArrayOutputStream capturedErrStream, ByteArrayOutputStream capturedOutStream, PrintStream mockRealErrOutput, PrintStream mockRealStdOutput)
50.     {
51.         this(capturedErrStream, capturedOutStream);
52.         this.consoleErrorStream = mockRealErrOutput;
53.         this.consoleStdOutStream = mockRealStdOutput;
54.     }
55.
56.     /**
57.      * @param value if this logger will also print to the console.
58.      */
59.     public void setPrintToConsole(boolean value){
60.         this.printToConsole = value;
61.     }
62.
63.     /**
64.      * @return Gets the error log messages.
65.      */
66.     public String getErrorLogs()
67.     {
68.         return this.capturedErrorLogs.toString();
69.     }
70.
71.
72.     /**
73.      * @return returns the standard log messages.
74.      */
75.     public String getLogs(){ return this.capturedStdOutLogs.toString(); }
76.
77.     /**
78.      * Logs an error message to standard error. And adds a newline.
79.      * <p>
80.      * The message can include format specifiers like in {@link String#format(String, Object...)}.
81.      *
82.      * @param message the error message format string (e.g., "Failed to connect to %s")
83.      */
84.     public void logError(String message)
85.     {
86.         this.logWithCapture(message, captureErrorStream, consoleErrorStream);
87.     }
88.
89.     /**
90.      * Clears captured logs use in tests teardown.
91.      */
92.     public void clearLogs() {
93.         capturedErrorLogs.reset();
94.     }
95.
96.     /**
97.      * Log message to System.out.
98.      * @param message message.
99.      */
100.    public void logMessage(String message)
101.    {
102.        this.logWithCapture(String.format(message), captureStdOutStream, consoleStdOutStream);
103.    }
104.
105.    private synchronized void logWithCapture(String formattedMessage, PrintStream captureStream, PrintStream consoleStream)
106.    {
```

```
107.     captureStream.printf(formattedMessage + "%n"); // capture in memory for tests to look at.
108.     ◆ if (printToConsole)
109.     {
110.         consoleStream.printf(formattedMessage + "%n"); // console output
111.     }
112. }
113. }
```

DailyRewardController

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
onSpinButtonClicked()		0%		0%	2	2	11	11	1	1
showReward(DailyRewardType)		0%		0%	3	3	10	10	1	1
onSceneChangedToThis()		0%		0%	2	2	7	7	1	1
setup(Session, SceneManager)		0%		n/a	1	1	3	3	1	1
lambda\$onSpinButtonClicked\$0(ActionEvent)		0%		n/a	1	1	4	4	1	1
DailyRewardController()		0%		n/a	1	1	2	2	1	1
lambda\$showReward\$1(ActionEvent)		0%		n/a	1	1	1	1	1	1
Total	142 of 142	0%	7 of 7	0%	11	11	37	37	7	7

Created with JaCoCo 0.8.12.202403310830

PasswordHasher

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
doesPasswordMatch(String, String)	100%		n/a		0	1	0	5	0	1
PasswordHasher()	100%		n/a		0	1	0	3	0	1
PasswordHasher(Logger)	100%		n/a		0	1	0	3	0	1
hashPassword(String)	100%		n/a		0	1	0	1	0	1
Total	0 of 49	100%	0 of 0	n/a	0	4	0	12	0	4

Created with JaCoCo 0.8.12.202403310830

PasswordHasher.java

```
1. package com.example.project.services;
2. import org.mindrot.jbcrypt.BCrypt;
3.
4.
5. /**
6.  * Hashes passwords.
7. */
8. public class PasswordHasher
9. {
10.     private final Logger logger;
11.
12.     /**
13.      * public constructor.
14.     */
15.     public PasswordHasher(){
16.         this.logger = new Logger();
17.     }
18.
19.     protected PasswordHasher(Logger logger)
20.     {
21.         this.logger = logger;
22.     }
23.
24.     /**
25.      * Hashes a raw password using BCrypt.
26.      *
27.      * @param rawPassword the plain text password
28.      * @return the hashed password string
29.      */
30.     public String hashPassword(String rawPassword) {
31.         return BCrypt.hashpw(rawPassword, BCrypt.gensalt());
32.     }
33.
34.     /**
35.      * Verifies a candidate password against a hashed password.
36.      * @param candidate the plain text password entered by the user
37.      * @param hashed    the hashed password stored in the database
38.      * @return true if the password matches, false otherwise
39.      */
40.     public boolean doesPasswordMatch(String candidate, String hashed)
41.     {
42.         try {
43.             return BCrypt.checkpw(candidate, hashed);
44.         }
45.         catch (IllegalArgumentException e)
46.         {
47.             this.logger.logMessage(String.format("Password check failed, caught exception: %s", e.getMessage()));
48.             this.logger.logMessage(String.format("Cause: %s", e.getCause()));
49.             return false;
50.         }
51.     }
52. }
```

PopupLoader

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
PopupLoader()		0%		n/a	1	1	3	3	1	1
createPopupController(PopupModel)		100%		n/a	0	1	0	7	0	1
PopupLoader(FXMLLoaderPageLoader)		100%		n/a	0	1	0	3	0	1
Total	8 of 41	80%	0 of 0	n/a	1	3	3	13	1	3

Created with JaCoCo 0.8.12.202403310830

PopupLoader.java

```
1. package com.example.project.services;
2.
3. import com.example.project.controllers.popupControllers.PopupController;
4. import com.example.project.models.popups.PopupModel;
5. import javafx.scene.Parent;
6.
7. import java.io.IOException;
8.
9. /**
10. * class to load the popup and initialize it with a controller
11. */
12. public class PopupLoader
13. {
14.     private final FXMLPageLoader loader;
15.
16.     protected PopupLoader(FXMLPageLoader loader)
17.     {
18.         this.loader = loader;
19.     }
20.
21.     /**
22.      * Constructor.
23.     */
24.     public PopupLoader()
25.     {
26.         this.loader = new FXMLPageLoader();
27.     }
28.
29.     /**
30.      * create popup controller.
31.      * @param popupModel popup object.
32.      * @param <C> class of popup controller.
33.      * @param <P> class of popup.
34.      * @return returns controller of the tile.
35.     */
36.     public <C extends PopupController<P>, P extends PopupModel> C createPopupController(P popupModel)
37.     {
38.         try
39.         {
40.             // In this case not using javafx Popup because of its limitations.
41.             // Might refactor in case we use actual Popups.
42.             String fxmlPath = popupModel.getFXMLPath();
43.             Parent root = this.loader.load(fxmlPath);
44.             C controller = loader.getController();
45.             controller.initialize(popupModel);
46.             return controller;
47.         } catch (IOException e) {
48.             throw new RuntimeException("Failed to create popup controller: " + popupModel.getFXMLPath(), e);
49.         }
50.     }
51. }
```

SVGIcons

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
getCogIcon()	0%		n/a		1	1	4	4	1	1
SVGIcons()	0%		n/a		1	1	1	1	1	1
Total	15 of 15	0%	0 of 0	n/a	2	2	5	5	2	2

Created with JaCoCo 0.8.12.202403310830

SVGIcons.java

```
1. package com.example.project.services;
2.
3. import javafx.scene.paint.Color;
4. import javafx.scene.shape.SVGPath;
5.
6. /**
7. * a static class to hold some icons for the application.
8. */
9. public class SVGIcons
10. {
11.     private static final String cogIcon = "M19.43 12.98c.04-.32.07-.66.07-1s-.03-.68-.07-1l2.11-1.65c.19-.15.24-.42.12-.64l-2-3.46c-.12-.21-.37-.3-.6-.22l-2.49 1a7.027 7.027 0 00-1.73-1l-.38-2.65A.4";
12.
13.     /**
14.      * gets a cog icon.
15.      * @return icon SVG.
16.     */
17.     public static SVGPath getCogIcon()
18.     {
19.         SVGPath cog = new SVGPath();
20.         cog.setContent(cogIcon);
21.         cog.setFill(Color.GRAY);
22.         return cog;
23.     }
24. }
```

SceneManager

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
SceneManager.getCurrentScene()		0%		n/a	1	1	1	1	1	1
SceneManager(RootLayoutController, Map, Map)		100%		n/a	0	1	0	7	0	1
switchScene(GameScene)		100%		n/a	0	1	0	6	0	1
Total	3 of 47	93%	0 of 0	n/a	1	3	1	14	1	3

Created with JaCoCo 0.8.12.202403310830

SceneManager.java

```
1. package com.example.project.services;
2.
3. import com.example.project.controllers.RootLayoutController;
4. import com.example.project.services.sound.GameSoundPlayer;
5. import javafx.scene.Parent;
6.
7. import java.util.HashMap;
8. import java.util.Map;
9. import com.example.project.controllers.gameScreens.GameScreenController;
10.
11. /**
12.  * Represents the scene manager class.
13. */
14. public class SceneManager
15. {
16.     private final RootLayoutController rootController;
17.     private Map<GameScene, Parent> pages = new HashMap<>();
18.     private Map<GameScene, GameScreenController> controllers = new HashMap<>();
19.     private GameScene currentScene;
20.
21. /**
22.  * Constructor with injection for tests
23.  * @param newRootController root controller
24.  * @param controllersToUse controllers
25.  * @param pagesToUse pages
26. */
27. public SceneManager(RootLayoutController newRootController, Map<GameScene,
28.                     GameScreenController> controllersToUse, Map<GameScene, Parent> pagesToUse)
29. {
30.     rootController = newRootController;
31.     controllers = controllersToUse;
32.     pages = pagesToUse;
33. }
34.
35. /**
36.  * Switch between scenes specify scene type of type from {@link GameScene}.
37.  * @param type scene.
38. */
39. public void switchScene(GameScene type)
40. {
41.     currentScene = type;
42.     Parent page = pages.get(type);
43.     rootController.setContent(page);
44.     GameScreenController controller = controllers.get(type);
45.     controller.onSceneChangedToThis();
46. }
47.
48. /**
49.  * get current scene.
50.  * @return scene.
51. */
52. public GameScene getCurrentScene()
53. {
54.     return currentScene;
55. }
56. }
```

Session

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
load()		0%		0%	7	7	25	25	1	1
Save()		0%		0%	3	3	15	15	1	1
Session()		0%	n/a	n/a	1	1	18	18	1	1
modifyMoney(double)		0%	n/a	n/a	1	1	2	2	1	1
addUpgrade(UpgradeTileModel)		0%	n/a	n/a	1	1	2	2	1	1
hasClaimedRewardToday()		0%	n/a	n/a	1	1	1	1	1	1
resetMoney()		0%	n/a	n/a	1	1	2	2	1	1
setUser(User)		0%	n/a	n/a	1	1	2	2	1	1
getHandSize()		0%	n/a	n/a	1	1	1	1	1	1
getWordWindowSize()		0%	n/a	n/a	1	1	1	1	1	1
setLastRewardDate(LocalDate)		0%	n/a	n/a	1	1	2	2	1	1
getUser()		0%	n/a	n/a	1	1	1	1	1	1
getRedrawWindowSize()		0%	n/a	n/a	1	1	1	1	1	1
Session(int, int, int, ObservableList, User, int, int, int, int, int)		100%	n/a	n/a	0	1	0	24	0	1
updateLevelInfo()		100%	n/a	n/a	0	1	0	4	0	1
resetGame()		100%	n/a	n/a	0	1	0	6	0	1
resetPlaysRedraws()		100%	n/a	n/a	0	1	0	3	0	1
getPlayersUpgradesProperty()		100%	n/a	n/a	0	1	0	1	0	1
getLevelRequirement()		100%	n/a	n/a	0	1	0	1	0	1
getLevelsBeaten()		100%	n/a	n/a	0	1	0	1	0	1
getMoneyProperty()		100%	n/a	n/a	0	1	0	1	0	1
getCurrentPlays()		100%	n/a	n/a	0	1	0	1	0	1
getCurrentRedraws()		100%	n/a	n/a	0	1	0	1	0	1
Total	318 of 488	34%	16 of 16	0%	21	31	61	104	13	23

Created with JaCoCo 0.8.12.202403310830

Session.java

```

1. package com.example.project.services;
2.
3. import com.example.project.models.User;
4. import com.example.project.models.tiles.UpgradeTileModel;
5. import com.example.project.services.shopItems.UpgradeTiles;
6. import com.example.project.services.sqlite.dAOs.UsersDAO;
7. import com.google.gson.Gson;
8. import com.google.gson.GsonBuilder;
9. import javafx.beans.property.*;
10. import javafx.collections.FXCollections;
11. import javafx.collections.ObservableList;
12. import java.time.LocalDate;
13.
14.
15. /**
16. * Game Session. holds info of the current session.
17. */
18. public class Session
19. {
20.     private Integer handSize = 9;
21.
22.     private Integer wordWindowSize = 9;
23.
24.     private Integer redrawWindowSize = 9;
25.
26.     private final ObservableList<UpgradeTileModel> upgrades = FXCollections.observableArrayList();
27.
28.     private final DoubleProperty money;
29.
30.     private final int initialMoney;
31.
32.     private User loggedInUser;
33.
34.     private int levelsBeaten = 0;
35.
36.     private final int initialLevelRequirement;
37.
38.     private final Logger logger = new Logger();
39.
40.     // initial plays and redraws are used to reset the redraws / plays at start of level. As upgrade effects can change how many plays/redraws you start with.
41.     private int initialRedraws = 4;
42.     private final ReadOnlyIntegerWrapper currentRedraws = new ReadOnlyIntegerWrapper(initialRedraws);
43.     private int initialPlays = 4;
44.     private final ReadOnlyIntegerWrapper currentPlays = new ReadOnlyIntegerWrapper(initialPlays);
45.     private final UsersDAO usersDB = new UsersDAO();
46.
47. /**
48. * points required for the player to score at least to beat the current level.
49. */
50. private final ReadOnlyIntegerWrapper levelRequirement;
51.
52. /**
53. * @return points required for the play to score at least to beat the level.
54. */
55. public ReadOnlyIntegerWrapper getLevelRequirement() {
56.     return levelRequirement;
57. }
58.
59. /**
60. * Constructor for injecting values in for unit test.
61. * @param newHandSize hand size.
62. * @param newWordViewSize word length allowed.
63. * @param newRedrawWindowSize redraw window size.
64. * @param newUpgrades upgrade tiles.
65. * @param newUser user.
66. * @param newMoney money.
67. * @param newLevelsBeaten levels beaten.
68. * @param currentLevelRequirement current level requirement.
69. * @param newFirstLevelsRequirement first level requirement.
70. */
71. protected Session(int newHandSize, int newWordViewSize, int newRedrawWindowSize,
72.                 ObservableList<UpgradeTileModel> newUpgrades, User newUser,
73.                 int newMoney, int newLevelsBeaten,
74.                 int currentLevelRequirement, int newFirstLevelsRequirement, int newInitialMoney)
75. {
76.     initialMoney = newInitialMoney;
77.     money = new ReadOnlyDoubleWrapper(newMoney);
78.     initialLevelRequirement = newFirstLevelsRequirement;
79.     handSize = newHandSize;
80.     wordWindowSize = newWordViewSize;
81.     redrawWindowSize = newRedrawWindowSize;
82.     loggedInUser = newUser;
83.     upgrades.setAll(newUpgrades);
84.     levelsBeaten = newLevelsBeaten;
85.     levelRequirement = new ReadOnlyIntegerWrapper(currentLevelRequirement);
86. }
87.
88. protected int getLevelsBeaten(){
89.     return levelsBeaten;
90. }
91.
92. /**
93. * Default constructor.
94. */
95. public Session()
96. {
97.     initialLevelRequirement = 4;
98.     levelRequirement = new ReadOnlyIntegerWrapper(initialLevelRequirement);
99.     initialMoney = 0;
100.    money = new ReadOnlyDoubleWrapper(initialMoney);
101. }
102.
```

```

103.
104.    /**
105.     * Returns the read-only money property for binding to UI components.
106.     * This allows UI elements to automatically update when the players money changes.
107.     * @return ReadOnlyIntegerProperty representing the player's current money amount
108.    */
109.   public DoubleProperty getMoneyProperty()
110.   {
111.     return money;
112.   }
113.
114.   /**
115.    * Adds an upgrade tile to the player's collection.
116.    * This will automatically update all UI displays bound to the upgrades property.
117.    *
118.    * @param upgrade this upgrades the tile to add it to the players collection
119.    */
120.   public void addUpgrade(UpgradeTileModel upgrade)
121.   {
122.     upgrades.add(upgrade);
123.   }
124.
125.   /**
126.    * Checks if the player already claimed today's reward.
127.    * @return true if already claimed today
128.    */
129.   public boolean hasClaimedRewardToday() {
130.     return LocalDate.now().equals(lastRewardDate);
131.   }
132.
133.   /**
134.    * set new user.
135.    * @param newUser user that logged in.
136.    */
137.   public void setUser(User newUser) {
138.     loggedInUser = newUser;
139.   }
140.
141.   /**
142.    * Returns logged in user.
143.    * @return user.
144.    */
145.   public User getUser(){
146.     return loggedInUser;
147.   }
148.
149.   /**
150.    * gets hand size.
151.    * @return returns number of tiles allowed in hand.
152.    */
153.   public int getHandSize() {
154.     return handSize;
155.   }
156.
157.   /**
158.    * gets word size.
159.    * @return return int word size.
160.    */
161.   public int getWordWindowSize() {
162.     return wordWindowSize;
163.   }
164.
165.   /**
166.    * gets upgrade tile property
167.    * @return upgrade tiles model list
168.    */
169.   public ReadOnlyListProperty<UpgradeTileModel> getPlayersUpgradesProperty() {
170.     return new ReadOnlyListWrapper<>(upgrades);
171.   }
172.
173.   /**
174.    * Increments how many points are required to beat the level.
175.    */
176.   public void updateLevelInfo() {
177.     this.levelsBeaten++;
178.     var current = this.levelRequirement.get();
179.     this.levelRequirement.set(current + (int) Math.pow(2, this.levelsBeaten));
180.   }
181.
182.   /**
183.    * Resets the current session when you lose
184.    */
185.   public void resetGame() {
186.     money.set(initialMoney); // resets the players account to their starting amount
187.     levelsBeaten = 0;
188.     levelRequirement.set(initialLevelRequirement);
189.     upgrades.clear();
190.     resetPlaysRedraws();
191.   }
192.
193.   /**
194.    * gets redraw window size (number of slots)
195.    * @return return int redraw window size.
196.    */
197.   public Integer getRedrawWindowSize() {
198.     return redrawWindowSize;
199.   }
200.
201.   /**
202.    * gets the current plays.
203.    * @return current plays remaining.
204.    */
205.   public ReadOnlyIntegerWrapper getCurrentPlays() {
206.     return currentPlays;
207.   }
208.
209.   /**
210.    * gets the redraws property.
211.    * @return the current redraws.
212.   */

```

```

211. /*
212.  * @return ReadOnlyIntegerWrapper getCurrentRedraws()
213.  */
214. 
215. /**
216.  * Reset the plays and redraws.
217. */
218. 
219. public void resetPlaysRedraws()
220. {
221.     getCurrentRedraws().set(initialRedraws);
222.     getCurrentPlays().set(initialPlays);
223. }
224. 
225. private LocalDate lastRewardDate = null;
226. 
227. /**
228.  * Adds or remove money to the player's balance.
229.  * @param amount amount to add
230. */
231. public void modifyMoney(double amount) {
232.     this.money.set(this.money.get() + amount);
233. }
234. 
235. /**
236.  * Sets the date the daily reward was last claimed.
237.  * @param date LocalDate of the reward claim
238. */
239. public void setLastRewardDate(LocalDate date) {
240.     this.lastRewardDate = date;
241. }
242. 
243. /**
244.  * Resets the player's money to the initial state (e.g. 0).
245. */
246. public void resetMoney() {
247.     this.money.set(0);
248. }
249. 
250. /**
251.  * will save a copy of this session data to local drive.
252. */
253. public void Save()
254. {
255.     SessionData data = new SessionData();
256.     data.money = this.money.get();
257.     data.levelsBeaten = this.levelsBeaten;
258.     data.levelRequirement = this.levelRequirement.get();
259.     data.currentInitialPlays = this.initialPlays;
260.     data.currentInitialRedraws = this.initialRedraws;
261.     data.lastRewardDate = this.lastRewardDate != null ? this.lastRewardDate.toString() : null;
262.     data.username = this.loggedInUser.getUsername();
263. 
264.     for (UpgradeTileModel tile : this.upgrades)
265.     {
266.         data.upgradeNames.add(tile.getName());
267.     }
268. 
269.     Gson gson = new GsonBuilder().setPrettyPrinting().create();
270.     String json = gson.toJson(data);
271.     this.usersDB.saveSessionData(loggedInUser.getUsername(), json);
272. }
273. 
274. /**
275.  * Load logged in users data.
276. */
277. 
278. public void load()
279. {
280.     try {
281.         // Get session data from database
282.         String json = this.usersDB.getSessionDataJson(this.loggedInUser.getUsername());
283. 
284.         // No saved data exists
285.         if (json == null || json.isEmpty()) {
286.             this.logger.logError("No save data found for user: " + this.loggedInUser.getUsername());
287.             return;
288.         }
289. 
290.         // Parse JSON
291.         Gson gson = new Gson();
292.         SessionData data = gson.fromJson(json, SessionData.class);
293. 
294.         // Restore session state
295.         this.money.set(data.money);
296.         this.levelsBeaten = data.levelsBeaten;
297.         this.levelRequirement.set(data.levelRequirement);
298.         this.initialPlays = data.currentInitialPlays;
299.         this.initialRedraws = data.currentInitialRedraws;
300.         this.currentPlays.set(data.currentInitialPlays);
301.         this.currentRedraws.set(data.currentInitialRedraws);
302.         this.lastRewardDate = data.lastRewardDate != null ? LocalDate.parse(data.lastRewardDate) : null;
303. 
304.         // Restore upgrades
305.         this.upgrades.clear();
306.         if (data.upgradeNames != null) {
307.             for (String name : data.upgradeNames)
308.             {
309.                 UpgradeTileModel upgrade = UpgradeTiles.getUpgradeByName(name);
310.                 if (upgrade != null) this.upgrades.add(upgrade);
311.             }
312.         }
313. 
314.         this.logger.logMessage(String.format("Successfully loaded session for user: " + this.loggedInUser.getUsername()));
315.     } catch (Exception e)
316.     {
317.         this.logger.logError("Failed to load session data: " + e.getMessage());
318.     }

```


DailyRewardController.java

```
1. package com.example.project.controllers.gameScreens;
2.
3. import com.example.project.models.gameScreens.DailyRewardModel;
4. import com.example.project.models.gameScreens.DailyRewardType;
5. import com.example.project.services.GameScene;
6. import com.example.project.services.SceneManager;
7. import com.example.project.services.Session;
8. import javafx.animation.PauseTransition;
9. import javafx.animation.RotateTransition;
10. import javafx.fxml.FXML;
11. import javafx.scene.control.Button;
12. import javafx.scene.control.Label;
13. import javafx.scene.image.ImageView;
14. import javafx.scene.layout.Pane;
15. import javafx.scene.layout.StackPane;
16. import javafx.util.Duration;
17.
18. import java.time.LocalDate;
19. import java.util.Random;
20.
21. /**
22. * Controller for the daily reward popup screen.
23. */
24. public class DailyRewardController extends GameScreenController
25. {
26.     @FXML private StackPane root;
27.     @FXML private ImageView wheelImage;
28.     @FXML private ImageView stickImage;
29.     @FXML private Button spinButton;
30.     @FXML private Label rewardResultLabel;
31.     @FXML private Pane confettiLayer;
32.
33.     private final Random random = new Random();
34.     private DailyRewardModel model;
35.
36.     /**
37.      * Initialises the daily reward view by resetting the reward label.
38.      */
39.     @Override
40.     public void setup(Session session, SceneManager sceneManager)
41.     {
42.         model = new DailyRewardModel(session, sceneManager);
43.         rewardResultLabel.setText("");
44.     }
45.
46.     @Override
47.     public void onSceneChangedToThis() {
48.         rewardResultLabel.setText("");
49.         confettiLayer.getChildren().clear();
50.
51.         if (model.getSession().hasClaimedRewardToday()) {
52.             spinButton.setDisable(true);
53.             rewardResultLabel.setText("You've already claimed today's reward.");
54.         } else {
55.             spinButton.setDisable(false);
56.         }
57.     }
58.
59.     @FXML
60.     private void onSpinButtonClicked() {
61.         // Block spin if already claimed
62.         if (model.getSession().hasClaimedRewardToday())
63.         {
64.             rewardResultLabel.setText("Already claimed.");
65.             spinButton.setDisable(true);
66.             return;
67.         }
68.
69.         spinButton.setDisable(true);
70.
71.         int spinDegrees = 720 + random.nextInt(360); // random stop angle
72.         RotateTransition rotate = new RotateTransition(Duration.seconds(2), stickImage);
73.         rotate.setByAngle(spinDegrees);
74.         rotate.setOnFinished(event ->
75.         {
76.             DailyRewardType reward = model.rollReward();
77.             model.applyReward(reward);
78.             showReward(reward);
```

```
79.     });
80.     rotate.play();
81. }
82.
83. private void showReward(DailyRewardType reward)
84. {
85.     var timeDelay = new PauseTransition(Duration.millis(3000));
86.
87.     String message = switch (reward) {
88.         case Daily_Reward_Won_1Dollar -> "You won $1!";
89.         case Daily_Reward_Won_5Dollars -> "You won $5!";
90.         case Daily_Reward_Won_NOTHING -> "You won... nothing! Try again tomorrow for a better Prize!";
91.     };
92.
93.     rewardResultLabel.setText(message);
94.     model.getSession().setLastRewardDate(LocalDate.now());
95.     timeDelay.setOnFinished(e -> model.getSceneManager().switchScene(GameScene.MAINMENU));
96.     timeDelay.play();
97. }
98. }
```

Created with JaCoCo 0.8.12.202403310830

SessionData

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxtys	Missed	Lines	Missed	Methods
SessionData()	0%		n/a		1	1	2	2	1	1
Total	8 of 8	0%	0 of 0	n/a	1	1	2	2	1	1

Created with JaCoCo 0.8.12.202403310830

SessionData.java

```
1. package com.example.project.services;
2.
3. import java.util.ArrayList;
4. import java.util.List;
5.
6. /**
7. * Session data.
8. */
9. public class SessionData
10. {
11.     /**
12.      * current money.
13.     */
14.     public double money;
15.
16.     /**
17.      * levels beaten.
18.     */
19.     public int levelsBeaten;
20.
21.     /**
22.      * level requirement.
23.     */
24.     public int levelRequirement;
25.
26.     /**
27.      * current max plays.
28.     */
29.     public int currentInitialPlays;
30.
31.     /**
32.      * current max redraws.
33.     */
34.     public int currentInitialRedraws;
35.
36.     /**
37.      * last reward date.
38.     */
39.     public String lastRewardDate;
40.
41.     /**
42.      * username.
43.     */
44.     public String username;
45.
46.     /**
47.      * upgrade names.
48.     */
49.     public List<String> upgradeNames = new ArrayList<>();
50. }
```

com.example.project.services

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods	Missed	Classes
Session		34%		0%	21	31	61	104	13	23	0	1
SVGIcons		0%		n/a	2	2	5	5	2	2	1	1
PopupLoader		80%		n/a	1	3	3	13	1	3	0	1
SessionData		0%		n/a	1	1	2	2	1	1	1	1
SceneManager		93%		n/a	1	3	1	14	1	3	0	1
Logger		100%		100%	0	11	0	36	0	10	0	1
PasswordHasher		100%		n/a	0	4	0	12	0	4	0	1
GameScene		100%		n/a	0	1	0	6	0	1	0	1
FXMLPageLoader		100%		n/a	0	3	0	6	0	3	0	1
Total	352 of 852	58%	16 of 18	11%	26	59	72	198	18	50	2	9

Created with JaCoCo 0.8.12.202403310830

com.example.project.services

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods	Missed	Classes
Session.java		34%		0%	21	31	61	104	13	23	0	1
SVGIcons.java		0%		n/a	2	2	5	5	2	2	1	1
PopupLoader.java		80%		n/a	1	3	3	13	1	3	0	1
SessionData.java		0%		n/a	1	1	2	2	1	1	1	1
SceneManager.java		93%		n/a	1	3	1	14	1	3	0	1
Logger.java		100%		100%	0	11	0	36	0	10	0	1
PasswordHasher.java		100%		n/a	0	4	0	12	0	4	0	1
GameScene.java		100%		n/a	0	1	0	6	0	1	0	1
FXMLPageLoader.java		100%		n/a	0	3	0	6	0	3	0	1
Total	352 of 852	58%	16 of 18	11%	26	59	72	198	18	50	2	9

Created with JaCoCo 0.8.12.202403310830

Application

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
start(Stage)		0%	n/a		1	1	13	13	1	1
main(String[])		0%	n/a		1	1	2	2	1	1
Application()		0%	n/a		1	1	1	1	1	1
Total	60 of 60	0%	0 of 0	n/a	3	3	16	16	3	3

Created with JaCoCo 0.8.12.202403310830

Application.java

```
1. package com.example.project;
2.
3. import com.example.project.controllers.gameScreens.GameScreenFactory;
4. import com.example.project.services.GameScene;
5. import com.example.project.services.Session;
6. import javafx.fxml.FXMLLoader;
7. import javafx.scene.Parent;
8. import javafx.scene.Scene;
9. import javafx.stage.Stage;
10. import com.example.project.services.FXMLPageLoader;
11.
12. import java.io.IOException;
13.
14. /**
15. * The entry point of the application.
16. */
17. public class Application extends javafx.application.Application
18. {
19.     // Constants defining the window title and size
20.     public static final String TITLE = "WordPlay";
21.
22.     // defining the window width.
23.     public static final int WIDTH = 1300;
24.
25.     // Defining the window height.
26.     public static final int HEIGHT = 700;
27.
28.     @Override
29.     public void start(Stage stage) throws IOException
30.     {
31.         String rootScenePath = "/com/example/project/rootLayout-view.fxml";
32.         FXMLLoader rootLoader = new FXMLLoader(this.getClass().getResource(rootScenePath));
33.         Parent root = rootLoader.load();
34.         Scene scene = new Scene(root, WIDTH, HEIGHT);
35.         stage.setTitle(TITLE);
36.         stage.setScene(scene);
37.         stage.show();
38.         stage.setResizable(true);
39.         stage.setFullScreen(true);
40.
41.         Session session = new Session();
42.         GameScreenFactory factory = new GameScreenFactory(session);
43.         factory.loadGameScreens(rootLoader.getController(), new FXMLPageLoader());
44.     }
45.
46. /**
47. * @param args the command-line arguments passed to your program when it starts.
48. */
49. public static void main(String[] args) {
50.     launch();
51. }
```

com.example.project

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods	Missed	Classes
G Application	<div style="width: 0%; background-color: red;"></div>	0%		n/a	3	3	16	16	3	3	1	1
Total	60 of 60	0%	0 of 0	n/a	3	3	16	16	3	3	1	1

Created with JaCoCo 0.8.12.202403310830

com.example.project

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods	Missed	Classes
Application.java	<div style="width: 0%; background-color: red;"></div>	0%	n/a		3	3	16	16	3	3	1	1
Total	60 of 60	0%	0 of 0	n/a	3	3	16	16	3	3	1	1

Created with JaCoCo 0.8.12.202403310830

Project

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods	Missed	Classes
com.example.project.controllers.gameScreens		4%		2%	142	151	436	467	93	102	8	11
com.example.project.controllers.gameScreens.animations		0%		0%	22	22	89	89	19	19	6	6
com.example.project.services		58%		11%	26	59	72	198	18	50	2	9
com.example.project.services.sqlite.dAOs		52%		31%	12	26	57	133	4	15	0	2
com.example.project.models.gameScreens		81%		78%	32	101	47	243	20	65	2	8
com.example.project.models.tiles		72%		18%	16	49	41	127	7	38	1	8
com.example.project.controllers.popupControllers		0%		0%	12	12	27	27	10	10	2	2
com.example.project.controllers.tiles		62%		78%	9	36	34	93	7	28	1	5
com.example.project		0%		n/a	3	3	16	16	3	3	1	1
com.example.project.controllers		0%		0%	6	6	14	14	4	4	1	1
com.example.project.services.sqlite		67%		75%	1	14	5	24	0	12	0	3
com.example.project.services.shopItems		84%		0%	4	6	6	46	2	4	0	1
com.example.project.models.tileGroups		95%		76%	8	33	3	84	2	20	0	3
com.example.project.models.popups		96%		75%	1	12	1	23	0	10	0	2
com.example.project.services.sound		100%		100%	0	12	0	54	0	11	0	2
com.example.project.models		100%		n/a	0	4	0	8	0	4	0	1
Total	4,059 of 7,508	45%	184 of 294	37%	294	546	848	1,646	189	395	24	65

Created with JaCoCo 0.8.12.202403310830

Sessions

This coverage report is based on execution data from the following sessions:

Session	Start Time	Dump Time
runnervmwhb2z-7a98976e	Oct 23, 2025, 2:02:53 PM	Oct 23, 2025, 2:02:59 PM

Execution data for the following classes is considered in this report:

Class	Id
C IntegrationTests.SQLite.DAOs.DictionaryDAOTests	cbc478615c608970
C IntegrationTests.SQLite.SQLiteDictionaryConnectionTests	48cce90217d0662
C com.example.project.controllers.gameScreens.GameScreenController	a5c416048453017a
C com.example.project.controllers.gameScreens.LevelController	f087ed4a3583e474
C com.example.project.controllers.gameScreens.LevelControllerTests	f2bf8ed73d5094d4
C com.example.project.controllers.gameScreens.ShopController	f5c459561de4e34e
C com.example.project.controllers.gameScreens.ShopControllerTests	4082fe83e6593d8d
C com.example.project.controllers.popupControllers.DefinitionController	a27e9fd845b67d9e
C com.example.project.controllers.tiles.EmptyTileControllerTests	6497475060dddb55
C com.example.project.controllers.tiles.EmptyTileSlotController	18b6e94a91e2870d
C com.example.project.controllers.tiles.LetterTileController	3155123f322d1e95
C com.example.project.controllers.tiles.TileController	472170f1175ccb7a
C com.example.project.controllers.tiles.TileControllerFactory	c8eecc2f00b38344
C com.example.project.controllers.tiles.TileControllerFactoryTests	f42d29fed32812f
C com.example.project.controllers.tiles.TileControllerFactoryTests.UnsupportedTileModel	f68f61f240dc72ed
C com.example.project.controllers.tiles.UpgradeTileController	e82b0a2b77e89c80
C com.example.project.controllers.tiles.UpgradeTileControllerTests	6dc5393ffc2a3798
C com.example.project.models.User	73f2d93c7dc8d563
C com.example.project.models.gameScreens.GameScreenModel	a02ec0117e959460
C com.example.project.models.gameScreens.LevelModel	db61a48eb96f9331
C com.example.project.models.gameScreens.LevelModelTests	ad854a0c1e4ebe7f
C com.example.project.models.gameScreens.LoginModel	cb6088a017ad9855
C com.example.project.models.gameScreens.LoginModelTest	8d85db1af9f00930
C com.example.project.models.gameScreens.MainMenuModel	3c45ba970243aac6
C com.example.project.models.gameScreens.MainMenuModelTest	5e19381269f9c9e0
C com.example.project.models.gameScreens.ScoreChimePlayer	305eeeabb1be24dfe
C com.example.project.models.gameScreens.ShopModel	3cae3b6dc9667fba
C com.example.project.models.gameScreens.ShopModelTests	b5a2805057e73aa2
C com.example.project.models.popups.DefinitionPopup	c8f10388524de747
C com.example.project.models.popups.DefinitionPopupTest	8cbcfc00e98e10091
C com.example.project.models.popups.PopupModel	d7d747ca54f3b887
C com.example.project.models.popups.PopupModelTest	04d5e36a76a2f67f
C com.example.project.models.popups.PopupModelTest.TestPopup	3c2eea42713b0843
C com.example.project.models.tileGroups.LetterTileGroup	772523f0066a5e5e
C com.example.project.models.tileGroups.LetterTileGroupTests	ff80914c3c043aca
C com.example.project.models.tileGroups.TileGroup	7e19ae733332145c
C com.example.project.models.tileGroups.UpgradeTileGroup	929e544f2e2e1545
C com.example.project.models.tileGroups.UpgradeTileGroupTests	416d5d8f386fb9eb
C com.example.project.models.tiles.EmptyTileSlotModel	560309348fcfd5aa7
C com.example.project.models.tiles.EmptyTileSlotTests	eea0f1d61a927270
C com.example.project.models.tiles.LetterTileModel	9fd302f38c1f8cd1
C com.example.project.models.tiles.LetterTileTest	c23418cec948c9d6
C com.example.project.models.tiles.ScrabbleTileProvider	27315692a76d665a
C com.example.project.models.tiles.ScrabbleTileProvider.ScrabbleTileData	a8fe0d118608ac4b
C com.example.project.models.tiles.ScrabbleTileProviderTests	55e168852cf7ab64
C com.example.project.models.tiles.TileModel	7f89317b74b781f4
C com.example.project.models.tiles.TileTests	f139067565a01480
C com.example.project.models.tiles.TileTests.TestTile	1ca92c58728a891
C com.example.project.models.tiles.UpgradeTileModel	122d054afe01fdf5
C com.example.project.models.tiles.UpgradeTileModel.UpgradeBuilder	8f7f4f25dfc1224b
C com.example.project.models.tiles.UpgradeTileModelTests	3efadf905438cd91
C com.example.project.services.FXMLPageLoader	fc465941ce8499fa
C com.example.project.services.GameScene	be9d54d3c1ad3e88
C com.example.project.services.Logger	a9bb6c27fda3106e
C com.example.project.services.LoggerTests	c1ae23810f932124
C com.example.project.services.PasswordHasher	21259083042798f8
C com.example.project.services.PasswordHasherTests	ab9b14223d126452
C com.example.project.services.PopupLoader	81a0bc8fbeb958e2
C com.example.project.services.PopupLoaderTests	4a1e5fed2011cccc
C com.example.project.services.SceneManager	2c7e1a920d680f48
C com.example.project.services.SceneManagerTests	2fc31a4a2c7dbcfc8
C com.example.project.services.Session	08b52d5bbf8413f2
C com.example.project.services.SessionTests	92bf2a443c991b99
C com.example.project.services.shopItems.UpgradeTiles	d21024558dc878b4

com.example.project.services.sound.GameMusicPlayer	aa5a7a44e9cf5149
com.example.project.services.sound.GameMusicPlayerTests	3ef4c70490b0845c
com.example.project.services.sound.GameSoundPlayer	d9fd4a247737058d
com.example.project.services.sound.GameSoundPlayerTests	5ed8bc9023ccee40
com.example.project.services.sqlite.ConnectionComparer	3788cb41159b3e33
com.example.project.services.sqlite.SQLiteConnection	99d0f75cd42ab9bc
com.example.project.services.sqlite.SQLiteDictionaryConnection	dd0780a3988434c0
com.example.project.services.sqlite.SQLiteUsersConnection	75961846f7046111
com.example.project.services.sqlite.dAOs.DictionaryDAO	2e2be8bd42950ccb
com.example.project.services.sqlite.dAOs.DictionaryDAOTests	59928558d04cdf1
com.example.project.services.sqlite.dAOs.SQLiteDBCreator	8d3f0f1224c95ccf
com.example.project.services.sqlite.dAOs.UsersDAO	d21c07f35b47d2c8
com.example.project.services.sqlite.dAOs.UsersDAOTests	a414ca3d9e49520d
com.example.project.testHelpers.MockAudioSystemExtension	ecc3043b791c9ac
com.sun.glass.ui.Application	d2c633053effff922
com.sun.glass.ui.View.Capability	137b2444912a7638
com.sun.glass.utils.NativeLibLoader	2756c6e87ea3573a
com.sun.javafx.PlatformUtil	180f2410faf7cd2c
com.sun.javafx.application.PlatformImpl	91660b3e95e248d3
com.sun.javafx.application.PlatformImpl.2	b971d51ebea10887
com.sun.javafx.application.PlatformImpl.HighContrastScheme	d2d4a159e49aa741
com.sun.javafx.beans.event.AbstractNotifyListener	2a527122b153d8f7
com.sun.javafx.binding.ExpressionHelper	f926da9605240bf
com.sun.javafx.binding.ExpressionHelperBase	9465a503879a5bb7
com.sun.javafx.binding.ListExpressionHelper	6be51d95359214b6
com.sun.javafx.binding.ListExpressionHelper.Generic	ecc179e6031e116e
com.sun.javafx.binding.ListExpressionHelper.SingleChange	a0e45bc5db7b1d8f
com.sun.javafx.collections.ListListenerHelper	77e86a2f08f0d7be
com.sun.javafx.collections.ListListenerHelper.Generic	6ba162bb98d6936f
com.sun.javafx.collections.ListListenerHelper.SingleChange	a74f7e03718465a8
com.sun.javafx.collections.MapListenerHelper	83a6071d9d8e996c
com.sun.javafx.collections.ObservableListWrapper	43e38702734066b8
com.sun.javafx.collections.ObservableMapWrapper	9beb57dce3694f06
com.sun.javafx.collections.ObservableMapWrapper.SimpleChange	6d2a9cb0f6001132
com.sun.javafx.collections.SourceAdapterChange	22fe67ed36a975b9
com.sun.javafx.collections.TrackableObservableList	d30f4d2fe4b29e79
com.sun.javafx.collections.VetoableListDecorator	347d1dd01557fc01
com.sun.javafx.css.BitSet	ab2966ccf18a1d6f
com.sun.javafx.css.PseudoClassImpl	3f1829ba7270d233
com.sun.javafx.css.PseudoClassState	6f7e579d2277afb4
com.sun.javafx.event.BasicEventDispatcher	aa45d7a164f70eb3
com.sun.javafx.event.CompositeEventDispatcher	1d685633a1724ba3
com.sun.javafx.event.CompositeEventHandler	1e76a577da3cf8c4
com.sun.javafx.event.EventHandlerManager	fd757caa74231309
com.sun.javafx.fxml.BeanAdapter	2f491e945420e949
com.sun.javafx.fxml.BeanAdapter.1	54763299be740b64
com.sun.javafx.fxml.BeanAdapter.MethodCache	7ca3780f0a0405b6
com.sun.javafx.fxml.FXMLLoaderHelper	ef6e8fbe52a02992
com.sun.javafx.fxml.MethodHelper	c772402c943b6f9f
com.sun.javafx.fxml.ModuleHelper	9001ae8bc94c3759
com.sun.javafx.geom.BaseBounds	ed0a354be28d924a
com.sun.javafx.geom.RectBounds	8919b9f96338309c
com.sun.javafx.geom.RectangularShape	7fd95f3413eb8787
com.sun.javafx.geom.RoundRectangle2D	c717cc2e84756909
com.sun.javafx.geom.Shape	c8bc730560d51518
com.sun.javafx.geom.Vec2d	d828757c2463f252
com.sun.javafx.geom.transform.BaseTransform	1eb9022f26ea24ef
com.sun.javafx.geom.transform.Identity	797e8fc16bcdcbdf
com.sun.javafx.perf.PerformanceTracker	c0073c4114dae170
com.sun.javafx.reflect.ConstructorUtil	61fe60a532acbe26
com.sun.javafx.reflect.MethodUtil	2df70e9f3f59b0d
com.sun.javafx.reflect.MethodUtil.1	411edf81fa5fe806
com.sun.javafx.reflect.ReflectUtil	955b6e20e3cf3988
com.sun.javafx.runtime.VersionInfo	097d2593b109124b
com.sun.javafx.scene.CssFlags	7074f98c6728098c
com.sun.javafx.scene.DirtyBits	6d9772ee39dddc4c
com.sun.javafx.scene.EnteredExitedHandler	b8c2963c3fde263f
com.sun.javafx.scene.EventHandlerProperties	648a60aa74c8d9a6
com.sun.javafx.scene.EventHandlerProperties.EventHandlerProperty	666b1b8358e54996
com.sun.javafx.scene.ImageViewHelper	c083c8f185c5da1d
com.sun.javafx.scene.LayoutFlags	0df59ec15bbc4d05
com.sun.javafx.scene.NodeEventDispatcher	3b549faa95a5d88b
com.sun.javafx.scene.NodeHelper	a4b93b169753f510
com.sun.javafx.scene.ParentHelper	c23f48847b5f5a46
com.sun.javafx.scene.layout.PaneHelper	a289606e8fb303fb

com.sun.javafx.scene.layout.RegionHelper	97ad39fc0e16ade1
com.sun.javafx.scene.shape.RectangleHelper	912449853f782479
com.sun.javafx.scene.shape.ShapeHelper	9d6790c3d4b6e077
com.sun.javafx.scene.transform.TransformHelper	1f659cc46e4280c5
com.sun.javafx.sg.prism.NGShape.Mode	92ac86dee521cb6d
com.sun.javafx.tk.Toolkit	aa53129eb4a5d031
com.sun.javafx.tk.quantum.GlassSystemMenu	de866cf40dbbee0eb
com.sun.javafx.tk.quantum.PaintCollector	44df43dc614d8fbe
com.sun.javafx.tk.quantum.PerformanceTrackerHelper	2f870f9613045e15
com.sun.javafx.tk.quantum.PerformanceTrackerHelper.1	d6105bcb01c52025
com.sun.javafx.tk.quantum.PerformanceTrackerHelper.PerformanceTrackerDummyImpl	cd4b8ff71678a2253
com.sun.javafx.tk.quantum.PerformanceTrackerImpl	5a12f07b8477f48e
com.sun.javafx.tk.quantum.QuantumRenderer	d35e94179b5d12af
com.sun.javafx.tk.quantum.QuantumRenderer.PipelineRunnable	9245b3aa82fb9b1
com.sun.javafx.tk.quantum.QuantumRenderer.QuantumThreadFactory	5247389d1c9eb181
com.sun.javafx.tk.quantum.QuantumToolkit	0ac1bcd0138cfbee
com.sun.javafx.tk.quantum.QuantumToolkit.1	c1f65e7a1298638d
com.sun.javafx.tk.quantum.QuantumToolkit.3	1b3c034cb8122f46
com.sun.javafx.tk.quantum.QuantumToolkit.PulseTask	986af6e7eae3b82f
com.sun.javafx.util.Utils	d2f9b00a9a3e4b69
com.sun.prism.BasicStroke	3417623692b8498e
com.sun.prism.GraphicsPipeline	1ea8581ec0cac4c2
com.sun.prism.es2.ES2Pipeline	12c69b05002c53d2
com.sun.prism.es2.GLFactory	de00ec3076b6872
com.sun.prism.es2.FactoryLoader	71b6ea996e4d096
com.sun.prism.es2.GLGPUInfo	23a63eb0b2f3c8a4
com.sun.prism.es2.GLPixelFormat	5ca3832be6da3d2d
com.sun.prism.es2.GLPixelFormat.Attributes	f0a08c0d5bbfe95d
com.sun.prism.es2.X11GLFactory	97cd118484915fa9
com.sun.prism.impl.PrismSettings	832493b2febdafc7
com.sun.prism.impl.PrismSettings.RasterizerType	7fe513df0e240ce3
com.sun.prism.sw.SWPipeline	fc33f4f522d468ce
java.sql.DriverInfo	ea91df4c5e4e8e22
java.sql.DriverManager	fe9c6ae8f9ed72e9
java.sql.DriverManager.1	2ea175afe4482980
java.sql.DriverManager.2	60e8a2c0231a1a2e
java.sql.SQLException	c2a7742cda8a83ff
java.sql.SQLPermission	545a7e448515d9f6
javafx.application.ConditionalFeature	4de75e8169bbb408
javafx.application.Platform	7704090522af6319
javafx.beans.WeakInvalidationListener	fc4d99766f197be1
javafx.beans.binding.BooleanExpression	b1becc7549966757
javafx.beans.binding.DoubleExpression	10bb2e36be67250e
javafx.beans.binding.IntegerExpression	ac1a3e7f2ec46b03
javafx.beans.binding.ListExpression	525dc5226e624658
javafx.beans.binding.NumberExpressionBase	70a4960fb7c7a0ad
javafx.beans.binding.ObjectExpression	71fce2987e1e3a7
javafx.beans.binding.StringExpression	fad2310c05aa584d
javafx.beans.property.BooleanProperty	1f157f7ffe1d66b2
javafx.beans.property.BooleanPropertyBase	18da3c04ea61d9a7
javafx.beans.property.DoubleProperty	22c72527e41c548a
javafx.beans.property.DoublePropertyBase	c8058b74ae1b4aec
javafx.beans.property.IntegerProperty	860f9829eea70f98
javafx.beans.property.IntegerPropertyBase	3dd9f4069b6bdd90
javafx.beans.property.ListProperty	29alec9e1248f4fe
javafx.beans.property.ListPropertyBase	7e21b5955a903554
javafx.beans.property.ObjectProperty	50a7a1c50070f772
javafx.beans.property.ObjectPropertyBase	1b77caf6ee06f0c5
javafx.beans.property.ReadOnlyBooleanProperty	66c2d9017baabc55
javafx.beans.property.ReadOnlyBooleanPropertyBase	0554ba38d8176bfe
javafx.beans.property.ReadOnlyBooleanWrapper	05943b8893bc32ea
javafx.beans.property.ReadOnlyBooleanWrapper.ReadOnlyPropertyImpl	dfa0cd2532c362c7
javafx.beans.property.ReadOnlyDoubleProperty	81793df4b3a47322
javafx.beans.property.ReadOnlyDoubleWrapper	17a5e3dbe87d8c8
javafx.beans.property.ReadOnlyIntegerProperty	b13c35e24e34c27e
javafx.beans.property.ReadOnlyIntegerPropertyBase	b3a87bcf2e9fa979
javafx.beans.property.ReadOnlyIntegerWrapper	d147b7f5307c06bc
javafx.beans.property.ReadOnlyIntegerWrapper.ReadOnlyPropertyImpl	9625fc21b7fbff3
javafx.beans.property.ReadOnlyListProperty	326c5d21b5e41bbe
javafx.beans.property.ReadOnlyListPropertyBase	0402abd0036925b8
javafx.beans.property.ReadOnlyListWrapper	62924df6ddbfb859
javafx.beans.property.ReadOnlyListWrapper.ReadOnlyPropertyImpl	2d8a16c775c539b6
javafx.beans.property.ReadOnlyObjectProperty	339ea559d888c0ce
javafx.beans.property.ReadOnlyObjectPropertyBase	f87507710d6dbf30
javafx.beans.property.ReadOnlyObjectWrapper	7ef6a5d83ad3373c

javafx.beans.property.ReadOnlyObjectWrapper.ReadOnlyPropertyImpl	6e02d426b4689162
javafx.beans.property.ReadOnlyStringProperty	6b8ef23028fa46eb
javafx.beans.property.ReadOnlyStringPropertyBase	8bc588b79328b72
javafx.beans.property.ReadOnlyStringWrapper	635d11120cae20f8
javafx.beans.property.ReadOnlyStringWrapper.ReadOnlyPropertyImpl	b7aabc847e1dc97
javafx.beans.property.SimpleBooleanProperty	e2d31f507f6d1bb8
javafx.beans.property.SimpleDoubleProperty	509a5d3a3bcf81a3
javafx.beans.property.SimpleIntegerProperty	aed4a9da35d48da7
javafx.beans.property.SimpleListProperty	e83a8061470a66f2
javafx.beans.property.SimpleObjectProperty	8244731f22cda9a9
javafx.beans.property.SimpleStringProperty	86674865c31bf610
javafx.beans.property.StringProperty	aee26901ce9c5769
javafx.beans.property.StringPropertyBase	60fce33df74167c0
javafx.collections.FXCollections	046e1fbff2414879
javafx.collections.FXCollections.EmptyObservableList	a548f7960565182a
javafx.collections.FXCollections.EmptyObservableList.1	fbcc10af75c2fd23a
javafx.collections.FXCollections.EmptyObservableMap	4180d2ac0b81de99
javafx.collections.FXCollections.EmptyObservableSet	35a313fd7cc99877
javafx.collections.FXCollections.EmptyObservableSet.1	4394fa5b7c103428
javafx.collections.FXCollections.UnmodifiableObservableListImpl	81254e56283c2213
javafx.collections.FXCollections.UnmodifiableObservableSet	7d47d4a75de603fe
javafx.collections.ListChangeBuilder	8958dfad8635242e
javafx.collections.ListChangeBuilder.SingleChange	2472a7ae75c80a63
javafx.collections.ListChangeBuilder.SubChange	473eb48dab5e3f55
javafx.collections.ListChangeListener.Change	ff56149b808c32b3
javafx.collections.MapChangeListener.Change	8f5e1c5decb27258
javafx.collections.ModifiableObservableListBase	d4f104fd3a700623
javafx.collections.ObservableList.MockitoMock.XeHSSHoi	41bfb151999f4560
javafx.collections.ObservableListBase	36500a719201d2f4
javafx.collections.WeakListChangeListener	2e10b4d0553c7631
javafx.css.PseudoClass	e96d5c022f1a335e
javafx.css.StyleOrigin	ae6e54fc8b969978
javafx.css.StyleableDoubleProperty	56db11910ecfb4ef
javafx.css.StyleableObjectProperty	02667de3152973b3
javafx.event.Event	780b729a667b2865
javafx.event.EventType	ae7afab5bbcfc83a2
javafx.fxml.FXMLLoader	eb3f0b84a4f8d82e
javafx.fxml.FXMLLoader.1	c1c995e38d84fcfcf
javafx.fxml.FXMLLoader.2	e143ce550df057b1
javafx.fxml.FXMLLoader.3	03a848685f1dd34e
javafx.fxml.FXMLLoader.Attribute	b7134d3e7cf4838b
javafx.fxml.FXMLLoader.ControllerAccessor	a761524b005113e0
javafx.fxml.FXMLLoader.ControllerAccessor.1	9381a5881692dda9
javafx.fxml.FXMLLoader.Element	41a073e82c0dac3b
javafx.fxml.FXMLLoader.InstanceDeclarationElement	465b2ed425462588
javafx.fxml.FXMLLoader.SupportedType	ae16cd64f693ee9d
javafx.fxml.FXMLLoader.SupportedType.1	a223674fda652bbc
javafx.fxml.FXMLLoader.SupportedType.2	68e64353d2b59749
javafx.fxml.FXMLLoader.SupportedType.3	b628cc6f0f67ae5c
javafx.fxml.FXMLLoader.SupportedType.4	d7a80cb2c36edbee
javafx.fxml.FXMLLoader.SupportedType.5	ee4bc4f0d06898f0
javafx.fxml.FXMLLoader.SupportedType.6	842aed37912d33b0
javafx.fxml.FXMLLoader.ValueElement	3e8c2ad2e1362731
javafx.fxml.JavaFXBuilderFactory	52aaef54c3ceb3d85
javafx.geometry.Insets	93efb0eb3777987d
javafx.geometry.NodeOrientation	9676323e71e51d05
javafx.geometry.Point3D	f3d94acee5cc82ea
javafx.scene.AccessibleAttribute	a34c5945ad0d13bd
javafx.scene.AccessibleRole	1a7be54cc8b0fc51
javafx.scene.CacheHint	68f1cae20270bb2e
javafx.scene.DepthTest	d21b142391df7715
javafx.scene.Node	597ea66bee1cc58c
javafx.scene.Node.1	220ac68b2d872a92
javafx.scene.Node.13	12c1a8193f5ed173
javafx.scene.Node.17	82730bc4e3cf2a6e
javafx.scene.Node.18	7150e1cb3ac8d045
javafx.scene.Node.2	7658d20ff953c4d0
javafx.scene.Node.3	83ccf6a1d784fdac
javafx.scene.Node.4	fd1746a2e52f5962
javafx.scene.Node.9	bfe57129ad855c7e
javafx.scene.Node.FocusPropertyBase	6186be3b3ce4e613
javafx.scene.Node.FocusWithinProperty	e1245529ea8dc5a8
javafx.scene.Node.LazyBoundsProperty	448e1c6d09e38fa8
javafx.scene.Node.NodeTransformation	1adb43f3c335d2e2

javafx.scene.Node.NodeTransformation.5	9ed67bbba856b13b
javafx.scene.Node.NodeTransformation.6	cf8e6e2840547a35
javafx.scene.Node.ReadOnlyObjectWrapperManualFire	ca3ee85b7935758d
javafx.scene.Node.TreeVisibleProperty	8971fcb2890fab06
javafx.scene.Parent	5c806511f80e5bb8
javafx.scene.Parent.1	7db4e9f30e5f5563
javafx.scene.Parent.2	851977cb78c8c14d
javafx.scene.Parent.3	19244e4c5182952e
javafx.scene.Parent.4	960c69df124b8173
javafx.scene.PropertyHelper	29eca032a498fd43
javafx.scene.image.Image	2a66305e140044f6
javafx.scene.image.Image.1	1fb4f045d048b979
javafx.scene.image.ImageView	0c60924211773384
javafx.scene.image.ImageView.1	c67458f4f6e78c6e
javafx.scene.input.InputEvent	811f29761efc0ef2
javafx.scene.input.MouseEvent	e99e6768b643f90b
javafx.scene.layout.Pane	fb8f6ebc35f376e3
javafx.scene.layout.Pane.1	358f55173e4f006b
javafx.scene.layout.Region	df888f21f609e4a2
javafx.scene.layout.Region.1	0905e0fc1786e24c
javafx.scene.layout.Region.3	181a08ba2894eca2
javafx.scene.layout.Region.4	5a2d84f77dde14ea
javafx.scene.layout.Region.5	0b43493b501702f4
javafx.scene.layout.RegionInsetsProperty	f0d5329d865cf7f0
javafx.scene.layout.StackPane	a17af0c7080247a3
javafx.scene.paint.Color	3862b8439e4f22ad
javafx.scene.paint.Paint	c27464b04839934b
javafx.scene.paint.Paint.1	6b3cefda6a177ae2
javafx.scene.shape.Rectangle	2692e054a7266682
javafx.scene.shape.Rectangle.1	558a8b89681a4e7f
javafx.scene.shape.Rectangle.4	0a71374a9652199a
javafx.scene.shape.Rectangle.5	126c82028549fde0
javafx.scene.shape.Rectangle.6	da461ccdf9a0696b
javafx.scene.shape.Rectangle.7	2423b68fe48878d5
javafx.scene.shape.Shape	5c9474d93604c42f
javafx.scene.shape.Shape.1	b519cc3a9b89933b
javafx.scene.shape.Shape.2	628a35ec7e11529e
javafx.scene.shape.Shape.3	6546ed06f482fb75
javafx.scene.shape.StrokeLineCap	593798e5a68ddda1
javafx.scene.shape.StrokeLineJoin	d35288540e5a9e82
javafx.scene.shape.StrokeType	deee5f164e2dac50
javafx.scene.transform.Rotate	50f1bc2c92d9276c
javafx.scene.transform.Transform	e1876168d76b1cc7
javafx.scene.transform.Transform.1	ae38419af1c35779
javafx.util.FXPermission	8327cec7275ee5cd
net.bytebuddy.ByteBuddy	8a25cfee68883757
net.bytebuddy.ClassFileVersion	da7c006b44346640
net.bytebuddy.ClassFileVersion.VersionLocator.Resolved	a389024132c0cc61
net.bytebuddy.ClassFileVersion.VersionLocator.Resolver	6f0a8d6c5c95d22c
net.bytebuddy.NamingStrategy.AbstractBase	47d6d27e15064a2b
net.bytebuddy.NamingStrategy.Suffixing	83ffc7a50d03e29a
net.bytebuddy.NamingStrategy.Suffixing.BaseNameResolver.ForUnnamedType	dc4c226cbd0897a8
net.bytebuddy.NamingStrategy.SuffixingRandom	c7e2e00a103cd13c
net.bytebuddy.TypeCache	05243229e50ea1b0
net.bytebuddy.TypeCache.LookupKey	599592f0f74bbe07
net.bytebuddy.TypeCache.SimpleKey	aab9b5395600f0fd
net.bytebuddy.TypeCache.Sort	2863b0d48a0f3008
net.bytebuddy.TypeCache.Sort.1	ba4f2805581e1090
net.bytebuddy.TypeCache.Sort.2	db80a28c74867927
net.bytebuddy.TypeCache.Sort.3	65abff93a29d75a2
net.bytebuddy.TypeCache.StorageKey	b7a810d4119627f9
net.bytebuddy.TypeCache.WithInlineExpunction	131bdbf6b155e141
net.bytebuddy.asm.Advice	70b624c9f019e2d7
net.bytebuddy.asm.Advice.AdviceVisitor	fabc880f6c0d5cd1
net.bytebuddy.asm.Advice.AdviceVisitor.WithExitAdvice	e5e4c6806aaeee24
net.bytebuddy.asm.Advice.AdviceVisitor.WithExitAdvice.WithoutExceptionHandling	ee7c0bbc4d058e48
net.bytebuddy.asm.Advice.ArgumentHandler.Factory	88f478d1b3b07ef4
net.bytebuddy.asm.Advice.ArgumentHandler.Factory.1	5b27bf7bbbedbea54
net.bytebuddy.asm.Advice.ArgumentHandler.Factory.2	57b0b2625db26866
net.bytebuddy.asm.Advice.ArgumentHandler.ForAdvice.Default	8f1d6e695fd7ed52
net.bytebuddy.asm.Advice.ArgumentHandler.ForAdvice.Default.ForMethodEnter	2298e62edd4a8f61
net.bytebuddy.asm.Advice.ArgumentHandler.ForAdvice.Default.ForMethodExit	d03149f225f747e5
net.bytebuddy.asm.Advice.ArgumentHandler.ForInstrumentedMethod.Default	3ac42d24c686a98d
net.bytebuddy.asm.Advice.ArgumentHandler.ForInstrumentedMethod.Default.Copying	f3d840402494b1eb
net.bytebuddy.asm.Advice.Delegator.ForRegularInvocation.Factory	5378b1b8ea4a3362

net.bytebuddy.asm.Advice.Dispatcher	0e7fef258bff623e
net.bytebuddy.asm.Advice.Dispatcher.Inactive	17d1a367a7c4f802
net.bytebuddy.asm.Advice.Dispatcher.Inlining	c3ce45049068fa1f
net.bytebuddy.asm.Advice.DispatcherInlining.CodeTranslationVisitor	1504514b9b3dac05
net.bytebuddy.asm.Advice.DispatcherInlining.Resolved	6de58a2c31e6f05a
net.bytebuddy.asm.Advice.DispatcherInlining.Resolved.AdviceMethodInliner	35df575204406b21
net.bytebuddy.asm.Advice.DispatcherInlining.Resolved.AdviceMethodInliner.ExceptionTableCollector	5c4bed9acb4fe33a
net.bytebuddy.asm.Advice.DispatcherInlining.Resolved.AdviceMethodInliner.ExceptionTableExtractor	fb86d13a4d8b8eb1
net.bytebuddy.asm.Advice.DispatcherInlining.Resolved.AdviceMethodInliner.ExceptionTableSubstitutor	dec4d3e69163577d
net.bytebuddy.asm.Advice.DispatcherInlining.Resolved.ForMethodEnter	34cb9d6bc3c7cc9a
net.bytebuddy.asm.Advice.DispatcherInlining.Resolved.ForMethodEnter.WithRetainedEnterType	aed2977cf6532c53
net.bytebuddy.asm.Advice.DispatcherInlining.Resolved.ForMethodExit	57a7e629b3866515
net.bytebuddy.asm.Advice.DispatcherInlining.Resolved.ForMethodExit.WithoutExceptionHandler	4677875bb641e3ed
net.bytebuddy.asm.Advice.Dispatcher.RelocationHandler.Disabled	85ecfbf093d6a3b1
net.bytebuddy.asm.Advice.Dispatcher.RelocationHandler.ForType	fa2fbcc6481a65a5
net.bytebuddy.asm.Advice.Dispatcher.RelocationHandler.ForValue	5b7eff5293f1f424
net.bytebuddy.asm.Advice.Dispatcher.RelocationHandler.ForValue.1	d679d59d5fd6c1f6
net.bytebuddy.asm.Advice.Dispatcher.RelocationHandler.ForValue.2	2e3770e70234e10e
net.bytebuddy.asm.Advice.Dispatcher.RelocationHandler.ForValue.3	fe0c7bd84802fd9
net.bytebuddy.asm.Advice.Dispatcher.RelocationHandler.ForValue.4	1aabf94ae884226
net.bytebuddy.asm.Advice.Dispatcher.RelocationHandler.ForValue.5	f45edbabe0e9c5f
net.bytebuddy.asm.Advice.Dispatcher.RelocationHandler.ForValue.6	67ef92acb77ae368
net.bytebuddy.asm.Advice.Dispatcher.RelocationHandler.ForValue.7	b2a655f0f65d66c8
net.bytebuddy.asm.Advice.Dispatcher.RelocationHandler.ForValue.8	e7434f88906a9c24
net.bytebuddy.asm.Advice.Dispatcher.RelocationHandler.ForValue.9	b84a4f1e7e3ce186
net.bytebuddy.asm.Advice.Dispatcher.RelocationHandler.ForValue.Bound	243cd25d86e4ab5
net.bytebuddy.asm.Advice.Dispatcher.RelocationHandler.ForValue.OfNonDefault	fea862c952f8245
net.bytebuddy.asm.Advice.Dispatcher.RelocationHandler.Relocation.ForLabel	2ca8b3bcf6049a33
net.bytebuddy.asm.Advice.Dispatcher.Resolved.AbstractBase	c11dfd520c9193f
net.bytebuddy.asm.Advice.Dispatcher.SuspensionHandler.NoOp	c509d4e15ee51348
net.bytebuddy.asm.Advice.Dispatcher.SuspensionHandler.Suppressing	09e072bc1ca4ce4c
net.bytebuddy.asm.Advice.ExceptionHandler.Default	5150bcf8b7ca4eb0
net.bytebuddy.asm.Advice.ExceptionHandler.Default.1	b1848b8f9d54a2a8
net.bytebuddy.asm.Advice.ExceptionHandler.Default.2	ee9674baa95729a9
net.bytebuddy.asm.Advice.ExceptionHandler.Default.3	2039586b2e878fb7
net.bytebuddy.asm.Advice.MethodSizeHandler.Default	b7646d7a13f17583
net.bytebuddy.asm.Advice.MethodSizeHandler.Default.ForAdvice	42c9c05091c4a149
net.bytebuddy.asm.Advice.MethodSizeHandler.Default.WithCopiedArguments	613e58a9d40f4543
net.bytebuddy.asm.Advice.NoExceptionHandler	85ae8e6a09ca4f81
net.bytebuddy.asm.Advice.OffsetMapping.Factory.AdviceType	dd14d1576caa2ad4
net.bytebuddy.asm.Advice.OffsetMapping.Factory.Illegal	fa561d82583ef937
net.bytebuddy.asm.Advice.OffsetMapping.ForAllArguments	872309721f07bc32
net.bytebuddy.asm.Advice.OffsetMapping.ForAllArguments.Factory	e34fac7274362266
net.bytebuddy.asm.Advice.OffsetMapping.ForArgument	ff73ee4c55cc6164
net.bytebuddy.asm.Advice.OffsetMapping.ForArgument.Unresolved	9551e89b98949a4c
net.bytebuddy.asm.Advice.OffsetMapping.ForArgument.Unresolved.Factory	278dd3908309ea1a
net.bytebuddy.asm.Advice.OffsetMapping.ForDynamicConstant.Factory	a14df00a10dbe7d9
net.bytebuddy.asm.Advice.OffsetMapping.ForEnterValue	3ed67498436236ab
net.bytebuddy.asm.Advice.OffsetMapping.ForEnterValue.Factory	290ac0d704269bd6
net.bytebuddy.asm.Advice.OffsetMapping.ForExitValue.Factory	988128caa26d936c
net.bytebuddy.asm.Advice.OffsetMapping.ForField.Unresolved.Factory	690f359d0e8a8eee
net.bytebuddy.asm.Advice.OffsetMapping.ForFieldHandle.Unresolved.ReaderFactory	4af22e2a757bf31a
net.bytebuddy.asm.Advice.OffsetMapping.ForFieldHandle.Unresolved.WriterFactory	8fb88f057a84ce01
net.bytebuddy.asm.Advice.OffsetMapping.ForHandle.Factory	fc4d8ad5640502b1
net.bytebuddy.asm.Advice.OffsetMapping.ForInstrumentedMethod	f9c766b7738a0693
net.bytebuddy.asm.Advice.OffsetMapping.ForInstrumentedMethod.1	7f8b1a3dde7a0c48
net.bytebuddy.asm.Advice.OffsetMapping.ForInstrumentedMethod.2	2440d1f955b26dbe
net.bytebuddy.asm.Advice.OffsetMapping.ForInstrumentedMethod.3	78e7d35d754c495a
net.bytebuddy.asm.Advice.OffsetMapping.ForInstrumentedMethod.4	6795cd6ec57c163
net.bytebuddy.asm.Advice.OffsetMapping.ForInstrumentedMethod.5	29f0de3fb8feaef4
net.bytebuddy.asm.Advice.OffsetMapping.ForInstrumentedType	9cb199178b40c2e0
net.bytebuddy.asm.Advice.OffsetMapping.ForLocalValue.Factory	dee082d8fb8c9059
net.bytebuddy.asm.Advice.OffsetMapping.ForOrigin.Factory	cc27f773ada1ac11
net.bytebuddy.asm.Advice.OffsetMapping.ForReturnValue	df9ae25477abe21
net.bytebuddy.asm.Advice.OffsetMapping.ForReturnValue.Factory	3f8ddbaca9c0ca46
net.bytebuddy.asm.Advice.OffsetMapping.ForSelfCallHandle.Factory	f4e803bdd3ec001f
net.bytebuddy.asm.Advice.OffsetMapping.ForStackManipulation	42fae42b06e0ab7d
net.bytebuddy.asm.Advice.OffsetMapping.ForStackManipulation.Factory	2b1ef8ab130df062
net.bytebuddy.asm.Advice.OffsetMapping.ForStubValue	f6e4b7bed2d4994e
net.bytebuddy.asm.Advice.OffsetMapping.ForThisReference	61bdbcb141a58594
net.bytebuddy.asm.Advice.OffsetMapping.ForThisReference.Factory	e6438a2fa03556fa
net.bytebuddy.asm.Advice.OffsetMapping.ForThrowable.Factory	8258647049b8eb56
net.bytebuddy.asm.Advice.OffsetMapping.ForUnusedValue.Factory	bfd367cdcaa8cf459
net.bytebuddy.asm.Advice.OffsetMapping.Sort	fb270c614c10d4b0

net.bytebuddy.asm.Advice.OffsetMapping.Sort.1	621f2e7f3b3b6565
net.bytebuddy.asm.Advice.OffsetMapping.Sort.2	ace13bc50cb664fa
net.bytebuddy.asm.Advice.OffsetMapping.Target.ForArray	f0f6d54d957fc045
net.bytebuddy.asm.Advice.OffsetMapping.Target.ForArray.ReadOnly	0f9962dd8bc7de98
net.bytebuddy.asm.Advice.OffsetMapping.Target.ForDefaultValue	6d8821b5f8b246b1
net.bytebuddy.asm.Advice.OffsetMapping.Target.ForDefaultValue.ReadWrite	6cb12c2494912a7b
net.bytebuddy.asm.Advice.OffsetMapping.Target.ForStackManipulation	fccfc9f054f497ff
net.bytebuddy.asm.Advice.OffsetMapping.Target.ForVariable	24b0c4f2c614c48c
net.bytebuddy.asm.Advice.OffsetMapping.Target.ForVariable.ReadOnly	b6c7fd082249ae77
net.bytebuddy.asm.Advice.OffsetMapping.Target.ForVariable.ReadWrite	0c416afdf59072e
net.bytebuddy.asm.Advice.PostProcessor.NoOp	1512979491b2467e
net.bytebuddy.asm.Advice.StackMapFrameHandler.Default	33caa14d82b5421e
net.bytebuddy.asm.Advice.StackMapFrameHandler.Default.ForAdvice	d4b482c28c799b9f
net.bytebuddy.asm.Advice.StackMapFrameHandler.Default.Initialization	76b8e9fc7058856
net.bytebuddy.asm.Advice.StackMapFrameHandler.Default.Initialization.1	f1e81aecea736054
net.bytebuddy.asm.Advice.StackMapFrameHandler.Default.Initialization.2	5ee1fd4ae8179ac1
net.bytebuddy.asm.Advice.StackMapFrameHandler.Default.TranslationMode	2f8f1e9d91c57542
net.bytebuddy.asm.Advice.StackMapFrameHandler.Default.TranslationMode.1	c94ef73f34640c1b
net.bytebuddy.asm.Advice.StackMapFrameHandler.Default.TranslationMode.2	87cf86c20729f65e
net.bytebuddy.asm.Advice.StackMapFrameHandler.Default.TranslationMode.3	e6194c7d74113b12
net.bytebuddy.asm.Advice.StackMapFrameHandler.Default.WithPreservedArguments	3a5b748d9afc1836
net.bytebuddy.asm.Advice.StackMapFrameHandler.Default.WithPreservedArguments.WithArgumentCopy	894c7278034b34b6
net.bytebuddy.asm.Advice.StackMapFrameHandler.NoOp	dfc8866815118963
net.bytebuddy.asm.Advice.WithCustomMapping	b39f1cffed199307
net.bytebuddy.asm.AsmVisitorWrapper.AbstractBase	1e9138fb1b0b4185
net.bytebuddy.asm.AsmVisitorWrapper.Compound	0648db34b4a99a08
net.bytebuddy.asm.AsmVisitorWrapper.ForDeclaredMethods	cf768d8f5b16d996
net.bytebuddy.asm.AsmVisitorWrapper.ForDeclaredMethods.DispatchingVisitor	6468c29bcf0a7088
net.bytebuddy.asm.AsmVisitorWrapper.ForDeclaredMethods.Entry	ea3722f7f3e6a8e8
net.bytebuddy.asm.AsmVisitorWrapper.NoOp	6782431026ffffec0
net.bytebuddy.description.ByteCodeElement.Token.TokenList	c378dffbc959a48
net.bytebuddy.description.ModifierReviewable.AbstractBase	2ea5306ed3260bac
net.bytebuddy.description.NamedElement.WithDescriptor	79917fb7c151850b
net.bytebuddy.description.TypeVariableSource.AbstractBase	afa9cbe714a69ea6
net.bytebuddy.description.annotation.AnnotationDescription	7b5d7f348452a8fd
net.bytebuddy.description.annotation.AnnotationDescription.AbstractBase	91fe2a0215db7a25
net.bytebuddy.description.annotation.AnnotationDescription.ForLoadedAnnotation	45b968ae6eb349e2
net.bytebuddy.description.annotation.AnnotationList.AbstractBase	b2574970a6108617
net.bytebuddy.description.annotation.AnnotationList.Empty	85778debddc6a8e2
net.bytebuddy.description.annotation.AnnotationList.Explicit	45fb4e2b44a1ab64
net.bytebuddy.description.annotation.AnnotationList.ForLoadedAnnotations	309c064a5edad9f1
net.bytebuddy.description.annotation.AnnotationSource.Empty	3efda4f89915900c
net.bytebuddy.description.annotation.AnnotationValue	d7f3d011bdffb51e
net.bytebuddy.description.annotation.AnnotationValue.AbstractBase	69e2bb699468284a
net.bytebuddy.description.annotation.AnnotationValue.ForConstant	7427def2563f6d0
net.bytebuddy.description.annotation.AnnotationValue.ForConstant.PropertyDelegate.ForNonArrayType	42f42342648b8fa7
net.bytebuddy.description.annotation.AnnotationValue.ForConstant.PropertyDelegate.ForNonArrayType.1	de1b42a4850c814e
net.bytebuddy.description.annotation.AnnotationValue.ForConstant.PropertyDelegate.ForNonArrayType.2	2062c5f9436afbd9
net.bytebuddy.description.annotation.AnnotationValue.ForConstant.PropertyDelegate.ForNonArrayType.3	9f54ef11aadacf72
net.bytebuddy.description.annotation.AnnotationValue.ForConstant.PropertyDelegate.ForNonArrayType.4	994767655151955f
net.bytebuddy.description.annotation.AnnotationValue.ForConstant.PropertyDelegate.ForNonArrayType.5	1745bb6a04e8993d
net.bytebuddy.description.annotation.AnnotationValue.ForConstant.PropertyDelegate.ForNonArrayType.6	e1f9c9a005abae22
net.bytebuddy.description.annotation.AnnotationValue.ForConstant.PropertyDelegate.ForNonArrayType.7	6ed2f2d151367cbb
net.bytebuddy.description.annotation.AnnotationValue.ForConstant.PropertyDelegate.ForNonArrayType.8	a27ee00384a36bef
net.bytebuddy.description.annotation.AnnotationValue.ForConstant.PropertyDelegate.ForNonArrayType.9	63c6c63b84353202
net.bytebuddy.description.annotation.AnnotationValue.ForDescriptionArray	fcfee5f41864d050
net.bytebuddy.description.annotation.AnnotationValue.ForEnumerationDescription	ae910611763d0f68
net.bytebuddy.description.annotation.AnnotationValue.ForEnumerationDescription.Loaded	d5a7abe5386d61fe
net.bytebuddy.description.annotation.AnnotationValue.ForTypeDescription	6ab0ae6789cbf5ef
net.bytebuddy.description.annotation.AnnotationValue.Loaded.AbstractBase	f3f7beb6650a5ac8
net.bytebuddy.description.annotation.AnnotationValue.Sort	0a66a94600ced3bc
net.bytebuddy.description.annotation.AnnotationValue.State	ec800f741ddcd502
net.bytebuddy.description.enumeration.EnumerationDescription.AbstractBase	99c01057a1777d0c
net.bytebuddy.description.enumeration.EnumerationDescription.ForLoadedEnumeration	affebde010d964e1
net.bytebuddy.description.field.FieldDescription	beebcc8fb52f5092
net.bytebuddy.description.field.FieldDescription.AbstractBase	14186b080645f953
net.bytebuddy.description.field.FieldDescription.ForLoadedField	123156fd14617ba2
net.bytebuddy.description.field.FieldDescription.InDefinedShape.AbstractBase	0d8b55a89d1f5d33
net.bytebuddy.description.field.FieldDescription.Latent	3988698b9a06a78b
net.bytebuddy.description.field.FieldDescription.SignatureToken	56fee817a36ae13e
net.bytebuddy.description.field.FieldDescription.Token	cb32bbcddd28b15f
net.bytebuddy.description.field.FieldList.AbstractBase	eaf7adc9c2f91154
net.bytebuddy.description.field.FieldList.Explicit	8f12c029b0e18281
net.bytebuddy.description.field.FieldList.ForLoadedFields	8b99118397373efd

net.bytebuddy.description.field.FieldList.ForTokens	212571f44e74f5ee
net.bytebuddy.description.method.MethodDescription	29fc82bada408f50
net.bytebuddy.description.method.MethodDescription.AbstractBase	cd48701a16ec6aae
net.bytebuddy.description.method.MethodDescription.ForLoadedConstructor	6b82fc21752f5919
net.bytebuddy.description.method.MethodDescription.ForLoadedMethod	1c3e6a782b133159
net.bytebuddy.description.method.MethodDescription.InDefinedShape.AbstractBase	a1150ad60ccc435a
net.bytebuddy.description.method.MethodDescription.InDefinedShape.AbstractBase.ForLoadedExecutable	1009e43f35e34cbd
net.bytebuddy.description.method.MethodDescription.Latent	906c68aeeaaf7c2c
net.bytebuddy.description.method.MethodDescription.Latent.TypeInitializer	d2d992bea0797b42
net.bytebuddy.description.method.MethodDescription.SignatureToken	5451f2ff109b0d00
net.bytebuddy.description.method.MethodDescription.Token	a2181b4586337ee7
net.bytebuddy.description.method.MethodDescription.TypeSubstituting	0993d75a33526eb0
net.bytebuddy.description.method.MethodDescription.TypeToken	5e47ae2a4768bc1c
net.bytebuddy.description.method.MethodList.AbstractBase	6e4bb8d5a09ca7f3
net.bytebuddy.description.method.MethodList.Explicit	9650ca53b2f6a6e2
net.bytebuddy.description.method.MethodList.ForLoadedMethods	7648140277a32974
net.bytebuddy.description.method.MethodList.ForTokens	42b106ad57e53b91
net.bytebuddy.description.method.MethodList.TypeSubstituting	e3ff3658a2c85bc8
net.bytebuddy.description.method.ParameterDescription.AbstractBase	f0e631571e74e319
net.bytebuddy.description.method.ParameterDescription.ForLoadedParameter	1f8303d30bd71a08
net.bytebuddy.description.method.ParameterDescription.ForLoadedParameter.OfConstructor	c6cfab06736c11d7
net.bytebuddy.description.method.ParameterDescription.ForLoadedParameter.OfMethod	4bdfdb69b0fecfa2
net.bytebuddy.description.method.ParameterDescription.InDefinedShape.AbstractBase	607a2c5720c1d99a
net.bytebuddy.description.method.ParameterDescription.Latent	be72fd24f033a8d0
net.bytebuddy.description.method.ParameterDescription.Token	8b04ac8d91e9a55d
net.bytebuddy.description.method.ParameterDescription.Token.TypeList	c866bbd9b65b2971
net.bytebuddy.description.method.ParameterDescription.TypeSubstituting	0a2f4fe45f35ee10
net.bytebuddy.description.method.ParameterList.AbstractBase	713c270249b385e6
net.bytebuddy.description.method.ParameterList.Empty	8a77392f505a85b6
net.bytebuddy.description.method.ParameterList.Explicit.ForTypes	e403d19044367493
net.bytebuddy.description.method.ParameterList.ForLoadedExecutable	6ddce2700deb6f43
net.bytebuddy.description.method.ParameterList.ForLoadedExecutable.OfConstructor	884be9c14d50eac9
net.bytebuddy.description.method.ParameterList.ForLoadedExecutable.OfMethod	863355ac9b305941
net.bytebuddy.description.method.ParameterList.ForTokens	9205617d32f4ed0f
net.bytebuddy.description.method.ParameterList.TypeSubstituting	3ad933fe68b4ba20
net.bytebuddy.description.modifier.FieldManifestation	8c08d347304d6d18
net.bytebuddy.description.modifier.ModifierContributor.Resolver	0703516f4b7fd825
net.bytebuddy.description.modifier.Ownership	2e60a3d39ac5641b
net.bytebuddy.description.modifier.SynchronizationState	f5442374e6d2e05c
net.bytebuddy.description.modifier.SyntheticState	32e09bf9a909c23b
net.bytebuddy.description.modifier.TypeManifestation	b090b1e7c7385c73
net.bytebuddy.description.modifier.Visibility	98008a87e5e30e3e
net.bytebuddy.description.modifier.Visibility.1	b8d629c2c45ceb7b
net.bytebuddy.description.type.PackageDescription.AbstractBase	0ec6f311394275e0
net.bytebuddy.description.type.PackageDescription.ForLoadedPackage	4c0675dabc7f0352
net.bytebuddy.description.type.PackageDescription.Simple	f70620e1fa6685ee
net.bytebuddy.description.type.RecordComponentList.AbstractBase	6ec7cebb7657a89e
net.bytebuddy.description.type.RecordComponentList.Empty	8a33bfff3c9e86862
net.bytebuddy.description.type.RecordComponentList.ForTokens	fc914dd18d7a6558
net.bytebuddy.description.type.TypeDefinition.Sort	6274c605f85caf0c
net.bytebuddy.description.type.TypeDefinition.SuperClassIterator	5809749d8b426dc8
net.bytebuddy.description.type.TypeDescription	c3eaeda62d963b8f
net.bytebuddy.description.type.TypeDescription.AbstractBase	4c470694ace19ac8
net.bytebuddy.description.type.TypeDescription.AbstractBase.OfSimpleType	5818a940b298c7ab
net.bytebuddy.description.type.TypeDescription.ArrayProjection	db4200f41a9d25b8
net.bytebuddy.description.type.TypeDescription.ForLoadedType	445de55c15b3091b
net.bytebuddy.description.type.TypeDescription.Generic	52e171d973daa9cb
net.bytebuddy.description.type.TypeDescription.Generic.AbstractBase	70091e48533fe83a
net.bytebuddy.description.type.TypeDescription.Generic.AnnotationReader.Delegator	ba33a37252d9901e
net.bytebuddy.description.type.TypeDescription.Generic.AnnotationReader.Delegator.Chained	a18769b831f5045
net.bytebuddy.description.type.TypeDescription.Generic.AnnotationReader.Delegator.ForLoadedExecutableExceptionType	fc12460a1e315c5f
net.bytebuddy.description.type.TypeDescription.Generic.AnnotationReader.Delegator.ForLoadedExecutableParameterType	820fde02a9920d37
net.bytebuddy.description.type.TypeDescription.Generic.AnnotationReader.Delegator.ForLoadedField	c983cfe01d0d5edb
net.bytebuddy.description.type.TypeDescription.Generic.AnnotationReader.Delegator.ForLoadedInterface	a5b8cb5a2d7c21c3
net.bytebuddy.description.type.TypeDescription.Generic.AnnotationReader.Delegator.ForLoadedMethodReturnType	850a31c9319cfa02
net.bytebuddy.description.type.TypeDescription.Generic.AnnotationReader.Delegator.ForLoadedSuperClass	c2f372c822fcfa3e8
net.bytebuddy.description.type.TypeDescription.Generic.AnnotationReader.Delegator.ForLoadedTypeVariable	3925b4cc15f4bd2f
net.bytebuddy.description.type.TypeDescription.Generic.AnnotationReader.Delegator.Simple	242d40ab18115093
net.bytebuddy.description.type.TypeDescription.Generic.AnnotationReader.ForComponentType	4748d1b5aeab5236
net.bytebuddy.description.type.TypeDescription.Generic.AnnotationReader.ForOwnerType	a2f75393f0f99bb4
net.bytebuddy.description.type.TypeDescription.Generic.AnnotationReader.ForTypeArgument	b6147d2e51640023
net.bytebuddy.description.type.TypeDescription.Generic.AnnotationReader.ForTypeVariableBoundType	fdfe10d1fb135210
net.bytebuddy.description.type.TypeDescription.Generic.AnnotationReader.ForTypeVariableBoundType.OfFormalTypeVariable	bb1fab9736bbbedf3
net.bytebuddy.description.type.TypeDescription.Generic.AnnotationReader.ForWildcardLowerBoundType	b97a1df71c1b4dc5
net.bytebuddy.description.type.TypeDescription.Generic.AnnotationReader.ForWildcardUpperBoundType	98fbf4d7a37c0e61

net.bytebuddy.description.type.TypeDescription.Generic.AnnotationReader.NoOp	bfc9d9d8dca3065f5
net.bytebuddy.description.type.TypeDescription.Generic.LazyProjection	07ac00385cc953c1
net.bytebuddy.description.type.TypeDescription.Generic.LazyProjection.ForLoadedFieldType	1b18d66c9610018d
net.bytebuddy.description.type.TypeDescription.Generic.LazyProjection.ForLoadedReturnType	2bf5be358b4dc655
net.bytebuddy.description.type.TypeDescription.Generic.LazyProjection.ForLoadedSuperClass	b3ce70f79a11e22c
net.bytebuddy.description.type.TypeDescription.Generic.LazyProjection.OfConstructorParameter	dc5b41f427a54066
net.bytebuddy.description.type.TypeDescription.Generic.LazyProjection.OfMethodParameter	fb1afa36f177f218
net.bytebuddy.description.type.TypeDescription.Generic.LazyProjection.WithEagerNavigation	2c30af0f6fa58f88
net.bytebuddy.description.type.TypeDescription.Generic.LazyProjection.WithEagerNavigation.OfAnnotatedElement	6806a9bf7ba25171
net.bytebuddy.description.type.TypeDescription.Generic.LazyProjection.WithLazyNavigation	80a39599d01968d6
net.bytebuddy.description.type.TypeDescription.Generic.LazyProjection.WithLazyNavigation.OfAnnotatedElement	d2786c8c9ae86232
net.bytebuddy.description.type.TypeDescription.Generic.LazyProjection.WithResolvedErasure	306963d1fc7a671c
net.bytebuddy.description.type.TypeDescription.Generic.LazyProxy	c5562144abf34544
net.bytebuddy.description.type.TypeDescription.Generic.OfGenericArray	0660b19e071b04d9
net.bytebuddy.description.type.TypeDescription.Generic.OfGenericArray.ForLoadedType	4a2923389eaef5c8b
net.bytebuddy.description.type.TypeDescription.Generic.OfGenericArray.Latent	0980141661f7e1a7
net.bytebuddy.description.type.TypeDescription.Generic.OfNonGenericType	9f6b0bd613a646fc
net.bytebuddy.description.type.TypeDescription.Generic.OfNonGenericType.ForErasure	8c4eacb30cea265e
net.bytebuddy.description.type.TypeDescription.Generic.OfNonGenericType.ForLoadedType	5274fb8c35225f5f
net.bytebuddy.description.type.TypeDescription.Generic.OfNonGenericType.ForReifiedErasure	aed938d46e95e44c
net.bytebuddy.description.type.TypeDescription.Generic.OfNonGenericType.Latent	372c896f35267a96
net.bytebuddy.description.type.TypeDescription.Generic.OfParameterizedType	cf9990642c03405f
net.bytebuddy.description.type.TypeDescription.Generic.OfParameterizedType.ForGenerifiedErasure	7ed56b64be3ef06d
net.bytebuddy.description.type.TypeDescription.Generic.OfParameterizedType.ForLoadedType	554831d385360a6d
net.bytebuddy.description.type.TypeDescription.Generic.OfParameterizedType.ForLoadedType.ParameterArgumentTypeList	4d7b4f0a54d46909
net.bytebuddy.description.type.TypeDescription.Generic.OfParameterizedType.ForReifiedType	320948b9f385d4b4
net.bytebuddy.description.type.TypeDescription.Generic.OfParameterizedType.Latent	65bad8524d24da78
net.bytebuddy.description.type.TypeDescription.Generic.OfTypeVariable	86e4078bd5cd6a82
net.bytebuddy.description.type.TypeDescription.Generic.OfTypeVariable.ForLoadedType	ed5cd3cbbe779d8c
net.bytebuddy.description.type.TypeDescription.Generic.OfTypeVariable.ForLoadedType.TypeVariableBoundList	eb6620f5799fe8f5
net.bytebuddy.description.type.TypeDescription.Generic.OfTypeVariable.Symbolic	58cf78bca4d2bd51
net.bytebuddy.description.type.TypeDescription.Generic.OfTypeVariable.WithAnnotationOverlay	ec478e7fa8287853
net.bytebuddy.description.type.TypeDescription.Generic.OfWildcardType	9f36a440f0a04724
net.bytebuddy.description.type.TypeDescription.Generic.OfWildcardType.ForLoadedType	2224f84636e0f952
net.bytebuddy.description.type.TypeDescription.Generic.OfWildcardType.ForLoadedType.WildcardLowerBoundTypeList	615a97949ca84b45
net.bytebuddy.description.type.TypeDescription.Generic.OfWildcardType.ForLoadedType.WildcardUpperBoundTypeList	87a5af4372397ddaa
net.bytebuddy.description.type.TypeDescription.Generic.OfWildcardType.Latent	0f49202883abd15b
net.bytebuddy.description.type.TypeDescription.Generic.Visitor.AnnotationStripper	3e19b0550a8be1bd
net.bytebuddy.description.type.TypeDescription.Generic.Visitor.AnnotationStripper.NonAnnotatedTypeVariable	617699ec0a3562b8
net.bytebuddy.description.type.TypeDescription.Generic.Visitor.ForRawType	2ab665659e488ee3
net.bytebuddy.description.type.TypeDescription.Generic.Visitor.ForSignatureVisitor	c0eebf71c2c20203
net.bytebuddy.description.type.TypeDescription.Generic.Visitor.ForSignatureVisitorOfTypeArgument	0561fc5d35509089
net.bytebuddy.description.type.TypeDescription.Generic.Visitor.Reducing	87d9b9c7cdb46685
net.bytebuddy.description.type.TypeDescription.Generic.Visitor.Reifying	1f23e61efd8c040e
net.bytebuddy.description.type.TypeDescription.Generic.Visitor.Reifying.1	9992e854290cac45
net.bytebuddy.description.type.TypeDescription.Generic.Visitor.Reifying.2	3880aef22a6c4930
net.bytebuddy.description.type.TypeDescription.Generic.Visitor.Substitutor	5bc3866175f926f2
net.bytebuddy.description.type.TypeDescription.Generic.Visitor.Substitutor.ForAttachment	8cf9a45e6526538b
net.bytebuddy.description.type.TypeDescription.Generic.Visitor.Substitutor.ForDetachment	c1c177d019118d9b
net.bytebuddy.description.type.TypeDescription.Generic.Visitor.Substitutor.ForTypeVariableBinding	c8c364768506ed0b
net.bytebuddy.description.type.TypeDescription.Generic.Visitor.Substitutor.ForTypeVariableBinding.RetainedMethodTypeVariable	96bac28c872b4281
net.bytebuddy.description.type.TypeDescription.Generic.Visitor.Substitutor.ForTypeVariableBinding.TypeVariableSubstitutor	cce8953b87ceb945
net.bytebuddy.description.type.TypeDescription.Generic.Visitor.Substitutor.WithoutTypeSubstitution	039af874f4087139
net.bytebuddy.description.type.TypeDescription.Generic.Visitor.TypeErasing	c81cedd98f160974
net.bytebuddy.description.type.TypeDescription.Generic.Visitor.Validator	140b09b73b4b60c8
net.bytebuddy.description.type.TypeDescription.Generic.Visitor.Validator.1	d799308b1611cd13
net.bytebuddy.description.type.TypeDescription.Generic.Visitor.Validator.2	499de672436311ce
net.bytebuddy.description.type.TypeDescription.Generic.Visitor.Validator.3	7923429fa88ea5cf
net.bytebuddy.description.type.TypeDescription.Generic.Visitor.ValidatorForTypeAnnotations	6025d4a2423e87ac
net.bytebuddy.description.type.TypeDescription.Latent	aff7537b8e4a3b56
net.bytebuddy.description.type.TypeDescription.LazyProxy	edc5abaabf7281a4
net.bytebuddy.description.type.TypeList	ffa2fe3b5b233353
net.bytebuddy.description.type.TypeList.AbstractBase	03ace8fa7043bfce
net.bytebuddy.description.type.TypeList.Empty	d5bf5d4843d3b40b
net.bytebuddy.description.type.TypeList.Explicit	23780d287a231e41
net.bytebuddy.description.type.TypeList.ForLoadedTypes	826dc7ad585dcbbc
net.bytebuddy.description.type.TypeList.Generic.AbstractBase	82e09b4ce109a939
net.bytebuddy.description.type.TypeList.Generic.Empty	09b9aca5ee8c1475
net.bytebuddy.description.type.TypeList.Generic.Explicit	d184b9433829cab
net.bytebuddy.description.type.TypeList.Generic.ForDetachedTypes	7df55a5ca5fec13f
net.bytebuddy.description.type.TypeList.Generic.ForDetachedTypes.OfTypeVariables	3a26e31857238724
net.bytebuddy.description.type.TypeList.Generic.ForDetachedTypes.OfTypeVariables.AttachedTypeVariable	75cc8314964e08b5
net.bytebuddy.description.type.TypeList.Generic.ForDetachedTypes.WithResolvedErasure	5dc3a74323127305
net.bytebuddy.description.type.TypeList.Generic.ForLoadedTypes	6d36b199d5e88b53

net.bytebuddy.description.type.TypeList.Generic.ForLoadedTypes.OfTypeVariables	0ed9eb434cab9b70
net.bytebuddy.description.type.TypeList.Generic.OfConstructorExceptionTypes	1eb0243fd9192b8a
net.bytebuddy.description.type.TypeList.Generic.OfConstructorExceptionTypes.TypeProjection	e3069579f0c36ea7
net.bytebuddy.description.type.TypeList.Generic.OfLoadedInterfaceTypes	1d9424dd0d7bc1c0
net.bytebuddy.description.type.TypeList.Generic.OfLoadedInterfaceTypes.TypeProjection	808c89479cd00a5d
net.bytebuddy.description.type.TypeList.Generic.OfMethodExceptionTypes	f6b71c9483cf7675
net.bytebuddy.description.type.TypeList.Generic.OfMethodExceptionTypes.TypeProjection	30acd7d949c355bb
net.bytebuddy.description.type.TypeVariableToken	ba16c063046983a1
net.bytebuddy.dynamic.ClassFileLocator.ForClassLoader	27d77cb6b78fc547
net.bytebuddy.dynamic.ClassFileLocator.ForClassLoader.BootLoaderProxyCreationAction	cd2788dbef627a42
net.bytebuddy.dynamic.ClassFileLocator.Resolution.Explicit	3b5906ac6a8e97c
net.bytebuddy.dynamic.ClassFileLocator.Simple	aa55299a7027b445
net.bytebuddy.dynamic.DynamicType.AbstractBase	690dc473a1fcc899
net.bytebuddy.dynamic.DynamicType.Builder.AbstractBase	aa1759a3194d7f14
net.bytebuddy.dynamic.DynamicType.Builder.AbstractBase.Adapter	1052045033e158fb
net.bytebuddy.dynamic.DynamicType.Builder.AbstractBase.Adapter.FieldDefinitionAdapter	b0d316958f2c533a
net.bytebuddy.dynamic.DynamicType.Builder.AbstractBase.Adapter.MethodDefinitionAdapter	060b669748c6eb43
net.bytebuddy.dynamic.DynamicType.Builder.AbstractBase.Adapter.MethodDefinitionAdapter.AnnotationAdapter	734373a7d618763a
net.bytebuddy.dynamic.DynamicType.Builder.AbstractBase.Adapter.MethodDefinitionAdapter.SimpleParameterAnnotationAdapter	0e661f268cd9c08
net.bytebuddy.dynamic.DynamicType.Builder.AbstractBase.Adapter.MethodMatchAdapter	7a8cf3bcd2d805c6
net.bytebuddy.dynamic.DynamicType.Builder.AbstractBase.Adapter.MethodMatchAdapter.AnnotationAdapter	1505339515cd1c19
net.bytebuddy.dynamic.DynamicType.Builder.AbstractBase.Adapter.OptionalMethodMatchAdapter	d415d86eeb500e07
net.bytebuddy.dynamic.DynamicType.Builder.AbstractBase.Delegator	936b4705c2af1791
net.bytebuddy.dynamic.DynamicType.Builder.AbstractBase.UsingTypeWriter	fd88ea62d3bec9e8
net.bytebuddy.dynamic.DynamicType.Builder.FieldDefinition.Optional.AbstractBase	305861cdfa6660be
net.bytebuddy.dynamic.DynamicType.Builder.FieldDefinition.Optional.Valuable.AbstractBase	6ac9b330fc124370
net.bytebuddy.dynamic.DynamicType.Builder.FieldDefinition.Optional.Valuable.AbstractBase.Adapter	61c7c08f0fb4acb0
net.bytebuddy.dynamic.DynamicType.Builder.MethodDefinition.AbstractBase	e1b17723ee466981
net.bytebuddy.dynamic.DynamicType.Builder.MethodDefinition.AbstractBase.Adapter	fa398faff0645c86
net.bytebuddy.dynamic.DynamicType.Builder.MethodDefinition.ExceptionDefinition.AbstractBase	553558ccdd2ea7d30
net.bytebuddy.dynamic.DynamicType.Builder.MethodDefinition.ImplementationDefinition.AbstractBase	72bbf9be43329300
net.bytebuddy.dynamic.DynamicType.Builder.MethodDefinition.ParameterDefinition.AbstractBase	c46ba31879e7f18
net.bytebuddy.dynamic.DynamicType.Builder.MethodDefinition.ParameterDefinition.Initial.AbstractBase	bf9ad000af8dfbe7
net.bytebuddy.dynamic.DynamicType.Builder.MethodDefinition.ParameterDefinition.Simple.AbstractBase	3591bd96cf8ba88c
net.bytebuddy.dynamic.DynamicType.Builder.MethodDefinition.ParameterDefinition.Simple.Annotatable.AbstractBase	dd4ec10b2ca5aed6
net.bytebuddy.dynamic.DynamicType.Builder.MethodDefinition.ParameterDefinition.Simple.Annotatable.AbstractBase.Adapter	511cf7967b5892fe
net.bytebuddy.dynamic.DynamicType.Builder.MethodDefinition.ReceiverTypeDefinition.AbstractBase	6abfb4279099921b
net.bytebuddy.dynamic.DynamicType.Builder.MethodDefinition.TypeVariableDefinition.AbstractBase	9bb9648ea001ee26
net.bytebuddy.dynamic.DynamicType.Default	f56db2a964930d9f
net.bytebuddy.dynamic.DynamicType.Default.Loaded	b3ca6c151890771d
net.bytebuddy.dynamic.DynamicType.Default.Unloaded	60aab9827a2fe060
net.bytebuddy.dynamic.TargetType	92d2ae273e27a92e
net.bytebuddy.dynamic.Transformer.Compound	31031064056b461f
net.bytebuddy.dynamic.Transformer.ForMethod	9763e7fc8d3d0039
net.bytebuddy.dynamic.Transformer.ForMethod.MethodModifierTransformer	392d6ab6d2a08504
net.bytebuddy.dynamic.Transformer.ForMethod.TransformedMethod	8ee8fb29bba1f45
net.bytebuddy.dynamic.Transformer.ForMethod.TransformedMethod.AttachmentVisitor	41498d5684407e50
net.bytebuddy.dynamic.Transformer.ForMethod.TransformedMethod.TransformedParameter	2196a64af1ada8f5
net.bytebuddy.dynamic.Transformer.ForMethod.TransformedMethod.TransformedParameterList	68df6a158c64de3a
net.bytebuddy.dynamic.Transformer.NoOp	8fa58b41007a0c6e
net.bytebuddy.dynamic.TypeResolutionStrategy.Passive	560bec77a3a9e1cd
net.bytebuddy.dynamic.VisibilityBridgeStrategy.Default	92dd499e424995ab
net.bytebuddy.dynamic.VisibilityBridgeStrategy.Default.1	88969522be51c47a
net.bytebuddy.dynamic.VisibilityBridgeStrategy.Default.2	e90257accee75dbe
net.bytebuddy.dynamic.VisibilityBridgeStrategy.Default.3	dbaleec57628b9b8
net.bytebuddy.dynamic.loading.ByteArrayClassLoader	bc61ad56649f6a21
net.bytebuddy.dynamic.loading.ByteArrayClassLoader.ClassDefinitionAction	7ddd05378a81b5ac
net.bytebuddy.dynamic.loading.ByteArrayClassLoader.PackageLookupStrategy.CreationAction	579d717b5fb1777c
net.bytebuddy.dynamic.loading.ByteArrayClassLoader.PackageLookupStrategy.ForJava9CapableVm	3116856af2d9e391
net.bytebuddy.dynamic.loading.ByteArrayClassLoader.PersistenceHandler	e4d3975d11965972
net.bytebuddy.dynamic.loading.ByteArrayClassLoader.PersistenceHandler.1	c5bf4188a059f348
net.bytebuddy.dynamic.loading.ByteArrayClassLoader.PersistenceHandler.2	d4d9d89c20c33c79
net.bytebuddy.dynamic.loading.ByteArrayClassLoader.SynchronizationStrategy.CreationAction	85defb9db5b2b5cc
net.bytebuddy.dynamic.loading.ByteArrayClassLoader.SynchronizationStrategy.ForJava8CapableVm	fae027d8e16a32fa
net.bytebuddy.dynamic.loading.ClassFilePostProcessor.NoOp	6146ad1c41c815ee
net.bytebuddy.dynamic.loading.ClassInjector.AbstractBase	48ea808bb6ccbbf1
net.bytebuddy.dynamic.loading.ClassInjector.UsingLookup	0ac0b66e8bfc7f1d
net.bytebuddy.dynamic.loading.ClassLoadingStrategy	eee19f05d61ced57
net.bytebuddy.dynamic.loading.ClassLoadingStrategy.UsingLookup	3fe445da3a017ea7
net.bytebuddy.dynamic.loading.InjectionClassLoader	41bc10f352e48896
net.bytebuddy.dynamic.loading.InjectionClassLoader.Strategy	6ed217ae5fb57d05
net.bytebuddy.dynamic.loading.MultipleParentClassLoader.Builder	079ab85cc0317f7f
net.bytebuddy.dynamic.loading.PackageDefinitionStrategy.Definition.Trivial	968c1d05fe34e6ba
net.bytebuddy.dynamic.loading.PackageDefinitionStrategy.Trivial	1b8be35a135f3f27

net.bytebuddy.dynamic.scaffold.FieldLocator.AbstractBase	cf87e1b20bb0b8da
net.bytebuddy.dynamic.scaffold.FieldLocator.ForClassHierarchy	7a3b903f068f7597
net.bytebuddy.dynamic.scaffold.FieldLocator.ForClassHierarchy.Factory	03b1190c054626d7
net.bytebuddy.dynamic.scaffold.FieldLocator.Resolution.Illegal	2aa162cec2d09e4e
net.bytebuddy.dynamic.scaffold.FieldLocator.Resolution.Simple	9c60c3ef37a8e07c
net.bytebuddy.dynamic.scaffold.FieldRegistry.Default	d252721578bc0fb5
net.bytebuddy.dynamic.scaffold.FieldRegistry.Default.Compiled	7dac3c03ab5df0af
net.bytebuddy.dynamic.scaffold.FieldRegistry.Default.Compiled.Entry	a356ed792e610abf
net.bytebuddy.dynamic.scaffold.FieldRegistry.Default.Entry	21cbb71bbb74244a
net.bytebuddy.dynamic.scaffold.InstrumentedType.Default	e9bbd49fcda040b4
net.bytebuddy.dynamic.scaffold.InstrumentedType.Factory.Default	c7f976e803f8d3a8
net.bytebuddy.dynamic.scaffold.InstrumentedType.Factory.Default.1	01e6e0df84609179
net.bytebuddy.dynamic.scaffold.InstrumentedType.Factory.Default.2	41b308deac98792e
net.bytebuddy.dynamic.scaffold.MethodGraph.Compiler	6b8d18710c99d74d
net.bytebuddy.dynamic.scaffold.MethodGraph.Compiler.AbstractBase	86739f96369d83b2
net.bytebuddy.dynamic.scaffold.MethodGraph.Compiler.Default	2800dfa5c3b8aca7
net.bytebuddy.dynamic.scaffold.MethodGraph.Compiler.Default.Harmonizer.ForJavaMethod	8ef28acf242eae2d
net.bytebuddy.dynamic.scaffold.MethodGraph.Compiler.Default.Harmonizer.ForJavaMethod.Token	7bd97f7cecaf5018
net.bytebuddy.dynamic.scaffold.MethodGraph.Compiler.Default.Key	88f2458db8c741e7
net.bytebuddy.dynamic.scaffold.MethodGraph.Compiler.Default.Key.Detached	89750a8204bacfc3
net.bytebuddy.dynamic.scaffold.MethodGraph.Compiler.Default.Key.Harmonized	a31e139e57804f56
net.bytebuddy.dynamic.scaffold.MethodGraph.Compiler.Default.Key.Store	7716ed339d21e000
net.bytebuddy.dynamic.scaffold.MethodGraph.Compiler.Default.Key.Store.Entry.Ambiguous	69db800671ee2019
net.bytebuddy.dynamic.scaffold.MethodGraph.Compiler.Default.Key.Store.Entry.Initial	a1eb87bc66f88929
net.bytebuddy.dynamic.scaffold.MethodGraph.Compiler.Default.Key.Store.Entry.Resolved	9c0eb28c1120302a
net.bytebuddy.dynamic.scaffold.MethodGraph.Compiler.Default.Key.Store.Resolved.Node	7bbc1aea5064d7
net.bytebuddy.dynamic.scaffold.MethodGraph.Compiler.Default.Key.Store.Graph	bf364158f6188e45
net.bytebuddy.dynamic.scaffold.MethodGraph.Compiler.Default.Merger.Direction	afc0868aacc8dbb5
net.bytebuddy.dynamic.scaffold.MethodGraph.Compiler.ForDeclaredMethods	6c4c0c83346af9e0
net.bytebuddy.dynamic.scaffold.MethodGraph.Empty	0f8190524ba952c8
net.bytebuddy.dynamic.scaffold.MethodGraph.Linked.Delegation	47e48556a9cda077
net.bytebuddy.dynamic.scaffold.MethodGraph.Node.Simple	cf6e675432bc60ba
net.bytebuddy.dynamic.scaffold.MethodGraph.Node.Sort	c997ba920aa81bb5
net.bytebuddy.dynamic.scaffold.MethodGraph.Node.Unresolved	c0dc9372315bec1a
net.bytebuddy.dynamic.scaffold.MethodGraph.NodeList	ddb63425295dab8e
net.bytebuddy.dynamic.scaffold.MethodGraph.Simple	b231d730a2138443
net.bytebuddy.dynamic.scaffold.MethodRegistry.Default	e823178c1c962613
net.bytebuddy.dynamic.scaffold.MethodRegistry.Default.Compiled	86804b8f21a02f7e
net.bytebuddy.dynamic.scaffold.MethodRegistry.Default.Compiled.Entry	b9727d766a3abd06
net.bytebuddy.dynamic.scaffold.MethodRegistry.Default.Entry	0216bf1a4989ddd9
net.bytebuddy.dynamic.scaffold.MethodRegistry.Default.Prepared	2fc66a86a52ec6f1
net.bytebuddy.dynamic.scaffold.MethodRegistry.Default.Prepared.Entry	6c98eecdd8c8c68
net.bytebuddy.dynamic.scaffold.MethodRegistry.Handler.ForImplementation	8db040195f76894f
net.bytebuddy.dynamic.scaffold.MethodRegistry.Handler.ForImplementation.Compiled	3ade648194f6daec
net.bytebuddy.dynamic.scaffold.RecordComponentRegistry.Default	891a9cb069e1ffb3
net.bytebuddy.dynamic.scaffold.RecordComponentRegistry.Default.Compiled	faf0312e50511a4b
net.bytebuddy.dynamic.scaffold.TypeInitializer.Drain.Default	391ec96470191ff5
net.bytebuddy.dynamic.scaffold.TypeInitializer.None	0aa5903ad3f1d635
net.bytebuddy.dynamic.scaffold.TypeInitializer.Simple	cf379da7dede87a5
net.bytebuddy.dynamic.scaffold.TypeValidation	50527b71bc87dd74
net.bytebuddy.dynamic.scaffold.TypeWriter.Default	f27ba1edbba53a3c
net.bytebuddy.dynamic.scaffold.TypeWriter.Default.ClassDumpAction.Dispatcher.Disabled	2cbe19f435bea571
net.bytebuddy.dynamic.scaffold.TypeWriter.Default.ForCreation	03b740be560ec44d
net.bytebuddy.dynamic.scaffold.TypeWriter.Default.ForInlining	ea80afd67a6759b1
net.bytebuddy.dynamic.scaffold.TypeWriter.Default.ForInlining.ContextRegistry	30f87ac3b6e91d07
net.bytebuddy.dynamic.scaffold.TypeWriter.Default.ForInlining.WithFullProcessing	cc2d500ff979fe0d
net.bytebuddy.dynamic.scaffold.TypeWriter.Default.ForInlining.WithFullProcessing.InitializationHandler.Appending	78681a98b1676574
net.bytebuddy.dynamic.scaffold.TypeWriter.Default.ForInlining.WithFullProcessing.InitializationHandler.Appending.FrameWriter.NoOp	4e676b84c2db9221
net.bytebuddy.dynamic.scaffold.TypeWriter.Default.ForInlining.WithFullProcessing.InitializationHandler.Appending.WithoutDrain	1c35fc86761d78a
net.bytebuddy.dynamic.scaffold.TypeWriter.Default.ForInlining.WithFullProcessing.InitializationHandler.Appending.WithoutDrain.WithoutActiveRecord	a9601fe4f1c04d81
net.bytebuddy.dynamic.scaffold.TypeWriter.Default.ForInlining.WithFullProcessing.InitializationHandler.Creating	1863bc3b7943bb2b
net.bytebuddy.dynamic.scaffold.TypeWriter.Default.ForInlining.WithFullProcessing.RedefinitionClassVisitor	88eb70c1f7cb268c
net.bytebuddy.dynamic.scaffold.TypeWriter.Default.SignatureKey	30f02c677c168ffb
net.bytebuddy.dynamic.scaffold.TypeWriter.Default.UnresolvedType	9b9d5a9877b725fe
net.bytebuddy.dynamic.scaffold.TypeWriter.Default.ValidatingClassVisitor	fef9b21649f006c2
net.bytebuddy.dynamic.scaffold.TypeWriter.Default.ValidatingClassVisitor.Constraint.Compound	7658cf279fc7eba
net.bytebuddy.dynamic.scaffold.TypeWriter.Default.ValidatingClassVisitor.Constraint.ForClass	d6e8080c2ac49ca3
net.bytebuddy.dynamic.scaffold.TypeWriter.Default.ValidatingClassVisitor.Constraint.ForClassFileVersion	98d826d97325d335
net.bytebuddy.dynamic.scaffold.TypeWriter.Default.ValidatingClassVisitor.ValidatingMethodVisitor	0f3d60cd71ee55ec
net.bytebuddy.dynamic.scaffold.TypeWriter.FieldPool.Record.ForExplicitField	84d49e949954f821
net.bytebuddy.dynamic.scaffold.TypeWriter.FieldPool.Record.ForImplicitField	bd4c79016e6c7e59
net.bytebuddy.dynamic.scaffold.TypeWriter.MethodPool.Record.AccessBridgeWrapper	51ec572f133baaf7
net.bytebuddy.dynamic.scaffold.TypeWriter.MethodPool.Record.ForDefinedMethod	f6b5f34a9b4e8f93
net.bytebuddy.dynamic.scaffold.TypeWriter.MethodPool.Record.ForDefinedMethod.WithBody	e26a3dcae9eda3d3
net.bytebuddy.dynamic.scaffold.TypeWriter.MethodPool.Record.ForNonImplementedMethod	0ebfdc52a422a2d4

net.bytebuddy.dynamic.scaffold.TypeWriter.MethodPool.Record.Sort	9c1fc9a17d6e668e
net.bytebuddy.dynamic.scaffold.inline.AbstractInliningDynamicTypeBuilder	cf872dafa4e005ce
net.bytebuddy.dynamic.scaffold.inline.InliningImplementationMatcher	cd56190fcf8cbef5
net.bytebuddy.dynamic.scaffold.inline.MethodRebaseResolver.Disabled	7fc8122bae557f2d
net.bytebuddy.dynamic.scaffold.inline.RedefinitionDynamicTypeBuilder	d35704c254c6bf65
net.bytebuddy.dynamic.scaffold.subclass.ConstructorStrategy.Default	30f93c3d785de262
net.bytebuddy.dynamic.scaffold.subclass.ConstructorStrategy.Default.1	c55a41a20be13da8
net.bytebuddy.dynamic.scaffold.subclass.ConstructorStrategy.Default.2	1b59827354f09dbe
net.bytebuddy.dynamic.scaffold.subclass.ConstructorStrategy.Default.3	03f49005d185f31e
net.bytebuddy.dynamic.scaffold.subclass.ConstructorStrategy.Default.4	8abb20a81cdfe753
net.bytebuddy.dynamic.scaffold.subclass.ConstructorStrategy.Default.5	03da9e9a4baaa343b
net.bytebuddy.dynamic.scaffold.subclass.SubclassDynamicTypeBuilder	ce4febfb2d4e7172b
net.bytebuddy.dynamic.scaffold.subclass.SubclassDynamicTypeBuilder.InstrumentableMatcher	dd98202dc516302
net.bytebuddy.dynamic.scaffold.subclass.SubclassImplementationTarget	5c39954e80bc68aa
net.bytebuddy.dynamic.scaffold.subclass.SubclassImplementationTarget.Factory	9507db5376136dc4
net.bytebuddy.dynamic.scaffold.subclass.SubclassImplementationTarget.OriginTypeResolver	e3591b410f1beb48
net.bytebuddy.dynamic.scaffold.subclass.SubclassImplementationTarget.OriginTypeResolver.1	307c2f6381acad86
net.bytebuddy.dynamic.scaffold.subclass.SubclassImplementationTarget.OriginTypeResolver.2	d07ed98e74e119c8
net.bytebuddy.implementation.FieldAccessor	cfb202bdbbb8245
net.bytebuddy.implementation.FieldAccessor.FieldLocation.Relative	984a923cd14afdb5
net.bytebuddy.implementation.FieldAccessor.FieldLocation.Relative.Prepared	6f3f6e4a9370fc37
net.bytebuddy.implementation.FieldNameExtractor.ForBeanProperty	6fc2126f6b4215fc
net.bytebuddy.implementation.FieldNameExtractor.ForBeanProperty.1	0e09b0a77c7d7add
net.bytebuddy.implementation.FieldNameExtractor.ForBeanProperty.2	9b5ceca2df3ecd1d
net.bytebuddy.implementation.FieldAccessor.ForImplicitProperty	00ae8b8a36194ac3
net.bytebuddy.implementation.FieldAccessor.ForImplicitProperty.Appender	2e8d7d416fa1d766
net.bytebuddy.implementation.Implementation.Context.Default	a4f77d0e8c30d8ba
net.bytebuddy.implementation.Implementation.Context.Default.AbstractPropertyAccessorMethod	e66307066ee6748f
net.bytebuddy.implementation.Implementation.Context.Default.AccessorMethod	2cbdafd9341571b2
net.bytebuddy.implementation.Implementation.Context.Default.AccessorMethodDelegation	e8f1a8118ac7bb70
net.bytebuddy.implementation.Implementation.Context.Default.CacheValueField	a8f1451ccb79fe81
net.bytebuddy.implementation.Implementation.Context.Default.DelegationRecord	ffeb02bcef268ff1
net.bytebuddy.implementation.Implementation.Context.Default.Factory	7907cd1700b68712
net.bytebuddy.implementation.Implementation.Context.Default.FieldCacheEntry	32d2586f8f82b67b
net.bytebuddy.implementation.Implementation.Context.Disabled	d226525d9b1661c1
net.bytebuddy.implementation.Implementation.Context.Disabled.Factory	fc5147fce792870c
net.bytebuddy.implementation.Implementation.Context.ExtractableView.AbstractBase	fc1194c64d81a8f1
net.bytebuddy.implementation.Implementation.Context.FrameGeneration	732fc9a6ba6d7f948
net.bytebuddy.implementation.Implementation.Context.FrameGeneration.1	e1cb50e88c828853
net.bytebuddy.implementation.Implementation.Context.FrameGeneration.2	eced4d043d2746ae
net.bytebuddy.implementation.Implementation.Context.FrameGeneration.3	896ff9ab8ad2a703
net.bytebuddy.implementation.Implementation.SpecialMethodInvocation.AbstractBase	c1e6064a9dc7eabe
net.bytebuddy.implementation.Implementation.SpecialMethodInvocation.Illegal	ca8b00de46ba4516
net.bytebuddy.implementation.Implementation.SpecialMethodInvocation.Simple	3b1d460fdb691665
net.bytebuddy.implementation.Implementation.Target.AbstractBase	2bb25225337712f2
net.bytebuddy.implementation.Implementation.Target.AbstractBase.DefaultMethodInvocation	95cadf8bb1c40a5e
net.bytebuddy.implementation.Implementation.Target.AbstractBase.DefaultMethodInvocation.1	1522748b6ede90f9
net.bytebuddy.implementation.Implementation.Target.AbstractBase.DefaultMethodInvocation.2	1a1e99939835b649
net.bytebuddy.implementation.LoadedTypeInitializer.NoOp	079c0db350266bf1
net.bytebuddy.implementation.MethodAccessorFactory.AccessType	e6d2a93e93eddb74
net.bytebuddy.implementation.MethodCall	803a80b61cf5154e
net.bytebuddy.implementation.MethodCall.Appender	2c97aa6a2fcc90d6
net.bytebuddy.implementation.MethodCall.ArgumentLoader.ForMethodParameter	d998bab2fab7f80
net.bytebuddy.implementation.MethodCall.ArgumentLoader.ForMethodParameter.Factory	c6d5aecc90f60b77
net.bytebuddy.implementation.MethodCall.MethodInvoker.ForContextualInvocation	c62220dd02fbbe5e
net.bytebuddy.implementation.MethodCall.MethodInvoker.ForContextualInvocation.Factory	8e991c8f6c61a26b
net.bytebuddy.implementation.MethodCall.MethodInvoker.ForVirtualInvocation.WithImplicitType	4b9ee3e1372d7a3c
net.bytebuddy.implementation.MethodCall.MethodLocator.ForExplicitMethod	3f52678e927adb2e
net.bytebuddy.implementation.MethodCall.TargetHandler.ForMethodCall	168bccd0171653ed
net.bytebuddy.implementation.MethodCall.TargetHandler.ForMethodCall.Factory	007987dfc0108802
net.bytebuddy.implementation.MethodCall.TargetHandler.ForMethodCall.Resolved	98d454c731a52565
net.bytebuddy.implementation.MethodCall.TargetHandler.ForMethodParameter	e14f2f3fbceefcc9
net.bytebuddy.implementation.MethodCall.TargetHandler.ForMethodParameter.Resolved	2905935a56e53005
net.bytebuddy.implementation.MethodCall.TargetHandler.ForSelfOrStaticInvocation	9ae78c658f9fa129
net.bytebuddy.implementation.MethodCall.TargetHandler.ForSelfOrStaticInvocation.Factory	f95bda15a3f3fc2d
net.bytebuddy.implementation.MethodCall.TargetHandler.ForSelfOrStaticInvocation.Resolved	f56743558df08d26
net.bytebuddy.implementation.MethodCall.TerminationHandler.Simple	94548bcde51ac7c5
net.bytebuddy.implementation.MethodCall.TerminationHandler.Simple.1	51a0379b030a2561
net.bytebuddy.implementation.MethodCall.TerminationHandler.Simple.2	0f85a678e3b7ce29
net.bytebuddy.implementation.MethodCall.TerminationHandler.Simple.3	75c93aba20f438fe
net.bytebuddy.implementation.MethodCall.WithoutSpecifiedTarget	de94872b451b3f74
net.bytebuddy.implementation.MethodDelegation	a4a99e4dcf919d89
net.bytebuddy.implementation.MethodDelegation.Appender	dc07d3d822bdcefd
net.bytebuddy.implementation.MethodDelegation.ImplementationDelegate.Compiled.ForStaticCall	4e320221c5c177b6

net.bytebuddy.implementation.MethodDelegation.ImplementationDelegate.ForStaticMethod	dd54ea94cb4466d5
net.bytebuddy.implementation.MethodDelegation.WithCustomProperties	5f090acf995bc833
net.bytebuddy.implementation.SuperMethodCall	611355edd9b41de2
net.bytebuddy.implementation.SuperMethodCall.Appender	bc8a17175af42bf
net.bytebuddy.implementation.SuperMethodCall.Appender.TerminationHandler	32d5e0e8182a3358
net.bytebuddy.implementation.SuperMethodCall.Appender.TerminationHandler.1	0262af83a3a8b2c1
net.bytebuddy.implementation.SuperMethodCall.Appender.TerminationHandler.2	ee7147093f933eea
net.bytebuddy.implementation.attribute.AnnotationAppender.Default	5e5b5a601807bb0c
net.bytebuddy.implementation.attribute.AnnotationAppender.ForTypeAnnotations	9c69d7ba808e83bf
net.bytebuddy.implementation.attribute.AnnotationAppender.Target.OnField	edb1e187f577e773
net.bytebuddy.implementation.attribute.AnnotationAppender.Target.OnMethod	696208e270a3f019
net.bytebuddy.implementation.attribute.AnnotationAppender.Target.OnMethodParameter	f9f5e949cd061dd0
net.bytebuddy.implementation.attribute.AnnotationAppender.Target.OnType	6ab7dc033ee53862
net.bytebuddy.implementation.attribute.AnnotationRetention	da4f57f00f2339fe
net.bytebuddy.implementation.attribute.AnnotationValueFilter.Default	c3f974ecaffb54e9
net.bytebuddy.implementation.attribute.AnnotationValueFilter.Default.1	16794e96c48a9eb1
net.bytebuddy.implementation.attribute.AnnotationValueFilter.Default.2	e61de6f9507d0593
net.bytebuddy.implementation.attribute.FieldAttributeAppender.ForInstrumentedField	c640ee703ef26e72
net.bytebuddy.implementation.attribute.MethodAttributeAppender.Compound	dac3bd643b572705
net.bytebuddy.implementation.attribute.MethodAttributeAppender.Factory.Compound	76745fca04070e30
net.bytebuddy.implementation.attribute.MethodAttributeAppender.ForInstrumentedMethod	a824f27ba759e23b
net.bytebuddy.implementation.attribute.MethodAttributeAppender.ForInstrumentedMethod.1	496e9baf72f72b4d
net.bytebuddy.implementation.attribute.MethodAttributeAppender.ForInstrumentedMethod.2	96f514167b7d0a48
net.bytebuddy.implementation.attribute.MethodAttributeAppender.NoOp	b52b89cf16c54ff9
net.bytebuddy.implementation.attribute.TypeAttributeAppender.ForInstrumentedType	174b3e561dfe2a50
net.bytebuddy.implementation.attribute.TypeAttributeAppender.ForInstrumentedType.Differentiating	87928a430c8985ff
net.bytebuddy.implementation.auxiliary.AuxiliaryType	6a52cb65ebc696ad
net.bytebuddy.implementation.auxiliary.AuxiliaryType.NamingStrategy.SuffixingRandom	a173a333a763c063
net.bytebuddy.implementation.auxiliary.MethodCallProxy	83f89e06c97f0237
net.bytebuddy.implementation.auxiliary.MethodCallProxy.AssignableSignatureCall	c40a6df584d6950a
net.bytebuddy.implementation.auxiliary.MethodCallProxy.ConstructorCall	5b517e0b210f1158
net.bytebuddy.implementation.auxiliary.MethodCallProxy.ConstructorCall.Appender	5bd8ad0594ac3af1
net.bytebuddy.implementation.auxiliary.MethodCallProxy.MethodCall	5e100136005916ca
net.bytebuddy.implementation.auxiliary.MethodCallProxy.MethodCall.Appender	ce7052391779cdf9
net.bytebuddy.implementation.auxiliary.MethodCallProxy.PrecomputedMethodGraph	27a53ff891975b35
net.bytebuddy.implementation.bind.ArgumentTypeResolver	11f8505cde4d19ff
net.bytebuddy.implementation.bind.ArgumentTypeResolver.ParameterIndexToken	30ba25a897cfab59
net.bytebuddy.implementation.bind.DeclaringTypeResolver	dc04124901f1b333
net.bytebuddy.implementation.bind.MethodDelegationBinder.1	e8e903661a7e1247
net.bytebuddy.implementation.bind.MethodDelegationBinder.AmbiguityResolver	36f5bfa2a412ee72
net.bytebuddy.implementation.bind.MethodDelegationBinder.AmbiguityResolver.Compound	4cf7d1fa48e6cd60
net.bytebuddy.implementation.bind.MethodDelegationBinder.AmbiguityResolver.Resolution	7d702b0ecc9c891b
net.bytebuddy.implementation.bind.MethodDelegationBinder.BindingResolver.Default	c33dc6b307529852
net.bytebuddy.implementation.bind.MethodDelegationBinder.MethodBinding.Builder	f68e89f0719ade2e
net.bytebuddy.implementation.bind.MethodDelegationBinder.MethodBinding.Builder.Build	33f84e8df9c49416
net.bytebuddy.implementation.bind.MethodDelegationBinder.MethodBinding.Illegal	4802915ba226f6c2
net.bytebuddy.implementation.bind.MethodDelegationBinder.MethodInvoker.Simple	8afbcd842db3e720
net.bytebuddy.implementation.bind.MethodDelegationBinder.ParameterBinding.Anonymous	a962db035644cb83
net.bytebuddy.implementation.bind.MethodDelegationBinder.ParameterBinding.Illegal	eacaa52a8e4dde34
net.bytebuddy.implementation.bind.MethodDelegationBinder.ParameterBinding.Unique	dd8a495565da1d64
net.bytebuddy.implementation.bind.MethodDelegationBinder.Processor	ab3647d9a0455d24
net.bytebuddy.implementation.bind.MethodDelegationBinder.TerminationHandler.Default	c7d75b957a2f27ed
net.bytebuddy.implementation.bind.MethodDelegationBinder.TerminationHandler.Default.1	4ec0d44d8c3eceb0
net.bytebuddy.implementation.bind.MethodDelegationBinder.TerminationHandler.Default.2	1ad724fd05690ddc
net.bytebuddy.implementation.bind.MethodNameEqualityResolver	0c639151a5005f3c
net.bytebuddy.implementation.bind.ParameterLengthResolver	f4653916b8323a8e
net.bytebuddy.implementation.bind.annotation.AllArguments.Assignment	5ff910d53a6f2d0f
net.bytebuddy.implementation.bind.annotation.AllArguments.Binder	758af7bb09f652cd
net.bytebuddy.implementation.bind.annotation.Argument.Binder	dc92b4735795f877
net.bytebuddy.implementation.bind.annotation.Argument.BindingMechanic	99796f5e37a26565
net.bytebuddy.implementation.bind.annotation.Argument.BindingMechanic.1	367024ef2f1388a2
net.bytebuddy.implementation.bind.annotation.Argument.BindingMechanic.2	38ba3faff880e1c9
net.bytebuddy.implementation.bind.annotation.BindingPriority.Resolver	04a1eb2c2d2ecfac
net.bytebuddy.implementation.bind.annotation.Default.Binder	3d4b610c3e192abc
net.bytebuddy.implementation.bind.annotation.DefaultCall.Binder	d05b63f0a6321461
net.bytebuddy.implementation.bind.annotation.DefaultCallHandle.Binder	13bdeb27076fd371
net.bytebuddy.implementation.bind.annotation.DefaultMethod.Binder	e4e08f789ce159e2
net.bytebuddy.implementation.bind.annotation.DefaultMethodHandle.Binder	190a13afdf14a1a6d
net.bytebuddy.implementation.bind.annotation.DynamicConstant.Binder	547b45ae9714e463
net.bytebuddy.implementation.bind.annotation.Empty.Binder	d3025af78526455a
net.bytebuddy.implementation.bind.annotation.FieldGetterHandle.Binder	17342fbbe9d2477
net.bytebuddy.implementation.bind.annotation.FieldGetterHandle.Binder.Delegate	92ca8f7c9f3a40e2
net.bytebuddy.implementation.bind.annotation.FieldSetterHandle.Binder	e2bdded87bfab797
net.bytebuddy.implementation.bind.annotation.FieldSetterHandle.Binder.Delegate	2e2db5fe8cbd8444

net.bytebuddy.implementation.bind.annotation.FieldValue.Binder	4f15d3f13ecce26
net.bytebuddy.implementation.bind.annotation.FieldValue.Binder.Delegate	b9cd319375aeba70
net.bytebuddy.implementation.bind.annotation.Handle.Binder	390591101c305db1
net.bytebuddy.implementation.bind.annotation.IgnoreForBinding.Verifier	b6bbe4a67f2ce769
net.bytebuddy.implementation.bind.annotation.Origin.Binder	63d345bc80320364
net.bytebuddy.implementation.bind.annotation.RuntimeType.Verifier	0eda7ebdfbc4de97
net.bytebuddy.implementation.bind.annotation.StubValue.Binder	0fcc840e92bf2eff
net.bytebuddy.implementation.bind.annotation.Super.Binder	f816bc17a41fc240
net.bytebuddy.implementation.bind.annotation.SuperCall.Binder	e75122d32ab041df
net.bytebuddy.implementation.bind.annotation.SuperCallHandle.Binder	be3a9057258fb61c
net.bytebuddy.implementation.bind.annotation.SuperMethod.Binder	acdd28af315c12f1
net.bytebuddy.implementation.bind.annotation.SuperMethodHandle.Binder	7db979dc52744f1f
net.bytebuddy.implementation.bind.annotation.TargetMethodAnnotationDrivenBinder	007d937d2ad8614a
net.bytebuddy.implementation.bind.annotation.TargetMethodAnnotationDrivenBinder.DelegationProcessor	98ee5d9e2d9a299b
net.bytebuddy.implementation.bind.annotation.TargetMethodAnnotationDrivenBinder.DelegationProcessor.Handler.Bound	22d197c23907be1d
net.bytebuddy.implementation.bind.annotation.TargetMethodAnnotationDrivenBinder.DelegationProcessor.Handler.Unbound	9d58199e821ad9fa
net.bytebuddy.implementation.bind.annotation.TargetMethodAnnotationDrivenBinder.ParameterBinder	ef86cc915aa18bbf
net.bytebuddy.implementation.bind.annotation.TargetMethodAnnotationDrivenBinder.ParameterBinder.ForFieldBinding	f96ce20b4cd9ae5d
net.bytebuddy.implementation.bind.annotation.TargetMethodAnnotationDrivenBinder.ParameterBinder.ForFixedValue	339866efba024bf5
net.bytebuddy.implementation.bind.annotation.TargetMethodAnnotationDrivenBinder.ParameterBinder.ForFixedValue.OfConstant	2a9385611e3f5888
net.bytebuddy.implementation.bind.annotation.TargetMethodAnnotationDrivenBinder.Record	6ed32a75bea12174
net.bytebuddy.implementation.bind.annotation.This.Binder	eaf168e8e2de8dac
net.bytebuddy.implementation.bytecode.ByteCodeAppender.Compound	36fdff9633edde774
net.bytebuddy.implementation.bytecode.ByteCodeAppender.Simple	e938f03cb7fc36b5
net.bytebuddy.implementation.bytecode.ByteCodeAppender.Size	6c073455b0742efa
net.bytebuddy.implementation.bytecode.Duplication	6c1bd6edfcba8df8
net.bytebuddy.implementation.bytecode.Duplication.1	5e77ff7af88e5e2b
net.bytebuddy.implementation.bytecode.Duplication.2	4fa72881088b7d9d
net.bytebuddy.implementation.bytecode.Duplication.3	22711ebeda82835f
net.bytebuddy.implementation.bytecode.Removal	20e0c2619ab9e596
net.bytebuddy.implementation.bytecode.Removal.1	ec81593288755b57
net.bytebuddy.implementation.bytecode.Removal.2	7bafc790d8ad6b0a
net.bytebuddy.implementation.bytecode.StackManipulation.AbstractBase	31ada1cf9b3e1f09
net.bytebuddy.implementation.bytecode.StackManipulation.Compound	4d0ee6a3594d3abd
net.bytebuddy.implementation.bytecode.StackManipulation.Illegal	d208c868604ff6a8
net.bytebuddy.implementation.bytecode.StackManipulation.Size	9e6fc170da126fed
net.bytebuddy.implementation.bytecode.StackManipulation.Trivial	704241e2b0e40c6e
net.bytebuddy.implementation.bytecode.StackSize	4336788f1a965d2e
net.bytebuddy.implementation.bytecode.StackSize.1	96b2506c3d21bf91
net.bytebuddy.implementation.bytecode.TypeCreation	197a19a5e6570c14
net.bytebuddy.implementation.bytecode.assign.Assigner	a12889e04d303449
net.bytebuddy.implementation.bytecode.assign.Assigner.Typing	5388b1bfde68c6c0
net.bytebuddy.implementation.bytecode.assign.TypeCasting	94120c4c8cf03f8
net.bytebuddy.implementation.bytecode.assign.primitive.PrimitiveBoxingDelegate	2247e86fa6ac6dbc
net.bytebuddy.implementation.bytecode.assign.primitive.PrimitiveBoxingDelegate.BoxingStackManipulation	b1150ae5e800b606
net.bytebuddy.implementation.bytecode.assign.primitive.PrimitiveTypeAwareAssigner	cda788b56e855a02
net.bytebuddy.implementation.bytecode.assign.primitive.PrimitiveUnboxingDelegate	b288a1833178dbcf
net.bytebuddy.implementation.bytecode.assign.primitive.PrimitiveUnboxingDelegate.ImplicitlyTypedUnboxingResponsible	fe27de58ed78c6b7
net.bytebuddy.implementation.bytecode.assign.primitive.PrimitiveWideningDelegate	15d4895de92b4326
net.bytebuddy.implementation.bytecode.assign.primitive.PrimitiveWideningDelegate.WideningStackManipulation	b95f03864d242799
net.bytebuddy.implementation.bytecode.assign.primitive.VoidAwareAssigner	eb758c0eaff4f960
net.bytebuddy.implementation.bytecode.assign.reference.GenericTypeAwareAssigner	b45b3ebe7424172e
net.bytebuddy.implementation.bytecode.assign.reference.ReferenceTypeAwareAssigner	7928b92c7844ad95
net.bytebuddy.implementation.bytecode.collection.ArrayFactory	2a2250e0a308dabf
net.bytebuddy.implementation.bytecode.collection.ArrayFactory.ArrayCreator	55f358a6fd1fba94
net.bytebuddy.implementation.bytecode.collection.ArrayFactory.ArrayCreator.ForReferenceType	46c017724b6b47f9
net.bytebuddy.implementation.bytecode.collection.ArrayFactory.ArrayStackManipulation	c7ca7f485aae94d7
net.bytebuddy.implementation.bytecode.constant.ClassConstant	84d3d231c511a9e2
net.bytebuddy.implementation.bytecode.constant.ClassConstant.ForReferenceType	9e6b7175c0b99ca6
net.bytebuddy.implementation.bytecode.constant.DefaultValue	e6636f8b6803b575
net.bytebuddy.implementation.bytecode.constant.DoubleConstant	4605c2533c4f5ada
net.bytebuddy.implementation.bytecode.constant.FloatConstant	a56d418e26b00881
net.bytebuddy.implementation.bytecode.constant.IntegerConstant	cc44c84f8b41799b
net.bytebuddy.implementation.bytecode.constant.IntegerConstant.SingleBytePush	4dcdb3e7a7cd0de0
net.bytebuddy.implementation.bytecode.constant.LongConstant	472b65a54ff6a910
net.bytebuddy.implementation.bytecode.constant.MethodConstant	2af3bf9709ff88bc
net.bytebuddy.implementation.bytecode.constant.MethodConstant.CachedMethod	120667b652f8b2ad
net.bytebuddy.implementation.bytecode.constant.MethodConstant.ForMethod	6487c36db906419f
net.bytebuddy.implementation.bytecode.constant.NullConstant	ce7ac6225f44f48a
net.bytebuddy.implementation.bytecode.constant.TextConstant	6c2a6544c010c696
net.bytebuddy.implementation.bytecode.member.FieldAccess	0c427922241a1fc2
net.bytebuddy.implementation.bytecode.member.FieldAccess.AccessDispatcher	3409f6d79dca6a70
net.bytebuddy.implementation.bytecode.member.FieldAccess.AccessDispatcher.AbstractFieldInstruction	68899123d8401287
net.bytebuddy.implementation.bytecode.member.FieldAccess.AccessDispatcher.FieldGetInstruction	e9ffb22f539a4501
net.bytebuddy.implementation.bytecode.member.FieldAccess.AccessDispatcher.FieldPutInstruction	19f58898b800e6f7

net.bytebuddy.implementation.bytecode.member.MethodInvocation	f6ad313aeb1817d3
net.bytebuddy.implementation.bytecode.member.MethodInvocation.Invocation	fa4fc5234c9a7c93
net.bytebuddy.implementation.bytecode.member.MethodReturn	031a5f07b7745997
net.bytebuddy.implementation.bytecode.member.MethodVariableAccess	2442be9ad3856ab6
net.bytebuddy.implementation.bytecode.member.MethodVariableAccess.MethodLoading	4c94266b0a306562
net.bytebuddy.implementation.bytecode.member.MethodVariableAccess.MethodLoading.TypeCastingHandler.NoOp	fce3bb47777272e1
net.bytebuddy.implementation.bytecode.member.MethodVariableAccess.OffsetLoading	c68c431573d3f1a2
net.bytebuddy.implementation.bytecode.member.MethodVariableAccess.OffsetWriting	428ad03e94bc1d66
net.bytebuddy.jar.asm.AnnotationVisitor	823759e238bb495b
net.bytebuddy.jar.asm.AnnotationWriter	59e14608f0f0fc16
net.bytebuddy.jar.asm.Attribute	e6480519ef45eaba
net.bytebuddy.jar.asm.ByteVector	29f90958ccc2d657
net.bytebuddy.jar.asm.ClassReader	7c1a216e338347c8
net.bytebuddy.jar.asm.ClassVisitor	1753f680b0943b55
net.bytebuddy.jar.asm.ClassWriter	9aacb0d7c169551b
net.bytebuddy.jar.asm.ConstantDynamic	ea32b72ebf5c88ed
net.bytebuddy.jar.asm.Context	a881f26b77892c9d
net.bytebuddy.jar.asm.FieldVisitor	2fef241e92a2948
net.bytebuddy.jar.asm.FieldWriter	7b8af1d3e89c08fe
net.bytebuddy.jar.asm.Handle	f00028b1416f621c
net.bytebuddy.jar.asm.Handler	357ee9a4f87e5091
net.bytebuddy.jar.asm.Label	c329ef00234aa4ba
net.bytebuddy.jar.asm.MethodVisitor	91abf2ef44da98a7
net.bytebuddy.jar.asm.MethodWriter	f98aa1935839115a
net.bytebuddy.jar.asm.Opcodes	85defa2a27116c7f
net.bytebuddy.jar.asm.Symbol	09ab9f266ba03e77
net.bytebuddy.jar.asm.SymbolTable	a234d10951b906bb
net.bytebuddy.jar.asm.SymbolTable.Entry	f06a931baef45238
net.bytebuddy.jar.asm.Type	76fc57d12696f74f
net.bytebuddy.jar.asm.TypeReference	0bfc56de38a7304f
net.bytebuddy.jar.asm.signature.SignatureVisitor	2a359c79b449cd9d
net.bytebuddy.jar.asm.signature.SignatureWriter	628941f852b053ca
net.bytebuddy.matcher.AnnotationTypeMatcher	6f4a3b90208f0ec3
net.bytebuddy.matcher.BooleanMatcher	9209f695fbdc9526
net.bytebuddy.matcher.CollectionErasureMatcher	e3ac7764b945369a
net.bytebuddy.matcher.CollectionItemMatcher	1424fe72e0998e47
net.bytebuddy.matcher.CollectionOneToOneMatcher	121fe499dd94549c
net.bytebuddy.matcher.CollectionSizeMatcher	f8080735551b5869
net.bytebuddy.matcher.DeclaringAnnotationMatcher	de87dd7e2883e9aa
net.bytebuddy.matcher.DeclaringTypeMatcher	94491a21a3a6198c
net.bytebuddy.matcher.DescriptorMatcher	8ccbfb89ae42c9c79
net.bytebuddy.matcher.ElementMatcher.Junction.AbstractBase	6e29ac5d43cf6bf5
net.bytebuddy.matcher.ElementMatcher.Junction.Conjunction	0c2d173352f518aa
net.bytebuddy.matcher.ElementMatcher.Junction.Disjunction	f2b0bfd4258f9323
net.bytebuddy.matcher.ElementMatcher.Junction.ForNonNullValues	b442c91a882c9145
net.bytebuddy.matcher.ElementMatchers	229439fc61b9d724
net.bytebuddy.matcher.EqualityMatcher	65263674c3290275
net.bytebuddy.matcher.ErasureMatcher	5b951c67564a7bbf
net.bytebuddy.matcher.FailSafeMatcher	16bb480ee9bc8e47
net.bytebuddy.matcher.FilterableList.AbstractBase	cb407e29a62800ed
net.bytebuddy.matcher.FilterableList.Empty	008aecb1de0a03fe
net.bytebuddy.matcher.LatentMatcher.Disjunction	b3238bc9859c2c6c
net.bytebuddy.matcher.LatentMatcher.ForFieldToken	494f840fb29b826b
net.bytebuddy.matcher.LatentMatcher.ForFieldToken.ResolvedMatcher	c7f93ec3f36db445
net.bytebuddy.matcher.LatentMatcher.ForMethodToken	6a133bef32427d76
net.bytebuddy.matcher.LatentMatcher.ForMethodToken.ResolvedMatcher	4f4db49515ba05ba
net.bytebuddy.matcher.LatentMatcher.Resolved	1d0baa61e9c597f8
net.bytebuddy.matcher.MethodParameterTypeMatcher	ecc479943c35ad37
net.bytebuddy.matcher.MethodParameterTypesMatcher	35a1fbf9e120aea8
net.bytebuddy.matcher.MethodParametersMatcher	8ab3379e24c8d19e
net.bytebuddy.matcher.MethodReturnTypeMatcher	7befd3ad928ab6cc
net.bytebuddy.matcher.MethodSortMatcher	600d8d63f4cc2251
net.bytebuddy.matcher.MethodSortMatcher.Sort	87af87837374271b
net.bytebuddy.matcher.MethodSortMatcher.Sort.1	04a56e4f4f82d5c0
net.bytebuddy.matcher.MethodSortMatcher.Sort.2	a13399cf408b62c0
net.bytebuddy.matcher.MethodSortMatcher.Sort.3	6a11f7e01098dfb5
net.bytebuddy.matcher.MethodSortMatcher.Sort.4	1e8c22b2e17c5f88
net.bytebuddy.matcher.MethodSortMatcher.Sort.5	aae69164dd78b1e8
net.bytebuddy.matcher.ModifierMatcher	1f940a6dd9fa9613
net.bytebuddy.matcher.ModifierMatcher.Mode	b59c67438c4008d8
net.bytebuddy.matcher.NameMatcher	c95f2d97c50d769e
net.bytebuddy.matcher.NegatingMatcher	e10261097b62acbb
net.bytebuddy.matcher.SignatureTokenMatcher	2b22b0f9e11d2a2b
net.bytebuddy.matcher.StringMatcher	398d01f869388e91

net.bytebuddy.matcher.StringMatcher.Mode	6f8b4d3695faa058
net.bytebuddy.matcher.StringMatcher.Mode.1	015bef3b6828cdac
net.bytebuddy.matcher.StringMatcher.Mode.2	8eeeb4556b9485c0
net.bytebuddy.matcher.StringMatcher.Mode.3	f1c175ea33668dcba
net.bytebuddy.matcher.StringMatcher.Mode.4	84a59a498fb10fed
net.bytebuddy.matcher.StringMatcher.Mode.5	4ca9c62936b66a24
net.bytebuddy.matcher.StringMatcher.Mode.6	f993707f30c5fce2
net.bytebuddy.matcher.StringMatcher.Mode.7	e0ba3c2aa14bde78
net.bytebuddy.matcher.StringMatcher.Mode.8	4ff86085d0aa4ddf
net.bytebuddy.matcher.StringMatcher.Mode.9	1dcf4a6fe509c5b5
net.bytebuddy.matcher.SuperTypeMatcher	af5ab86fce6ba126
net.bytebuddy.matcher.TypeSortMatcher	7fa32c06737e7231
net.bytebuddy.matcher.VisibilityMatcher	e1f91ccaffe7652
net.bytebuddy.pool.TypePool.AbstractBase	ebf3f44b769f4faf
net.bytebuddy.pool.TypePool.AbstractBase.Hierarchical	8051a701b4b0eed
net.bytebuddy.pool.TypePool.CacheProvider.NoOp	5fe0b4fee828d480
net.bytebuddy.pool.TypePool.CacheProvider.Simple	5840a865f0dcfb51
net.bytebuddy.pool.TypePool.ClassLoading	4ff35dae9556b998
net.bytebuddy.pool.TypePool.Default	7aacf1f71b81e173
net.bytebuddy.pool.TypePool.Default.ReaderMode	a033f5a27d0fa2d6
net.bytebuddy.pool.TypePool.Empty	256686863a3e855f
net.bytebuddy.pool.TypePool.Explicit	58709ce964584fa6
net.bytebuddy.utility.AsmClassReader	8a59b649de2583f3
net.bytebuddy.utility.AsmClassReader.Factory.Default	fa0b1b24f69493ab
net.bytebuddy.utility.AsmClassReader.Factory.Default.1	03c829950d692f4b
net.bytebuddy.utility.AsmClassReader.Factory.Default.2	ff7ba2ccbe1277cf
net.bytebuddy.utility.AsmClassReader.Factory.Default.3	d8e2a9d1378063fa
net.bytebuddy.utility.AsmClassReader.Factory.Default.4	b200bb40f16587c9
net.bytebuddy.utility.AsmClassReader.Factory.Default.5	f9eab20e73a925e7
net.bytebuddy.utility.AsmClassReader.ForAsm	c3d16f9e1e03618e
net.bytebuddy.utility.AsmClassWriter.Factory.Default	df7a47693cf75e36
net.bytebuddy.utility.AsmClassWriter.Factory.Default.1	d17bf1b9989584cf
net.bytebuddy.utility.AsmClassWriter.Factory.Default.2	3ebcd096754fad75
net.bytebuddy.utility.AsmClassWriter.Factory.Default.3	6d6ee87b0257e85e
net.bytebuddy.utility.AsmClassWriter.Factory.Default.4	582d01970af50976
net.bytebuddy.utility.AsmClassWriter.Factory.Default.5	af553c430b6af86a
net.bytebuddy.utility.AsmClassWriter.Factory.Default.EmptyAsmClassReader	481bb30e4232c02d
net.bytebuddy.utility.AsmClassWriter.ForAsm	94e2175d9a1aa7a
net.bytebuddy.utility.AsmClassWriter.FrameComputingClassWriter	943f69745cdb7621
net.bytebuddy.utility.CompoundList	41fe1faec9b96005
net.bytebuddy.utility.ConstantValue.Simple	5f7232051686a271
net.bytebuddy.utility.ConstructorComparator	3566d64bbe3006a2
net.bytebuddy.utility.FieldComparator	5dff49d0b60b3a07
net.bytebuddy.utility.GraalImageCode	20c183e97cdf38cc
net.bytebuddy.utility.Invoker.Dispatcher	b9b5f67cf01bb049
net.bytebuddy.utility.JavaConstant.Simple	d18c769228ec6798
net.bytebuddy.utility.JavaConstant.Simple.OfTrivialValue	870135d683945e69
net.bytebuddy.utility.JavaConstant.Simple.OfTrivialValue.ForString	11ffe7957b103e25
net.bytebuddy.utility.JavaModule	fb89d312129d6105
net.bytebuddy.utility.JavaType	4ea4e7db3d74934a
net.bytebuddy.utility.JavaType.LatentTypeWithSimpleName	c99024b8d6d1bb99
net.bytebuddy.utility.MethodComparator	2a643ad1fb57d7e8
net.bytebuddy.utility.OpenedClassReader	3495a559539ff5e7
net.bytebuddy.utility.RandomString	a0583349bb66a97c
net.bytebuddy.utility.StreamDrainer	e95aa53cfc417c6
net.bytebuddy.utility.dispatcher.JavaDispatcher	619d3930cae44455
net.bytebuddy.utility.dispatcher.JavaDispatcher.Dispatcher.ForContainerCreation	9f5631d45e9601e9
net.bytebuddy.utility.dispatcher.JavaDispatcher.Dispatcher.ForInstanceCheck	ec7e2f5ae4036bb1
net.bytebuddy.utility.dispatcher.JavaDispatcher.Dispatcher.ForNonStaticMethod	3ff776c0c7a05881
net.bytebuddy.utility.dispatcher.JavaDispatcher.Dispatcher.ForStaticMethod	faa6cd7f5e4cbd85
net.bytebuddy.utility.dispatcher.JavaDispatcher.DynamicClassLoader	e55e160d8d2ebd92
net.bytebuddy.utility.dispatcher.JavaDispatcher.DynamicClassLoader.Resolver.CreationAction	862b139a62f264a8
net.bytebuddy.utility.dispatcher.JavaDispatcher.DynamicClassLoader.Resolver.ForModuleSystem	1a2ee856ca3b45b6
net.bytebuddy.utility.dispatcher.JavaDispatcher.InvokerCreationAction	f5b3814ad34536fc
net.bytebuddy.utility.dispatcher.JavaDispatcher.ProxyInvocationHandler	f1e193453808acbe
net.bytebuddy.utility.privilege.GetSystemPropertyAction	67f0615a1253ad61
net.bytebuddy.utility.visitor.ExceptionTableSensitiveMethodVisitor	a6c239974eefe586
net.bytebuddy.utility.visitor.LineNumberPrependingMethodVisitor	56aead9b55055305
net.bytebuddy.utility.visitor.MetadataAwareClassVisitor	0c557b09efdf9fd6
net.bytebuddy.utility.visitor.StackAwareMethodVisitor	3dd1c2239bb0bf19
org.apache.maven.plugin.surefire.log.api.NullConsoleLogger	50e0945fec76b333
org.apache.maven.surefire.api.booter.BaseProviderFactory	da939a0152866a4b
org.apache.maven.surefire.api.booter.BiProperty	ed0281592f3976b4
org.apache.maven.surefire.api.booter.Command	52d7b732759793ff

org.apache.maven.surefire.api.booter.Constants	8f58b0da27218c74
org.apache.maven.surefire.api.booter.DumpErrorSingleton	ea25742803c9e73f
org.apache.maven.surefire.api.booter.ForkedProcessEvent	4f32ae2d4e670365
org.apache.maven.surefire.api.booter.ForkingReporterFactory	be06f83accc5a8aa
org.apache.maven.surefire.api.booter.ForkingRunListener	c34d0a9f28f66585
org.apache.maven.surefire.api.booter.MasterProcessCommand	fc8c116a509256d1
org.apache.maven.surefire.api.booter.Shutdown	47a37ed2a684ef1d
org.apache.maven.surefire.api.cli.CommandLineOption	5825f848ee2abcd7
org.apache.maven.surefire.api.provider.AbstractProvider	0fea65ed91d7c12a
org.apache.maven.surefire.api.report.ConsoleOutputCapture	7ee3451cf95e2f70
org.apache.maven.surefire.api.report.ConsoleOutputCapture.ForwardingPrintStream	804935f758ebaee3
org.apache.maven.surefire.api.report.ConsoleOutputCapture.NullOutputStream	a81300d2d50decb6
org.apache.maven.surefire.api.report.ReporterConfiguration	bf4075c0385296c2
org.apache.maven.surefire.api.report.RunMode	70edc0a9dea60143
org.apache.maven.surefire.api.report.SimpleReportEntry	5acc6a35bed0445f
org.apache.maven.surefire.api.stream.AbstractStreamDecoder	c6f3b2781f9ac881
org.apache.maven.surefire.api.stream.AbstractStreamDecoder.BufferedStream	11f69a75bc1c7211
org.apache.maven.surefire.api.stream.AbstractStreamDecoder.Memento	e504a9e8cfc028af
org.apache.maven.surefire.api.stream.AbstractStreamDecoder.Segment	773004ac6cd115ef
org.apache.maven.surefire.api.stream.AbstractStreamDecoder.StreamReadStatus	8d5ee1d510b5c935
org.apache.maven.surefire.api.stream.AbstractStreamEncoder	9547668418a858ad
org.apache.maven.surefire.api.stream.SegmentType	77b0d78ed3dd126
org.apache.maven.surefire.api.suite.RunResult	0eef4ae883b6fc当地
org.apache.maven.surefire.api.testset.DirectoryScannerParameters	529e83b831c47f72
org.apache.maven.surefire.api.testset.IncludedExcludedPatterns	e12220ce508068df
org.apache.maven.surefire.api.testset.ResolvedTest	119a5faa0ae08a91
org.apache.maven.surefire.api.testset.ResolvedTest.ClassMatcher	cb9dd1b6069a872b
org.apache.maven.surefire.api.testset.ResolvedTest.MethodMatcher	1d5196f3dfcebd52
org.apache.maven.surefire.api.testset.ResolvedTest.Type	6f46eedd1917ca66
org.apache.maven.surefire.api.testset.RunOrderParameters	f74f6b3eb9f1a132
org.apache.maven.surefire.api.testset.TestArtifactInfo	6d162cddde2db959
org.apache.maven.surefire.api.testset.TestListResolver	0f4645f0d7fd02c8
org.apache.maven.surefire.api.testset.TestRequest	1cb2946d8f0dc9e4
org.apache.maven.surefire.api.util.CloseableIterator	01846c357efacab7b
org.apache.maven.surefire.api.util.DefaultRunOrderCalculator	21a42ec0f6d63b8e
org.apache.maven.surefire.api.util.DefaultScanResult	01695a339c66ab8d
org.apache.maven.surefire.api.util.ReflectionUtils	7f9a430ae144c985
org.apache.maven.surefire.api.util.RunOrder	93376844e6d709d3
org.apache.maven.surefire.api.util.TestsToRun	db4e8195893ece6d
org.apache.maven.surefire.api.util.TestsToRun.ClassesIterator	543f26bfbdd04ce0
org.apache.maven.surefire.api.util.internal.AbstractNoninterruptibleReadableChannel	6826ce793980b64e
org.apache.maven.surefire.api.util.internal.AbstractNoninterruptibleWritableChannel	484afc5593fbc9a
org.apache.maven.surefire.api.util.internal.Channels	eb60281181a1dc33
org.apache.maven.surefire.api.util.internal.Channels.3	605144c3f67338aa
org.apache.maven.surefire.api.util.internal.Channels.4	4834cf9402eabd28
org.apache.maven.surefire.api.util.internal.ClassMethod	817ad544e129b000
org.apache.maven.surefire.api.util.internal.DaemonThreadFactory	b2161e778265b95d
org.apache.maven.surefire.api.util.internal.DaemonThreadFactory.NamedThreadFactory	e3fb668fa8792230
org.apache.maven.surefire.api.util.internal.DumpFileUtils	9cc0f89ffba46ba32
org.apache.maven.surefire.api.util.internal.ImmutableMap	c7398d64c0977b06
org.apache.maven.surefire.api.util.internal.ImmutableMap.Node	3a9862055afaee58
org.apache.maven.surefire.api.util.internal.ObjectUtils	992d9f9f62042416
org.apache.maven.surefire.booter.AbstractPathConfiguration	f8b4034fe9c934d2
org.apache.maven.surefire.booter.BooterDeserializer	d2b4a565d2c195cc
org.apache.maven.surefire.booter.ClassLoaderConfiguration	c511fbfeb1f35c23
org.apache.maven.surefire.booter.Classpath	d05af49602124353
org.apache.maven.surefire.booter.ClasspathConfiguration	d14c58928ac6aa7b
org.apache.maven.surefire.booter.CommandReader	8bc1181d0c5af474
org.apache.maven.surefire.booter.CommandReader.1	72a8e2906ddc1c93
org.apache.maven.surefire.booter.CommandReader.CommandRunnable	f6a6b02be2fb0964
org.apache.maven.surefire.booter.ForkedBooter	c8ce6ed3be8ec9bc
org.apache.maven.surefire.booter.ForkedBooter.1	68f2dae15ae26cc2
org.apache.maven.surefire.booter.ForkedBooter.3	fc217f2c1d87c099
org.apache.maven.surefire.booter.ForkedBooter.4	2afb302f7c81f991
org.apache.maven.surefire.booter.ForkedBooter.6	850ef2748b5ef5e6
org.apache.maven.surefire.booter.ForkedBooter.7	9577114e02a5bdef
org.apache.maven.surefire.booter.ForkedBooter.8	3c8feb047cd2b0c
org.apache.maven.surefire.booter.ForkedBooter.PingScheduler	c83e3af27d5d3c47
org.apache.maven.surefire.booter.ForkedNodeArg	9dbb0ff22dfc1303
org.apache.maven.surefire.booter.PpidChecker	f83a9169197e13b1
org.apache.maven.surefire.booter.ProcessCheckerType	e554be35191ff5a7
org.apache.maven.surefire.booter.PropertiesWrapper	1e4e30276db2e62e
org.apache.maven.surefire.booter.ProviderConfiguration	ec2cd1e39ec4278e
org.apache.maven.surefire.booter.StartupConfiguration	70176a3dd903d57a
org.apache.maven.surefire.booter.SystemPropertyManager	a843c08e9b5c79ad

org.apache.maven.surefire.booter.TypeEncodedValue	355d20d53741b604
org.apache.maven.surefire.booter.spi.AbstractMasterProcessChannelProcessorFactory	67a1c051e3809086
org.apache.maven.surefire.booter.spi.AbstractMasterProcessChannelProcessorFactory.1	cc936f6c85f9235a
org.apache.maven.surefire.booter.spi.AbstractMasterProcessChannelProcessorFactory.2	a1fa70e4af42c555
org.apache.maven.surefire.booter.spi.CommandChannelDecoder	6684e6bad0b7c71e
org.apache.maven.surefire.booter.spi.EventChannelEncoder	b69d9287bf010b1a
org.apache.maven.surefire.booter.spi.EventChannelEncoder.StackTrace	265e85a5e039b0af
org.apache.maven.surefire.booter.spi.LegacyMasterProcessChannelProcessorFactory	3b29862697f79d34
org.apache.maven.surefire.booter.spi.SurefireMasterProcessChannelProcessorFactory	8c14c673718fba9e
org.apache.maven.surefire.booter.stream.CommandDecoder	a23a4082e2bbd1ed
org.apache.maven.surefire.booter.stream.CommandDecoder.1	950700970edca54a
org.apache.maven.surefire.booter.stream.EventEncoder	7c894cb22c8c16ca
org.apache.maven.surefire.junitplatform.JUnitPlatformProvider	958f7eb4311b3c2f
org.apache.maven.surefire.junitplatform.LazyLauncher	a3841276826f155c
org.apache.maven.surefire.junitplatform.RunListenerAdapter	0d7041faa0298e70
org.apache.maven.surefire.junitplatform.RunListenerAdapter.1	967ebdaaeeef83363
org.apache.maven.surefire.junitplatform.TestPlanScannerFilter	db2b13639af3176e
org.apache.maven.surefire.report.ClassMethodIndexer	0e8f3008aec84fc8
org.apache.maven.surefire.shared.lang3.JavaVersion	a902b52c460c0348
org.apache.maven.surefire.shared.lang3.StringUtils	4628d7808116e372
org.apache.maven.surefire.shared.lang3.SystemProperties	6b2fea785d2a2915
org.apache.maven.surefire.shared.lang3.SystemUtils	2518da556699ab1e
org.apache.maven.surefire.shared.lang3.function.Suppliers	6cb739fdbd96d7c1
org.apache.maven.surefire.shared.lang3.math.NumberUtils	99f301ade68669b7
org.apache.maven.surefire.shared.utils.StringUtils	abd8480c7152bf46
org.apache.maven.surefire.shared.utils.cli.ShutdownHookUtils	011b23cd829ec86c
org.apiguardian.api.API.Status	95d0ffa805fc01a
org.junit.jupiter.api.AssertDoesNotThrow	36b9cb12d1985e50
org.junit.jupiter.api.AssertEquals	02e79388fd0ddf18
org.junit.jupiter.api.AssertFalse	dea6dc33450c92f0
org.junit.jupiter.api.AssertNotNull	34eb9c4ee51b2816
org.junit.jupiter.api.AssertNull	36f7b673f5497507
org.junit.jupiter.api.AssertSame	77061b15f086bbc5
org.junit.jupiter.api.AssertThrows	2e413933639a681e
org.junit.jupiter.api.AssertTrue	6ef3923800860200
org.junit.jupiter.api.Assertions	a580a647f9b0d1af
org.junit.jupiter.api.Assertions	a837ed10bf9804f2
org.junit.jupiter.api.DisplayNameGenerator	1c70d4d828122f05
org.junit.jupiter.api.DisplayNameGenerator.IndicativeSentences	b23b44fe1a1ae4b6
org.junit.jupiter.api.DisplayNameGenerator.ReplaceUnderscores	45af1f815eb3bfc6
org.junit.jupiter.api.DisplayNameGenerator.Simple	3587fc3bd5ac68a7
org.junit.jupiter.api.DisplayNameGenerator.Standard	232bffa51a0c4e
org.junit.jupiter.api.TestInstanceLifecycle	235138c6ffffd45f1
org.junit.jupiter.api.extension.ConditionEvaluationResult	fc311dfabd3a0e23
org.junit.jupiter.api.extension.ExtensionContext	dacb7330135ba8f9
org.junit.jupiter.api.extension.ExtensionContext.Namespace	eb8d03782ab35d64
org.junit.jupiter.api.extension.ExtensionContext.Store	288780f400093c7c
org.junit.jupiter.api.extension.InvocationInterceptor	695ac2a6b4b9c7e4
org.junit.jupiter.engine.JupiterTestEngine	011031d0b1fe58db
org.junit.jupiter.engine.config.CachingJupiterConfiguration	9da5fe6b78ad9a14
org.junit.jupiter.engine.config.DefaultJupiterConfiguration	bbee9c72790c271d
org.junit.jupiter.engine.config.EnumConfigurationParameterConverter	433eec982a6fabbc
org.junit.jupiter.engine.config.InstantiatingConfigurationParameterConverter	d2270f0957971443
org.junit.jupiter.engine.descriptor.AbstractExtensionContext	6b3fc41ad8b41d4f
org.junit.jupiter.engine.descriptor.ClassBasedTestDescriptor	414ee653c9e673cf
org.junit.jupiter.engine.descriptor.ClassExtensionContext	e804dacaeaf4a6a
org.junit.jupiter.engine.descriptor.ClassTestDescriptor	2f87db51b4485e07
org.junit.jupiter.engine.descriptor.DefaultTestInstanceFactoryContext	b1b7d61e94c58605
org.junit.jupiter.engine.descriptor.DisplayNameUtils	8a6f8eeb3e12ddf6
org.junit.jupiter.engine.descriptor.ExtensionUtils	43a683ad1b768e92
org.junit.jupiter.engine.descriptor.JupiterEngineDescriptor	3d2bdbdce296b041
org.junit.jupiter.engine.descriptor.JupiterEngineExtensionContext	7146ce9988edfce2
org.junit.jupiter.engine.descriptor.JupiterTestDescriptor	67ad750cdb2cb53b
org.junit.jupiter.engine.descriptor.LifecycleMethodUtils	286eb923d0b68032
org.junit.jupiter.engine.descriptor.MethodBasedTestDescriptor	f531f49451e39050
org.junit.jupiter.engine.descriptor.MethodExtensionContext	b5abe6523f4a32d7
org.junit.jupiter.engine.descriptor.TestInstanceLifecycleUtils	a247fc379f47df66
org.junit.jupiter.engine.descriptor.TestMethodTestDescriptor	35334f82ecefa63c
org.junit.jupiter.engine.discovery.AbstractAnnotatedDescriptorWrapper	90b10f2d90d7b01b
org.junit.jupiter.engine.discovery.AbstractOrderingVisitor	f8eb297929c247eb
org.junit.jupiter.engine.discovery.AbstractOrderingVisitor.DescriptorWrapperOrderer	c8e1585f8474ed61
org.junit.jupiter.engine.discovery.ClassOrderingVisitor	1f09fc1c6b9779bb
org.junit.jupiter.engine.discovery.ClassSelectorResolver	e25bb2b197bc8493
org.junit.jupiter.engine.discovery.DefaultClassDescriptor	9064f3528773a161
org.junit.jupiter.engine.discovery.DiscoverySelectorResolver	5dc6be896f50996f

org.junit.jupiter.engine.discovery.MethodFinder	621c8591e557439a
org.junit.jupiter.engine.discovery.MethodOrderingVisitor	7d9864ceb818e1
org.junit.jupiter.engine.discovery.MethodSelectorResolver	679c52dec5ee3cd2
org.junit.jupiter.engine.discovery.MethodSelectorResolver.MethodType	2ca704c5264882ae
org.junit.jupiter.engine.discovery.MethodSelectorResolver.MethodType.1	b3bc3007a7dfdaa0
org.junit.jupiter.engine.discovery.MethodSelectorResolver.MethodType.2	598aec8eefef85e3
org.junit.jupiter.engine.discovery.MethodSelectorResolver.MethodType.3	e8fd5325e2431a2b
org.junit.jupiter.engine.discovery.predicates.IsInnerClass	d746bcff9a71ec26
org.junit.jupiter.engine.discovery.predicates.IsNestedTestClass	f75dfd9ee2347890
org.junit.jupiter.engine.discovery.predicates.IsPotentialTestContainer	909f14a1b9fe84dc
org.junit.jupiter.engine.discovery.predicates.IsTestClassWithTests	34690a186bfcf3ac
org.junit.jupiter.engine.discovery.predicates.IsTestFactoryMethod	941a8af0d47a68fd
org.junit.jupiter.engine.discovery.predicates.IsTestMethod	f2039dbd13fce110
org.junit.jupiter.engine.discovery.predicates.IsTestTemplateMethod	c13a4260435c18a8
org.junit.jupiter.engine.discovery.predicates.IsTestableMethod	4be487dee199f633
org.junit.jupiter.engine.execution.ConditionEvaluator	df91d94b180fe511
org.junit.jupiter.engine.execution.ConstructorInvocation	60b80968f2bdedc3
org.junit.jupiter.engine.execution.DefaultExecutableInvoker	97f15d1e3151968f
org.junit.jupiter.engine.execution.DefaultTestInstances	0fc6d90567826bc4
org.junit.jupiter.engine.execution.InterceptingExecutableInvoker	42cb185ff5e76387
org.junit.jupiter.engine.execution.InterceptingExecutableInvoker.ReflectiveInterceptorCall	7e154d03f7a732e5
org.junit.jupiter.engine.execution.InvocationInterceptorChain	9798b2a812d2015d
org.junit.jupiter.engine.execution.InvocationInterceptorChain.InterceptedInvocation	199eef1acbe0b316
org.junit.jupiter.engine.execution.InvocationInterceptorChain.ValidatingInvocation	f064b1c2c4a4bf86
org.junit.jupiter.engine.execution.JupiterEngineExecutionContext	b48cc2a96dab0116
org.junit.jupiter.engine.execution.JupiterEngineExecutionContext.Builder	d1557432e23d2776
org.junit.jupiter.engine.execution.JupiterEngineExecutionContext.State	3926323ef1c7fb03
org.junit.jupiter.engine.execution.MethodInvocation	8b8fd00463d994df
org.junit.jupiter.engine.execution.NamespaceAwareStore	00e5ea1337f34969
org.junit.jupiter.engine.execution.ParameterResolutionUtils	5aba48e342016f8f
org.junit.jupiter.engine.execution.TestInstancesProvider	357bca6226069e7b
org.junit.jupiter.engine.extension.DisabledCondition	1604b4e34c1363e4
org.junit.jupiter.engine.extension.ExtensionRegistry	687649643dbb04fc
org.junit.jupiter.engine.extension.MutableExtensionRegistry	4daca7ba95c88845
org.junit.jupiter.engine.extension.RepeatedTestExtension	7a30afad0f944ea5
org.junit.jupiter.engine.extension.TempDirectory	d2ce4804a30f8d8c
org.junit.jupiter.engine.extension.TempDirectory.Scope	3a056889e3e86fe7
org.junit.jupiter.engine.extension.TestInfoParameterResolver	3c520f8376f91ff7
org.junit.jupiter.engine.extension.TestReporterParameterResolver	7187071bfc76c6ac
org.junit.jupiter.engine.extension.TimeoutConfiguration	44b8593a8e980687
org.junit.jupiter.engine.extension.TimeoutDurationParser	bb6a412c3829dae9
org.junit.jupiter.engine.extension.TimeoutExtension	13bcdadb20fc7bb
org.junit.jupiter.engine.support.JupiterThrowableCollectorFactory	46546a446de4c9c0
org.junit.jupiter.engine.support.OpenTest4AndJUnit4AwareThrowableCollector	e9ee7d4e1adeccdd1
org.junit.platform.commons.function.Try	5200e6adc191344c
org.junit.platform.commons.function.Try.Failure	5d1cf7b52cd7a7ea
org.junit.platform.commons.function.Try.Success	98cdc5b539e1abfd
org.junit.platform.commons.logging.LoggerFactory	39fdfe1f67bc0eda
org.junit.platform.commons.logging.LoggerFactory.DelegatingLogger	c71dcf008235901c
org.junit.platform.commons.support.AnnotationSupport	4b0c63263b83acb5
org.junit.platform.commons.support.ReflectionSupport	db9de9450da5225a
org.junit.platform.commons.util.AnnotationUtils	efebc064783617e1
org.junit.platform.commons.util.ClassLoaderUtils	0d0959e2f6aa173e
org.junit.platform.commons.util.ClassNamePatternFilterUtils	e725a6f058746f53
org.junit.platform.commons.util.ClassUtils	60a2276f3701443f
org.junit.platform.commons.util.ClasspathScanner	54e3df9bb2092b52
org.junit.platform.commons.util.CollectionUtils	d47999c87f911057
org.junit.platform.commons.util.Preconditions	2c2a6e13cda880d4
org.junit.platform.commons.util.ReflectionUtils	172cf9786a51e883
org.junit.platform.commons.util.ReflectionUtils.HierarchyTraversalMode	349d54e51f2ffb44
org.junit.platform.commons.util.StringUtils	237c0cb03ac19254
org.junit.platform.commons.util.UnrecoverableExceptions	e906a774e770e7d4
org.junit.platform.engine.CompositeFilter	6a52e5b4f7292f48
org.junit.platform.engine.CompositeFilter.1	cc0aadcc5880fb4e4
org.junit.platform.engine.EngineDiscoveryListener	c3024068e43bb7f4
org.junit.platform.engine.EngineDiscoveryListener.1	a4cdcb8dd38d8f57
org.junit.platform.engine.EngineExecutionListener	693fee5cbd4c2df0
org.junit.platform.engine.EngineExecutionListener.1	999902b68f81dd9a
org.junit.platform.engine.ExecutionRequest	b74e001541d12dd1
org.junit.platform.engine.Filter	5ffaaa90df97ca04
org.junit.platform.engine.FilterResult	a787a89e1f12d534
org.junit.platform.engine.SelectorResolutionResult	ca52e15a278dcf5c
org.junit.platform.engine.SelectorResolutionResult.Status	c505c2274f89f01d
org.junit.platform.engine.TestDescriptor	a828437d5cd2ea4f

org.junit.platform.engine.TestDescriptor.Type	7628a7c639ef3a60
org.junit.platform.engine.TestExecutionResult	6b1b512d17bb680e
org.junit.platform.engine.TestExecutionResult.Status	ad256e9fb4407e04
org.junit.platform.engine.UniqueId	4308af7bfbd4ba1
org.junit.platform.engine.UniqueId.Segment	f2d36a9ca9d14367
org.junit.platform.engine.UniqueIdFormat	6c86362ad62a1954
org.junit.platform.engine.discovery.ClassSelector	3174b37b3ba53b7e
org.junit.platform.engine.discovery.DiscoverySelectors	7863536f4276f4dd
org.junit.platform.engine.discovery.MethodSelector	3fe9eccb2ba205d2
org.junit.platform.engine.support.descriptor.AbstractTestDescriptor	b9c965daf4d9a476
org.junit.platform.engine.support.descriptor.ClassSource	37bd92069360f773
org.junit.platform.engine.support.descriptor.EngineDescriptor	8f2f77769ee0e9c9
org.junit.platform.engine.support.descriptor.MethodSource	1d55ac49f5cab20
org.junit.platform.engine.support.discovery.ClassContainerSelectorResolver	dc6114dc7e983729
org.junit.platform.engine.support.discovery.EngineDiscoveryRequestResolution	506a6b871d2fd8fe
org.junit.platform.engine.support.discovery.EngineDiscoveryRequestResolution.DefaultContext	db18f59764ea1f2a
org.junit.platform.engine.support.discovery.EngineDiscoveryRequestResolver	e7fb3042ea8112f0
org.junit.platform.engine.support.discovery.EngineDiscoveryRequestResolver.Builder	d86618af76b95613
org.junit.platform.engine.support.discovery.EngineDiscoveryRequestResolver.DefaultInitializationContext	1904819635770d62
org.junit.platform.engine.support.discovery.SelectorResolver	e64e4fd796d9641d
org.junit.platform.engine.support.discovery.SelectorResolver.Match	789c682356298d75
org.junit.platform.engine.support.discovery.SelectorResolver.Match.Type	1761e56439c8d93c
org.junit.platform.engine.support.discovery.SelectorResolver.Resolution	ab713bdee405d17
org.junit.platform.engine.support.hierarchical.ExclusiveResource	c29acbe41918b09a
org.junit.platform.engine.support.hierarchical.ExclusiveResource.LockMode	96e95d210b150f97
org.junit.platform.engine.support.hierarchical.HierarchicalTestEngine	3ac292151741b7fc
org.junit.platform.engine.support.hierarchical.HierarchicalTestExecutor	963cba9b029b4b19
org.junit.platform.engine.support.hierarchical.LockManager	5aedd3bd3957b5a6
org.junit.platform.engine.support.hierarchical.Node	5c68850150771b6e
org.junit.platform.engine.support.hierarchical.Node.SkipResult	5aca1404ff0f9294
org.junit.platform.engine.support.hierarchical.NodeExecutionAdvisor	7c2670c7a35cfba6
org.junit.platform.engine.support.hierarchical.NodeTestTask	f652d8cc5e11bdc5
org.junit.platform.engine.support.hierarchical.NodeTestTask.DefaultDynamicTestExecutor	abd00dd511d28b2f
org.junit.platform.engine.support.hierarchical.NodeTestTaskContext	bdf88cd3834282a5
org.junit.platform.engine.support.hierarchical.NodeTreeWalker	c689092b060d0b12
org.junit.platform.engine.support.hierarchical.NodeUtils	a7ec8f66d373c169
org.junit.platform.engine.support.hierarchical.NodeUtils.1	5a44a7e2cbf864b4
org.junit.platform.engine.support.hierarchical.SameThreadHierarchicalTestExecutorService	2f3b283eba81629f
org.junit.platform.engine.support.hierarchical.SingleLock	2036ec8b92a38105
org.junit.platform.engine.support.hierarchical.ThrowableCollector	6fd7a27676be3c50
org.junit.platform.engine.support.store.NamespacedHierarchicalStore	f773d297d7dc3275
org.junit.platform.engine.support.store.NamespacedHierarchicalStore.CompositeKey	3f8758b273ff41a9
org.junit.platform.engine.support.store.NamespacedHierarchicalStore.EvaluatedValue	3362298f87d9b160
org.junit.platform.engine.support.store.NamespacedHierarchicalStore.MemoizingSupplier	be04f7b805ba11e1
org.junit.platform.engine.support.store.NamespacedHierarchicalStore.StoredValue	8e79d12821d1a835
org.junit.platform.launcher.EngineDiscoveryResult	44ae55d9c94cdd13
org.junit.platform.launcher.EngineDiscoveryResult.Status	c6f73a818e869b3a
org.junit.platform.launcher.LauncherDiscoveryListener	c8e17526e895636b
org.junit.platform.launcher.LauncherDiscoveryListener.1	8959ed22ae756aca
org.junit.platform.launcher.LauncherSessionListener	fd09754de5a01f16
org.junit.platform.launcher.LauncherSessionListener.1	44b3640faa83f474
org.junit.platform.launcher.TestExecutionListener	f482f6546d6593dc
org.junit.platform.launcher.TestIdentifier	2b393a1d76332bc4
org.junit.platform.launcher.TestPlan	125780e74ba9c50c
org.junit.platform.launcher.core.CompositeEngineExecutionListener	cea0030887322419
org.junit.platform.launcher.core.CompositeTestExecutionListener	283b3c281a0728e5
org.junit.platform.launcher.core.DefaultDiscoveryRequest	5706e3938a47edbc
org.junit.platform.launcher.core.DefaultLauncher	0bd6690ec3f385ab
org.junit.platform.launcher.core.DefaultLauncherConfig	6fbfe73d83f861ce
org.junit.platform.launcher.core.DefaultLauncherSession	593c9fadcd439bc2
org.junit.platform.launcher.core.DefaultLauncherSession.1	4e7ad5e44df7008e
org.junit.platform.launcher.core.DefaultLauncherSession.ClosedLauncher	1fe238faa78c4ee2
org.junit.platform.launcher.core.DelegatingEngineExecutionListener	98129d4f91790da1
org.junit.platform.launcher.core.DelegatingLauncher	443e4e7cef8118ba
org.junit.platform.launcher.core.EngineDiscoveryOrchestrator	9260ad30b5b1dcba
org.junit.platform.launcher.core.EngineDiscoveryOrchestrator.Phase	c5da52319ffdb6cc
org.junit.platform.launcher.core.EngineDiscoveryResultValidator	241befbef6ea2edf
org.junit.platform.launcher.core.EngineExecutionOrchestrator	61a7d44fcacf1fd6d
org.junit.platform.launcher.core.EngineFilterer	5886e10a3932fe3b
org.junit.platform.launcher.core.EnginelValidator	a3cbf4111f4706bd
org.junit.platform.launcher.core.ExecutionListenerAdapter	027b702b863a1b7b
org.junit.platform.launcher.core.InternalTestPlan	6c1da5c749fc1754
org.junit.platform.launcher.core.IterationOrder	67fb bac106398c55
org.junit.platform.launcher.core.IterationOrder.1	c32d4c631876b3d3

org.junit.platform.launcher.core.IterationOrder\$2	b3c544910702c338
org.junit.platform.launcher.core.LauncherConfig	58100dc14c875cb9
org.junit.platform.launcher.core.LauncherConfig\$Builder	b0426f929eec8a53
org.junit.platform.launcher.core.LauncherConfigurationParameters	443c9d189d7662aa
org.junit.platform.launcher.core.LauncherConfigurationParameters\$Builder	89b3d95a424a68ea
org.junit.platform.launcher.core.LauncherConfigurationParameters\$ParameterProvider	da0ae1240b20de42
org.junit.platform.launcher.core.LauncherConfigurationParameters\$ParameterProvider\$2	481aeb52e3ac15c4
org.junit.platform.launcher.core.LauncherConfigurationParameters\$ParameterProvider\$3	2d8e65fa362495e2
org.junit.platform.launcher.core.LauncherDiscoveryRequestBuilder	8aa84e8c1156fc9d
org.junit.platform.launcher.core.LauncherDiscoveryResult	6ba764b26de92159
org.junit.platform.launcher.core.LauncherFactory	7c870cd17431cb9d
org.junit.platform.launcher.core.LauncherListenerRegistry	64d5f2a8ac991f94
org.junit.platform.launcher.core.ListenerRegistry	387fd40f10f1e6b5
org.junit.platform.launcher.core.OutcomeDelayingEngineExecutionListener	4c68ad66a29b4dd7
org.junit.platform.launcher.core.OutcomeDelayingEngineExecutionListener\$Outcome	b6ca0889820c3cca
org.junit.platform.launcher.core.ServiceLoaderRegistry	2a95faa488a889e7
org.junit.platform.launcher.core.ServiceLoaderTestEngineRegistry	69f4349cc7042ed7
org.junit.platform.launcher.core.StackTracePruningEngineExecutionListener	dbf05583a874b58d
org.junit.platform.launcher.core.StreamInterceptingTestExecutionListener	36972af5e542435
org.junit.platform.launcher.listeners.UniqueIdTrackingListener	f828b9fe46e426f0
org.junit.platform.launcher.listeners.discovery.AbortOnFailureLauncherDiscoveryListener	ee6720edc40a9ccf
org.junit.platform.launcher.listeners.discovery.LauncherDiscoveryListeners	03063623efb5e8b2
org.junit.platform.listeners.discovery.LauncherDiscoveryListeners\$LauncherDiscoveryListenerType	e18e1a0e62e22287
org.junit.platform.launcher.listeners.session.LauncherSessionListeners	792ecbf10e49d607
org.mindrot.jbcrypt.BCrypt	6688b2728af0e4ae
org.mockito.Answers	af86bd70185fc83
org.mockito.ArgumentMatchers	30453f217beea892
org.mockito.Mockito	c6bfaacf92b6f13dc
org.mockito.configuration.DefaultMockitoConfiguration	b174879ae8ed115e
org.mockito.internal.MockedStaticImpl	0ddd8f20e599e4f9
org.mockito.internal.MockitoCore	f49fbfc3fe5350e5
org.mockito.internal.PremainAttachAccess	868bee0538961f6a
org.mockito.internal.configuration.CaptorAnnotationProcessor	2f21a4570b50b64a
org.mockito.internal.configuration.ClassPathLoader	173a7c62160e6dbf
org.mockito.internal.configuration.DefaultDoNotMockEnforcer	6a7cb49285062e7d
org.mockito.internal.configuration.GlobalConfiguration	0df96c19dabdcfc0
org.mockito.internal.configuration.IndependentAnnotationEngine	54aaab1155cc41fd
org.mockito.internal.configuration.InjectingAnnotationEngine	3402d3906098d7e2
org.mockito.internal.configuration.MockAnnotationProcessor	f32d9954d5c65205
org.mockito.internal.configuration.SpyAnnotationEngine	6b53375c8a8a5cc1
org.mockito.internal.configuration.plugins.DefaultMockitoPlugins	f2b7ceb1ff6789f3
org.mockito.internal.configuration.plugins.DefaultPluginSwitch	bae35df711d1f747
org.mockito.internal.configuration.plugins.PluginFinder	bd3ccb4ee283ccc1
org.mockito.internal.configuration.plugins.PluginInitializer	072018c08a02e9ee
org.mockito.internal.configuration.plugins.PluginLoader	1702b486e8f8c9ad
org.mockito.internal.configuration.plugins.PluginRegistry	eba7ea1c6a85364
org.mockito.internal.configuration.plugins.Plugins	b0a44acc68acddd8
org.mockito.internal.creation.DelegatingMethod	aa9a3605cadc5938
org.mockito.internal.creation.MockSettingsImpl	3040d7b3b87e5329
org.mockito.internal.creation.SuspendMethod	5807a496dfc9c4c6
org.mockito.internal.creation.bytebuddy.ByteBuddyCrossClassLoaderSerializationSupport	b07e753f8b4d10a1
org.mockito.internal.creation.bytebuddy.BytecodeGenerator	b96181544d17b32a
org.mockito.internal.creation.bytebuddy.InlineByteBuddyMockMaker	a1a0ac895421946d
org.mockito.internal.creation.bytebuddy.InlineBytecodeGenerator	b3e304d2e253eac8
org.mockito.internal.creation.bytebuddy.InlineBytecodeGenerator\$ParameterWritingVisitorWrapper	391fcc69ac063d03
org.mockito.internal.creation.bytebuddy.InlineBytecodeGenerator\$ParameterWritingVisitorWrapper\$MethodParameterStrippingMethodVisitor	4daaaa2d160cb215
org.mockito.internal.creation.bytebuddy.InlineBytecodeGenerator\$ParameterWritingVisitorWrapper\$ParameterAddingClassVisitor	3ea0bd6b68949e7f
org.mockito.internal.creation.bytebuddy.InlineDelegateByteBuddyMockMaker	2e5a8e3521b0d290
org.mockito.internal.creation.bytebuddy.InlineDelegateByteBuddyMockMaker\$1	0c4b020122fedbe3
org.mockito.internal.creation.bytebuddy.InlineDelegateByteBuddyMockMaker\$InlineStaticMockControl	465e7d1306587f39
org.mockito.internal.creation.bytebuddy.MockFeatures	3948e31575d7acd
org.mockito.internal.creation.bytebuddy.MockMethodAdvice	1db8cad96c916600
org.mockito.internal.creation.bytebuddy.MockMethodAdvice\$ConstructorShortcut	ca8092fe743e119f
org.mockito.internal.creation.bytebuddy.MockMethodAdvice\$ConstructorShortcut\$1	d1c660410fc1f7ca
org.mockito.internal.creation.bytebuddy.MockMethodAdvice\$RealMethodCall	c22f1055be0ba4d7
org.mockito.internal.creation.bytebuddy.MockMethodAdvice\$ReturnValueWrapper	5aec1a35f7fcfc57
org.mockito.internal.creation.bytebuddy.MockMethodAdvice\$SelfCallInfo	97851b59e4893c98
org.mockito.internal.creation.bytebuddy.MockMethodAdvice\$StaticMethodCall	31ce90c04a443966
org.mockito.internal.creation.bytebuddy.ModuleHandler	addb759457799176
org.mockito.internal.creation.bytebuddy.ModuleHandler\$3	dbeec40635b946f97
org.mockito.internal.creation.bytebuddy.ModuleHandler\$ModuleSystemFound	b4c7c55be2a75dc
org.mockito.internal.creation.bytebuddy.StackWalkerChecker	68e569e3f7178506
org.mockito.internal.creation.bytebuddy.SubclassBytecodeGenerator	d1fe149222160108
org.mockito.internal.creation.bytebuddy.TypeCachingBytecodeGenerator	9b77b7f9f15ce65b

org.mockito.internal.creation.bytebuddy.TypeCachingBytecodeGenerator.MockitoMockKey	6ab1c48e921f0e050
org.mockito.internal.creation.bytebuddy.TypeCachingBytecodeGenerator.TypeCachingLock	f3718822abb34b6b
org.mockito.internal.creation.bytebuddy.TypeSupport	d98a4f5abd337730
org.mockito.internal.creation.bytebuddy.access.MockMethodInterceptor	7e19a7250dd27860
org.mockito.internal.creation.bytebuddy.access.MockMethodInterceptor.DispatcherDefaultingToRealMethod	bc608d13bed06ccb
org.mockito.internal.creation.bytebuddy.codegen.Clip.MockitoMock.Jy1ZD0g4	982d847d512992af
org.mockito.internal.creation.bytebuddy.codegen.FloatControl.MockitoMock.KyfKiYBy	d6b491371c057579
org.mockito.internal.creation.instance.DefaultInstantiatorProvider	844386c7887007f1
org.mockito.internal.creation.instance.ObjenesisInstantiator	7a7c1771759c8b2f
org.mockito.internal.creation.settings.CreationSettings	1d27e65e4db303b9
org.mockito.internal.debugging.Localized	df79022d5f63dcbe
org.mockito.internal.debugging.LocationFactory	6e3846984f7d9362
org.mockito.internal.debugging.LocationFactory.DefaultLocationFactory	962892aa849afdfc
org.mockito.internal.debugging.LocationImpl	530a4709e6947f60
org.mockito.internal.debugging.LocationImpl.MetadataShim	e0e02617575176a4
org.mockito.internal.exceptions.stacktrace.ConditionalStackTraceFilter	3ae97774773f8cc1
org.mockito.internal.exceptions.stacktrace.DefaultStackTraceCleaner	ccefda75b25508d
org.mockito.internal.exceptions.stacktrace.DefaultStackTraceCleanerProvider	b96ca03f68c6b0bc
org.mockito.internal.exceptions.stacktrace.StackTraceFilter	f1e5dd123e555b09
org.mockito.internal.handler.InvocationNotifierHandler	81a88d2a9823ca2e
org.mockito.internal.handler.MockHandlerFactory	60aaf611c9f037ba
org.mockito.internal.handler.MockHandlerImpl	40af730c41726d19
org.mockito.internal.handler.NullResultGuardian	887855f598dc7f26
org.mockito.internal.invocation.ArgumentsProcessor	48a63d334fbe1568
org.mockito.internal.invocation.DefaultInvocationFactory	fd7a2f1ca0abf244
org.mockito.internal.invocation.InterceptedInvocation	2bc1759562590122
org.mockito.internal.invocation.InterceptedInvocation.1	a808ee7e12b0c370
org.mockito.internal.invocation.InvocationMarker	f36ccd569efd70f7
org.mockito.internal.invocation.InvocationMatcher	a60a277cd788c00
org.mockito.internal.invocation.InvocationMatcher.1	d5c4b96c4388ebd1
org.mockito.internal.invocation.InvocationsFinder	d125e72698a81c75
org.mockito.internal.invocation.MatcherApplicationStrategy	e8e6c5931cd35a1f
org.mockito.internal.invocation.MatchersBinder	7855054a8c7718ee
org.mockito.internal.invocation.RealMethod.isIllegal	64f3caff97edef01
org.mockito.internal.invocation.StubInfoImpl	9766984c92e9959b
org.mockito.internal.invocation.TypeSafeMatching	db8fac8befb40512
org.mockito.internal.invocation.mockref.MockWeakReference	1fbf38ee01ef223b
org.mockito.internal.listeners.StubbingLookupNotifier	6f87fdb14780b091
org.mockito.internal.listeners.VerificationStartedNotifier	bc97b666d47bf342
org.mockito.internal.matchers.Any	ddca80baaf883a0c
org.mockito.internal.matchers.ArrayEquals	27688bbffae1861
org.mockito.internal.matchers.Equality	341b019eaeb85d40
org.mockito.internal.matchers.Equals	84c89c09d537ae1d
org.mockito.internal.matchers.InstanceOf	5c0eab070e987a7e
org.mockito.internal.matchers.LocalizedMatcher	f3da081806496e9c
org.mockito.internal.progress.ArgumentParserStorageImpl	d9b8becac423331b
org.mockito.internal.progress.MockingProgressImpl	b4b478523e99786f
org.mockito.internal.progress.MockingProgressImpl.1	9f7db825fdcdf194
org.mockito.internal.progress.SequenceNumber	a68ee1dd45f51b97
org.mockito.internal.progress.ThreadSafeMockingProgress	452aa6e38ddf43e
org.mockito.internal.progress.ThreadSafeMockingProgress.1	79ae9726492f0c4f
org.mockito.internal.stubbing.BaseStubbing	7fb9abb0c3eadb7f
org.mockito.internal.stubbing.ConsecutiveStubbing	557234368bf5ca41
org.mockito.internal.stubbing.DoAnswerStyleStubbing	6e7ca0308caa0784
org.mockito.internal.stubbing.InvocationContainerImpl	6fc98009157aaa61
org.mockito.internal.stubbing.OngoingStubbingImpl	747b28f7f0499aba
org.mockito.internal.stubbing.StubbedInvocationMatcher	73693c29bdb5f1d4
org.mockito.internal.stubbing.StubberImpl	0598892699f1408c
org.mockito.internal.stubbing.answers.AbstractThrowsException	4d8774faf570ee8b
org.mockito.internal.stubbing.answers.CallsRealMethods	e57edbc58b0e39e6
org.mockito.internal.stubbing.answers.DefaultAnswerValidator	bc157688cbf26d9c
org.mockito.internal.stubbing.answers.DoesNothing	fe0bc81f8af9ad94
org.mockito.internal.stubbing.answers.InvocationInfo	35c4a7d4431e2604
org.mockito.internal.stubbing.answers.Returns	419d0de7c8cd9ec2
org.mockito.internal.stubbing.answers.ThrowsException	d5453a6546fff054
org.mockito.internal.stubbing.answers.ThrowsExceptionForClassType	c40bbb544982fb63
org.mockito.internal.stubbing.defaultanswers.GloballyConfiguredAnswer	b4af5d0cc4127c43
org.mockito.internal.stubbing.defaultanswers.ReturnsDeepStubs	9290a19f5dbdf1b2
org.mockito.internal.stubbing.defaultanswers.ReturnsEmptyValues	dbc025659648ed02
org.mockito.internal.stubbing.defaultanswers.ReturnsMocks	99d9220ab6ee9e86
org.mockito.internal.stubbing.defaultanswers.ReturnsMoreEmptyValues	708bd411a28382b5
org.mockito.internal.stubbing.defaultanswers.ReturnsSmartNulls	f434f2f732e6e80e
org.mockito.internal.stubbing.defaultanswers.TriesToReturnSelf	13e6f22c3923267d
org.mockito.internal.util.Checks	693b7ec3dc9db88a

org.mockito.internal.util.ConsoleMockitoLogger	f6ec54a756328702
org.mockito.internal.util.DefaultMockingDetails	445b7a7104a677ce
org.mockito.internal.util.KotlinInlineClassUtil	8f2e65801baf9ad5
org.mockito.internal.util.MockCreationValidator	83a10f2760252cf3
org.mockito.internal.util.MockNameImpl	009cd5fc276ed0dd
org.mockito.internal.util.MockUtil	8cedd1d6aa623c6c
org.mockito.internal.util.ObjectMethodsGuru	e958146f93547352
org.mockito.internal.util.Platform	6c061a17b8fd556f
org.mockito.internal.util.Primitives	6b6a08aaaf147839f
org.mockito.internal.util.collections.Iterables	f7eb3a38de601237
org.mockito.internal.util.concurrent.DetachedThreadLocal	24c845c0cee0c23b
org.mockito.internal.util.concurrent.DetachedThreadLocal.1	defaf890898faa64
org.mockito.internal.util.concurrent.DetachedThreadLocal.Cleaner	fe82f09eda153c82
org.mockito.internal.util.concurrent.WeakConcurrentMap	317df0cbc9bf65e4
org.mockito.internal.util.concurrent.WeakConcurrentMap.LatentKey	49d0008ff01c2270
org.mockito.internal.util.concurrent.WeakConcurrentMap.WeakKey	c9b8ab481aee9c32
org.mockito.internal.util.concurrent.WeakConcurrentMap.WithInlinedExpunction	2900bb8f66594337
org.mockito.internal.util.concurrent.WeakConcurrentSet	01665a2956990716
org.mockito.internal.util.concurrent.WeakConcurrentSet.Cleaner	8e47207f365780a7
org.mockito.internal.util.reflection.GenericMetadataSupport	9acdffd63f655b49
org.mockito.internal.util.reflection.GenericMetadataSupport.FromClassGenericMetadataSupport	99c88b2ac93b8f3f
org.mockito.internal.util.reflection.GenericMetadataSupport.NotGenericReturnTypeSupport	8c611ef213f94120
org.mockito.internal.util.reflection.GenericMetadataSupport.ParameterizedReturnType	25e3bc9dabf2fa9d
org.mockito.internal.util.reflection.GenericMetadataSupport.TypeVarBoundedType	b7f4d58732c20401
org.mockito.internal.util.reflection.GenericMetadataSupport.TypeVariableReturnType	6d8641bfb4e9554b
org.mockito.internal.util.reflection.InstrumentationMemberAccessor	00b247ec3e952710
org.mockito.internal.util.reflection.ModuleMemberAccessor	df6459cdb157634f
org.mockito.internalverification.AtLeast	742247f606a7d3c4
org.mockito.internalverification.DefaultRegisteredInvocations	48184ff2108397ec
org.mockito.internalverification.MockAwareVerificationMode	140035dc62d048aa
org.mockito.internalverification.Times	ce9c3ea7bcd8f3e4
org.mockito.internalverification.VerificationDataImpl	960bc0e7bc4cb209
org.mockito.internalverification.VerificationEventImpl	c5d4f54b84a790e3
org.mockito.internalverification.VerificationModeFactory	9d00ab6e5382924b
org.mockito.internalverification.checkers.AtLeastXNumberofInvocationsChecker	129db1498c6df606
org.mockito.internalverification.checkers.MissingInvocationChecker	bc21ba1054e605b2
org.mockito.internalverification.checkers.NumberOfInvocationsChecker	bd3469583e9e6716
org.mockito.mock.MockType	0b5105452bbd0790
org.mockito.mock.SerializableMode	d8db118920e53367
org.mockito.plugins.DoNotMockEnforcer	d84a80636a3b2091
org.mockito.plugins.DoNotMockEnforcer.Cache	7ad724250d9a8fd2
org.objenesis.ObjenesisBase	0c1d2fd83029257f
org.objenesis.ObjenesisStd	f35c83a75caea811
org.objenesis.instantiator.sun.SunReflectionFactoryHelper	d17e7b3403696605
org.objenesis.instantiator.sun.SunReflectionFactoryInstantiator	6156947e7d7c507c
org.objenesis.strategy.BaselineInstantiatorStrategy	b0aaa6460452f5ce
org.objenesis.strategy.PlatformDescription	c6456f671febfd7c
org.objenesis.strategy.StdInstantiatorStrategy	abae05ba56ea35a6
org.slf4j.LoggerFactory	d4f8bf028cb667a7
org.slf4j.helpers.AbstractLogger	0927772f80afa51d
org.slf4j.helpers.BasicMDCAdapter	354fafb117483fdb
org.slf4j.helpers.BasicMDCAdapter.1	8f0671fb507009fb
org.slf4j.helpers.BasicMarkerFactory	d8e0b7e9d11b515c
org.slf4j.helpers.LegacyAbstractLogger	9c0bab469712e43b
org.slf4j.helpers.NOPLoggerFactory	eaf704972ef7000c
org.slf4j.helpers.NOPMDCAdapter	d816a97d0b663014
org.slf4j.helpers.NOP_FallbackServiceProvider	44c4aa253bad3620
org.slf4j.helpers.Reporter	c9b912a7116daa87
org.slf4j.helpers.Reporter.Level	07530b930aa1c996
org.slf4j.helpers.Reporter.TargetChoice	0aa347cd82827a6b
org.slf4j.helpers.SubstituteLoggerFactory	2c5fb1b0f92b644d
org.slf4j.helpers.SubstituteServiceProvider	1caf06178d203dfd
org.slf4j.helpers.ThreadLocalMapOfStacks	2b24a935616f8730
org.slf4j.helpers.Util	859d67cf0632e467
org.slf4j.simple.OutputChoice	1210473ae6c23a02
org.slf4j.simple.OutputChoice.OutputChoiceType	b1a3560a9741f5b4
org.slf4j.simple.SimpleLogger	1d2d4d9ea2830f3d
org.slf4j.simple.SimpleLoggerConfiguration	1f2875dbbf5941d4
org.slf4j.simple.SimpleLoggerFactory	e94c2f64e0e452e9
org.slf4j.simple.SimpleServiceProvider	99b66f9433a7c345
org.sqlite.ExtendedCommand	c50b1f7fa92b5727
org.sqlite.JDBC	8e6db90d48c26646
org.sqlite.SQLiteConfig	e5bc293c5fc5a401
org.sqlite.SQLiteConfig.DateClass	d291e525fe22bbab

org.sqlite.SQLiteConfig.DatePrecision	48b2cfccf8b6cbcbf
org.sqlite.SQLiteConfig.Encoding	3da2a60c689ecb45
org.sqlite.SQLiteConfig.HexKeyMode	b96f57e39f13322c
org.sqlite.SQLiteConfig.JournalMode	35850632da3b340e
org.sqlite.SQLiteConfig.LockingMode	e9325b088d34aed6
org.sqlite.SQLiteConfig.Pragma	87df8fb81c84ddba
org.sqlite.SQLiteConfig.SynchronousMode	a29bf5ffa16c164c
org.sqlite.SQLiteConfig.TempStore	b1b405b6ad7dee3c
org.sqlite.SQLiteConfig.TransactionMode	2f404b6104bcee7c
org.sqlite.SQLiteConnection	ed855927d8eeb04b
org.sqlite.SQLiteConnectionConfig	bcd564a9722e9f02
org.sqlite.SQLiteErrorCode	5abe51ede2cd0696
org.sqlite.SQLiteException	55db16725b912d5c
org.sqlite.SQLiteJDBCLoader	a6594526880a50cc
org.sqlite.SQLiteJDBCLoader.VersionHolder	9280009235d99717
org.sqlite.SQLiteLimits	5de2416ef4a27971
org.sqlite.SQLiteOpenMode	8359ea3e35c0f022
org.sqlite.core.CoreDatabaseMetaData	7051aebb4552574e
org.sqlite.core.CorePreparedStatement	750078529300087e
org.sqlite.core.CoreResultSet	1acb626cccfd5d
org.sqlite.core.CoreStatement	a1ceabd06ac323b0
org.sqlite.core.DB	b6fc4681448d547c
org.sqlite.core.NativeDB	500d057ceb6ec321
org.sqlite.core.SafeStmtPtr	e50aa62317dfce9c
org.sqlite.date.FastDateFormat	452c95a00328b9cc
org.sqlite.date.FastDateFormat.1	46fbf48faf2148ae
org.sqlite.date.FastDateParser	fae281e33d96261d
org.sqlite.date.FastDateParser.1	ae45c588680f9086
org.sqlite.date.FastDateParser.2	13d88cc5c2eb8734
org.sqlite.date.FastDateParser.3	4cc4a0b1ba9c0895
org.sqlite.date.FastDateParser.4	e0ed4ea7b45392ea
org.sqlite.date.FastDateParser.CopyQuotedStrategy	edf865cc9ad02d15
org.sqlite.date.FastDateParser.ISO8601TimeZoneStrategy	80f87e347be6d3f2
org.sqlite.date.FastDateParser.NumberStrategy	c35d8b87ff103836
org.sqlite.date.FastDateParser.Strategy	3aff03d37d59cc72
org.sqlite.date.FastDatePrinter	aadc011f46d3de8a
org.sqlite.date.FastDatePrinter.CharacterLiteral	84f3f16ae96b7cb8
org.sqlite.date.FastDatePrinter.PaddedNumberField	81a67ba8156f5efa
org.sqlite.date.FastDatePrinter.TwoDigitMonthField	86f24deb0f79ff8e
org.sqlite.date.FastDatePrinter.TwoDigitNumberField	a85da15723b8b680
org.sqlite.date.FormatCache	9860c57b5c859df9
org.sqlite.date.FormatCache.MultipartKey	469164d2c8315f67
org.sqlite.jdbc3.JDBC3Connection	5e27d2f7139a637b
org.sqlite.jdbc3.JDBC3DatabaseMetaData	5bf62e00b2309290
org.sqlite.jdbc3.JDBC3PreparedStatement	612ff277d1eb1a39
org.sqlite.jdbc3.JDBC3ResultSet	904eb93adc35ae17
org.sqlite.jdbc3.JDBC3Statement	74fa6af2dbbcf659
org.sqlite.jdbc4.JDBC4Connection	a06b30caeb027651
org.sqlite.jdbc4.JDBC4DatabaseMetaData	f7bac5219bb5b0af
org.sqlite.jdbc4.JDBC4PreparedStatement	2e47f390feb2663e
org.sqlite.jdbc4.JDBC4ResultSet	bade386a08cd541c
org.sqlite.jdbc4.JDBC4Statement	5abde92f58724875
org.sqlite.util.LibraryLoaderUtil	4df105564098d269
org.sqlite.util.OSInfo	50a8b6f7f0e697a7
org.sqlite.util.ProcessRunner	eab1d4463e729110
sun.util.resources.cldr.provider.CLDRLocaleDataMetaInfo	cea799461486d92b

GameScreenController SidebarLoaded

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
GameScreenController SidebarLoaded(Parent, SidebarController)		0%	n/a	1	1	1	1	1	1	1
Total	9 of 9	0%	0 of 0	n/a	1	1	1	1	1	1

Created with JaCoCo 0.8.12.202403310830

GameScreenController

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
loadSidebar()		0%		n/a	1	1	9	9	1	1
GameScreenController()		100%		n/a	0	1	0	2	0	1
Total	32 of 40	20%	0 of 0	n/a	1	2	9	11	1	2

Created with JaCoCo 0.8.12.202403310830

GameScreenController.java

```
1. package com.example.project.controllers.gameScreens;
2.
3. import com.example.project.services.Logger;
4. import com.example.project.services.SceneManager;
5. import com.example.project.services.Session;
6. import javafx.fxml.FXMLLoader;
7. import javafx.scene.Parent;
8.
9. import java.io.IOException;
10.
11. /**
12. * Game screen controller that has some startup on screen thing todo. Level, shop controllers..
13. */
14. public abstract class GameScreenController
15. {
16.     protected Logger logger = new Logger();
17.
18.     protected GameScreenController() {}
19.
20.     /**
21.      * Called when the game scene is changed to one of the GameScenes Login, Level, Shop etc.
22.      */
23.     public abstract void onSceneChangedToThis();
24.
25.     /**
26.      * create models and inject session and scene manager.
27.      * @param session session.
28.      * @param sceneManager scene manager.
29.      */
30.     public abstract void setup(Session session, SceneManager sceneManager);
31.
32.     protected record SidebarLoaded(Parent node, SidebarController controller) {}
33.
34.     protected SidebarLoaded loadSidebar()
35.     {
36.         var sidebarPath = "/com/example/project/gameScreens/sidebar.fxml";
37.         FXMLLoader loader = new FXMLLoader(getClass().getResource(sidebarPath));
38.         Parent sidebarNode = null;
39.         try{
40.             sidebarNode = loader.load();
41.         }
42.         catch (IOException exception){
43.             this.logger.logError("failed to load sidebar fxml file.");
44.         }
45.
46.         SidebarLoaded side = new SidebarLoaded(sidebarNode, loader.getController());
47.         return side;
48.     }
49. }
```

GameScreenFactory

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
preloadPage(GameScene, String, PageLoader)		0%		0%	3	3	15	15	1	1
loadPages(PageLoader)		0%		n/a	1	1	6	6	1	1
loadGameScreens(RootLayoutController, FXMLPageLoader)		0%		n/a	1	1	4	4	1	1
GameScreenFactory(Session)		0%		n/a	1	1	5	5	1	1
Total	150 of 150	0%	4 of 4	0%	6	6	30	30	4	4

Created with JaCoCo 0.8.12.202403310830

ConfettiAnimation

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
playConfetti(Pane)		0%		0%	2	2	14	14	1	1
ConfettiAnimation()		0%		n/a	1	1	1	1	1	1
Total	81 of 81	0%	2 of 2	0%	3	3	15	15	2	2

Created with JaCoCo 0.8.12.202403310830

GameScreenFactory.java

```

1. package com.example.project.controllers.gameScreens;
2.
3. import com.example.project.controllers.RootLayoutController;
4. import com.example.project.services.*;
5. import javafx.scene.Parent;
6.
7. import java.io.IOException;
8. import java.util.HashMap;
9. import java.util.Map;
10.
11. /**
12. * create game screen controllers.
13. */
14. public class GameScreenFactory {
15.
16.     private final Session session;
17.     private SceneManager sceneManager;
18.     private final Map<GameScene, Parent> pages = new HashMap<>();
19.     private final Map<GameScene, GameScreenController> controllers = new HashMap<>();
20.
21.     /**
22.      * Constructor.
23.      * @param session session.
24.      */
25.     public GameScreenFactory(Session session) {
26.         this.session = session;
27.     }
28.
29.
30.     /**
31.      * Load all main game screens.
32.      * @param rootController root.
33.      * @param loader loader.
34.      */
35.     public void loadGameScreens(RootLayoutController rootController, FXMLLoaderPageLoader loader)
36.     {
37.         this.sceneManager = new SceneManager(rootController, controllers, pages);
38.         this.loadPages(loader);
39.         sceneManager.switchScene(GameScene.LOGIN);
40.     }
41.
42.     private void loadPages(PageLoader loader)
43.     {
44.         preloadPage(GameScene.LOGIN, "/com/example/project/gameScreens/login-view.fxml", loader);
45.         preloadPage(GameScene.MAINMENU, "/com/example/project/gameScreens/main-menu-view.fxml", loader);
46.         preloadPage(GameScene.DAILY_REWARD, "/com/example/project/gameScreens/dailyReward-view.fxml", loader);
47.         preloadPage(GameScene.LEVEL, "/com/example/project/gameScreens/level-view.fxml", loader);
48.         preloadPage(GameScene.SHOP, "/com/example/project/gameScreens/shop-view.fxml", loader);
49.     }
50.
51.     private void preloadPage(GameScene type, String fxmlPath, PageLoader loader)
52.     {
53.         Parent page;
54.         try{
55.             page = loader.load(fxmlPath);
56.         }
57.         catch (IOException e){
58.             throw new RuntimeException(String.format("Exception when loading page: %s. Message: %s, cause: %s", fxmlPath, e.getMessage(), e.getCause()));
59.         }
60.         catch (IllegalStateException e){
61.             throw new RuntimeException(String.format("game scene fxml path for %s not correct: %s, cause: %s", fxmlPath, e.getMessage(), e.getCause()));
62.         }
63.
64.         if (page == null)
65.         {
66.             throw new IllegalArgumentException("Page not loaded: " + type);
67.         }
68.
69.         GameScreenController controller = loader.getController();
70.         if (controller == null){
71.             throw new RuntimeException("must have a controller on the game screen that is a gameScreenController");
72.         }
73.
74.         controller.setup(this.session, this.sceneManager);
75.         controllers.put(type, controller);
76.         pages.put(type, page);
77.     }
78. }
```

LevelController

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
setup(Session_SceneManager)		0%	n/a	1	1	26	26	1	1	1
lambda\$onPlayButton\$9(int, ActionEvent)		0%		0%	8	8	25	25	1	1
onSceneChangedToThis()		0%	n/a	1	1	12	12	1	1	1
syncLevelWonText()		0%		0%	3	3	16	16	1	1
setupDefinitionPopup()		0%	n/a	1	1	11	11	1	1	1
syncRedrawWindow()		0%		0%	4	4	11	11	1	1
onPlayButton()		0%	n/a	1	1	9	9	1	1	1
syncDefinitionWindow(boolean)		0%		0%	3	3	9	9	1	1
lambda\$runTotalScoreAnimation\$10(Label, Paint, int, ActionEvent)		0%	n/a	1	1	10	10	1	1	1
syncPlayButton()		0%		0%	5	5	4	4	1	1
runTotalScoreAnimation(int, int)		0%	n/a	1	1	7	7	1	1	1
LevelController()		0%	n/a	1	1	5	5	1	1	1
syncRedrawButton()		0%		0%	3	3	4	4	1	1
lambda\$setupDefinitionPopup\$6(ObservableValue, Boolean, Boolean)		0%	0%	2	2	5	5	1	1	1
onLetterTileClicked(LetterTileController)		0%		0%	2	2	3	3	1	1
lambda\$setupDefinitionPopup\$5(MouseEvent)		0%		0%	2	2	4	4	1	1
lambda\$onSceneChangedToThis\$4()		0%		0%	2	2	1	1	1	1
lambda\$onPlayButton\$8(int, int, ActionEvent)		0%	n/a	1	1	3	3	1	1	1
syncConfirmRedrawButton()		0%	n/a	1	1	2	2	1	1	1
lambda\$syncDefinitionWindow\$7(boolean, ActionEvent)		0%		0%	2	2	3	3	1	1
lambda\$setup\$3(ObservableValue, Boolean, Boolean)		0%	n/a	1	1	1	1	1	1	1
lambda\$syncLevelWonText\$12(ActionEvent)		0%	n/a	1	1	1	1	1	1	1
lambda\$syncLevelWonText\$11(ActionEvent)		0%	n/a	1	1	1	1	1	1	1
lambda\$setup\$2(ObservableValue, Boolean, Boolean)		0%	n/a	1	1	1	1	1	1	1
lambda\$setup\$1(ObservableValue, Number, Number)		0%	n/a	1	1	1	1	1	1	1
lambda\$setup\$0(ObservableValue, Number, Number)		0%	n/a	1	1	1	1	1	1	1
onRedrawButton()		91%		50%	1	2	0	3	0	1
onConfirmRedrawButton()		91%		50%	1	2	0	3	0	1
LevelController(LevelModel)		100%	n/a	0	1	0	5	0	0	1
onSkipButton()		100%	n/a	0	1	0	1	0	0	1
Total	752 of 807	6%	52 of 54	3%	53	57	165	177	26	30

LevelController.java

```

1. package com.example.project.controllers.gameScreens;
2.
3. import com.example.project.models.tileGroups.LetterTileGroup;
4. import com.example.project.models.tileGroups.UpgradeTileGroup;
5. import com.example.project.controllers.gameScreens.animations.LevelScoreSequence;
6. import com.example.project.controllers.gameScreens.animations.ScoreTimeline;
7. import com.example.project.controllers.gameScreens.animations.TextEmphasisAnimation;
8. import com.example.project.controllers.popupControllers.DefinitionController;
9. import com.example.project.controllers.tiles.LetterTileController;
10. import com.example.project.models.gameScreens.LevelModel;
11. import com.example.project.models.popups.DefinitionPopup;
12. import com.example.project.services.GameScene;
13. import com.example.project.services.PopupLoader;
14. import com.example.project.services.SceneManager;
15. import com.example.project.services.Session;
16. import com.example.project.services.sound.GameSoundPlayer;
17. import javafx.animation.*;
18. import javafx.beans.binding.Bindings;
19. import javafx.fxml.FXML;
20. import javafx.scene.Cursor;
21. import javafx.scene.control.Button;
22. import javafx.scene.control.Label;
23. import javafx.scene.layout.HBox;
24. import javafx.scene.layout.StackPane;
25. import javafx.scene.paint.Color;
26. import javafx.util.Duration;
27. import javafx.scene.layout.VBox;
28. import java.util.*;
29.
30.
31. /**
32. * Controller for the level screen.
33. */
34. public class LevelController extends GameScreenController
35. {
36.     @FXML Label levelWonLostText;
37.     @FXML private StackPane sidebar;
38.     @FXML HBox tileRackContainer;
39.     @FXML HBox wordWindowContainer;
40.     @FXML HBox upgradeTilesContainer;
41.     @FXML Button playButton;
42.     @FXML Button redrawButton;
43.     @FXML VBox redrawContainer;
44.     @FXML Button confirmRedrawButton;
45.     @FXML private StackPane root;
46.     @FXML private StackPane definitionContainer;
47.
48.     private static LevelModel levelModel;
49.     private final DefinitionPopup definitionPopup = new DefinitionPopup();
50.     private UpgradeTileGroup upgradeGroup;
51.     private LetterTileGroup tileRack;
52.     private LetterTileGroup wordTilesRow;
53.     private LetterTileGroup redrawTilesColumn;
54.     private SidebarController sidebarController;
55.
56.     private final GameSoundPlayer spillSound = new GameSoundPlayer("/com/example/project/Sounds/spill2.wav");
57.     private final GameSoundPlayer shakeSound = new GameSoundPlayer("/com/example/project/Sounds/shake2.wav");
58.     private final GameSoundPlayer wonSound = new GameSoundPlayer("/com/example/project/Sounds/win.wav");
59.
60.     /**
61.      * Constructor only called once each time application opened.
62.     */
63.     public LevelController() {}
64.
65.     protected LevelController(LevelModel model) { levelModel = model; }
66.
67.     @Override
68.     public void setup(Session session, SceneManager sceneManager)
69.     {
70.         levelModel = new LevelModel(session, sceneManager);
71.
72.         // Setup Listeners. (automatically updates each property when they're changed)
73.         levelModel.getSession().getCurrentRedraws().addListener((obs, oldVal, newVal) -> syncRedrawButton());
74.         levelModel.getSession().getCurrentPlays().addListener((obs, oldVal, newVal) -> syncPlayButton());
75.
76.         levelModel.getIsRedrawActive().addListener((obs, oldVal, newVal) -> syncRedrawWindow());
77.         definitionPopup.getIsDefinitionActive().addListener((obs, oldVal, newVal) -> syncDefinitionWindow(newVal));
78.
79.         tileRack = new LetterTileGroup(levelModel.getSession().getHandSize(), tileRackContainer,
80.                                         levelModel.getTileRackTilesProperty(), this::onLetterTileClicked);
81.
82.         wordTilesRow = new LetterTileGroup(levelModel.getSession().getWordWindowSize(), wordWindowContainer,
83.                                           levelModel.getWordWindowTilesProperty(), this::onLetterTileClicked,
84.                                           List.of(this::syncPlayButton));
85.
86.         redrawTilesColumn = new LetterTileGroup(levelModel.getSession().getWordWindowSize(), redrawContainer,
87.                                              levelModel.getRedrawWindowTilesProperty(), this::onLetterTileClicked,
88.                                              List.of(this::syncRedrawButton, this::syncConfirmRedrawButton));
89.
90.         upgradeGroup = new UpgradeTileGroup(upgradeTilesContainer, levelModel.getSession().getPlayersUpgradesProperty());
91.         upgradeGroup.syncTiles();
92.
93.         setupDefinitionPopup();
94.
95.         var loadedSidebar = this.loadSidebar();
96.         var sidebarNode = ((StackPane) loadedSidebar.node());
97.         this.sidebar.getChildren().add(sidebarNode);
98.         this.sidebarController = loadedSidebar.controller();
99.         sidebarController.setupProperties(levelModel);
100.
101.        // initial sync.
102.        syncPlayButton();
103.        syncRedrawButton();
104.        syncConfirmRedrawButton();
105.        syncRedrawWindow();
106.    }
107.
108.    @Override
109.    public void onSceneChangedToThis()
110.    {
111.        levelModel.setupNewLevel();
112.        this.logger.logMessage("level page loaded.");

```

```

113.     levelWonLostText.setText("");
114.
115.     tileRack.syncTiles();
116.     wordTilesRow.syncTiles();
117.     redrawTilesColumn.syncTiles();
118.     upgradeGroup.syncTiles();
119.
120.     // level outcome text banner will only be visible when there is text
121.     levelWonLostText.visibleProperty().bind(Bindings.createBooleanBinding(
122.         () -> !levelWonLostText.getText().isEmpty(), levelWonLostText.textProperty() ));
123.     levelWonLostText.managedProperty().bind(levelWonLostText.visibleProperty());
124.     levelWonLostText.prefWidthProperty().bind(levelWonLostText.widthProperty().add(500));
125. }
126.
127. private void setupDefinitionPopup()
128. {
129.     PopupLoader popupLoader = new PopupLoader();
130.     DefinitionController definitionController = popupLoader.createPopupController(definitionPopup);
131.     definitionContainer.setMouseTransparent(true);
132.     definitionContainer.setVisible(false);
133.
134.     var popupRoot = definitionController.getStack();
135.     definitionContainer.getChildren().add(popupRoot);
136.
137.     popupRoot.managedProperty().bind(definitionPopup.getIsDefinitionActive());
138.     definitionPopup.setIsDefinitionActive(false);
139.
140.     // Listener for auto hiding the popup when clicking the container area outside the popup's content
141.     definitionContainer.setOnMouseClicked(event -> {
142.         if (event.getTarget() == definitionContainer) {
143.             definitionPopup.setIsDefinitionActive(false);
144.         }
145.         event.consume();
146.     });
147.
148.     // Listener for changing cursor appearance anywhere on screen
149.     definitionPopup.getIsDefinitionActive().addListener((activeObs, wasActive, isActive) -> {
150.         if (isActive) {
151.             definitionContainer.setCursor(Cursor.HAND);
152.         } else {
153.             definitionContainer.setCursor(Cursor.DEFAULT);
154.             this.syncLevelWonText();
155.         }
156.     });
157. }
158.
159. private void syncRedrawWindow()
160. {
161.     var isRedrawActive = levelModel.getIsRedrawActive().get();
162.     var distance = isRedrawActive ? -50 : 300; // slide on if inactive. slide out if active.
163.     TranslateTransition redrawWindowSlide = new TranslateTransition(Duration.millis(500), redrawContainer);
164.     redrawWindowSlide.setToX(distance);
165.     redrawWindowSlide.play();
166.     syncRedrawButton();
167.     if (levelModel.getSceneManager().getCurrentScene() != GameScene.LEVEL){
168.         return;
169.     }
170.
171.     var soundToPlay = isRedrawActive ? shakeSound : spillSound;
172.     soundToPlay.replay();
173. }
174.
175. private void syncDefinitionWindow(boolean isDefinitionActive){
176.     if (isDefinitionActive) {
177.         definitionContainer.setVisible(true);
178.         definitionContainer.setMouseTransparent(false);
179.     }
180.     var distance = isDefinitionActive ? 300 : 1000; // slide on if inactive. slide out if active.
181.     TranslateTransition definitionWindowSlide = new TranslateTransition(Duration.millis(500), definitionContainer);
182.     definitionWindowSlide.setToX(distance);
183.     definitionWindowSlide.setOnFinished(e -> {
184.         if (!isDefinitionActive) {
185.             definitionContainer.setVisible(false);
186.         }
187.     });
188.     definitionWindowSlide.play();
189. }
190.
191.
192. private void syncRedrawButton()
193. {
194.     var redraws = levelModel.getSession().getCurrentRedraws().get();
195.     redrawButton.setDisable(redraws == 0);
196.     redrawButton.setText(levelModel.getIsRedrawActive().get() ? "Cancel" : "Redraw Letters");
197. }
198.
199.
200. private void syncPlayButton()
201. {
202.     var plays = levelModel.getSession().getCurrentPlays().get();
203.     playButton.setDisable(plays == 0 || !levelModel.isCurrentWordValid() || levelModel.getWordWindowTilesProperty().isEmpty() || levelModel.getIsRedrawActive().get());
204.     playButton.setText("Play Word");
205. }
206.
207.
208. private void syncConfirmRedrawButton(){
209.     confirmRedrawButton.setDisable(levelModel.getRedrawWindowTilesProperty().isEmpty());
210. }
211.
212. /**
213. * Handle tile clicks.
214. */
215. private void onLetterTileClicked(LetterTileController tileController)
216. {
217.     boolean moved = levelModel.tryMoveTile(tileController.getModel());
218.     if (!moved) { this.logger.logMessage("Cannot move tile - no space available or tile not found."); }
219.
220. /**
221. * Handle play button
222. */
223. @FXML
224. protected void onPlayButton()
225. {
226.     definitionPopup.setPopup(levelModel.getCurrentWord());
227.     playButton.setDisable(true);
228.     var rawPoints = sidebarController.getRawPointsLabel();
229.     var multiplier = sidebarController.getMultiplierLabel();
230. }

```

```

231.     int startScore = levelModel.getPlayersTotalPoints().get();
232.     var tileScoringSequence = new LevelScoreSequence(wordTilesRow.getControllers(), levelModel, rawPoints, multiplier);
233.     tileScoringSequence.setOnFinished(e ->
234.     {
235.         // Capturing scores before upgrades run
236.         int preUpgradePoints = levelModel.wordPointsProperty().get();
237.         int preUpgradeMulti = levelModel.wordMultiProperty().get();
238.
239.         int endScore = startScore + levelModel.calcTotalWordScore(); // Upgrades run here
240.
241.         // Capturing scores after upgrades run
242.         int postUpgradePoints = levelModel.wordPointsProperty().get();
243.         int postUpgradeMulti = levelModel.wordMultiProperty().get();
244.
245.         // Check if any upgrade changed the points or multiplier
246.         boolean pointsChanged = preUpgradePoints != postUpgradePoints;
247.         boolean multiChanged = preUpgradeMulti != postUpgradeMulti;
248.         boolean upgradesApplied = pointsChanged || multiChanged;
249.
250.         SequentialTransition upgradeSequence = new SequentialTransition();
251.
252.         if (upgradesApplied) {
253.             if (pointsChanged) {
254.                 var pointsLabel = sidebarController.getRawPointsLabel();
255.                 var scoreInitialColour = pointsLabel.getTextFill();
256.                 TextEmphasisAnimation pointsEmphasis = new TextEmphasisAnimation(pointsLabel, scoreInitialColour, scoreInitialColour, Duration.seconds(0));
257.                 upgradeSequence.getChildren().addAll(pointsEmphasis.getChildren());
258.                 upgradeSequence.getChildren().add(new javafx.animation.PauseTransition(Duration.millis(1)));
259.             }
260.             if (multiChanged) {
261.                 var comboMultiplierLabel = sidebarController.getComboLabel();
262.                 var multiColour = comboMultiplierLabel.getTextFill();
263.                 TextEmphasisAnimation multiEmphasis = new TextEmphasisAnimation(comboMultiplierLabel, multiColour, multiColour, Duration.seconds(0));
264.                 upgradeSequence.getChildren().addAll(multiEmphasis.getChildren());
265.             }
266.
267.             upgradeSequence.setOnFinished(g -> {
268.                 levelModel.getFileScoreSoundPlayer().playNextNote();
269.                 runTotalScoreAnimation(startScore, endScore);
270.             });
271.
272.             upgradeSequence.play();
273.         } else {
274.             // If no upgrades changed the score, skip the upgrade animation and run total score immediately
275.             runTotalScoreAnimation(startScore, endScore);
276.         }
277.     });
278.
279.     tileScoringSequence.play();
280. }
281.
282. private void runTotalScoreAnimation(int startScore, int endScore) {
283.     ScoreTimeline totalScoreTimeline = new ScoreTimeline();
284.     var currentScoreLabel = sidebarController.getCurrentScoreLabel();
285.     var scoreInitialColour = currentScoreLabel.getTextFill();
286.     Timeline timeline = totalScoreTimeline.animateTotalScore(startScore, endScore, currentScoreLabel, 1000);
287.     timeline.setOnFinished(f ->
288.     {
289.         TextEmphasisAnimation scoreEmphasis = new TextEmphasisAnimation(currentScoreLabel, scoreInitialColour, scoreInitialColour, Duration.seconds(0));
290.         scoreEmphasis.play();
291.         levelModel.getFileScoreSoundPlayer().playNextNote();
292.         playButton.setDisable(false);
293.         levelModel.playTiles();
294.         levelModel.resetCombo();
295.         levelModel.setTotalScore(endScore);
296.         levelModel.getFileScoreSoundPlayer().reset();
297.         definitionPopup.setIsDefinitionActive(true);
298.     });
299.     timeline.play();
300. }
301.
302. private void syncLevelWonText()
303. {
304.     if (levelModel.hasWon()){
305.         levelWonLostText.setText("VICTORY ACHIEVED");
306.         TextEmphasisAnimation youWonSequence = new TextEmphasisAnimation(levelWonLostText, Color.YELLOW, Color.BLACK, Duration.seconds(1));
307.         wonSound.replay();
308.         youWonSequence.setOnFinished(e -> levelModel.onWonLevel());
309.         youWonSequence.play();
310.     }
311.     else if (levelModel.hasLost()){
312.         levelWonLostText.setText("YOU DIED");
313.         TextEmphasisAnimation animSequence =
314.             new TextEmphasisAnimation(levelWonLostText, Color.RED, Color.BLACK, Duration.seconds(1));
315.         animSequence.setOnFinished(e -> levelModel.onLostLevel());
316.         animSequence.play();
317.     }
318.     else{
319.         levelWonLostText.setText("");
320.     }
321. }
322.
323. @FXML
324. protected void onSkipButton() { levelModel.getSceneManager().switchScene(GameScene.SHOP); }
325.
326. /**
327. * redraw button opens or cancels the redraw.
328. */
329. @FXML
330. protected void onRedrawButton()
331. {
332.     levelModel.setIsRedrawActive(!levelModel.getIsRedrawActive().get());
333.     levelModel.returnRedrawTilesToTheRack();
334. }
335.
336. /**
337. * Handle redraw confirm button.
338. */
339. @FXML
340. protected void onConfirmRedrawButton() {
341.     levelModel.setIsRedrawActive(!levelModel.getIsRedrawActive().get());
342.     levelModel.redrawTiles();
343. }
344. }

```

LoginController

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
setup(Session, SceneManager)		0%		0%	3	3	17	17	1	1
onSceneChangedToThis()		0%	n/a		1	1	3	3	1	1
onLoginButtonClick()		0%	n/a		1	1	2	2	1	1
onSignupButtonClick()		0%	n/a		1	1	2	2	1	1
LoginController()		0%	n/a		1	1	2	2	1	1
skipLogin()		0%	n/a		1	1	2	2	1	1
lambda\$onSceneChangedToThis\$0(ObservableValue, String, String)		0%	n/a		1	1	1	1	1	1
Total	167 of 167	0%	4 of 4	0%	9	9	29	29	7	7

Created with JaCoCo 0.8.12.202403310830

LoginController.java

```
1. package com.example.project.controllers.gameScreens;
2.
3. import com.example.project.controllers.gameScreens.animations.InfiniteFloatingAnimation;
4. import com.example.project.models.gameScreens.LoginModel;
5. import com.example.project.models.tiles.LetterTileModel;
6. import com.example.project.services.GameScene;
7. import com.example.project.services.PasswordHasher;
8. import com.example.project.controllers.tiles.TileControllerFactory;
9. import com.example.project.services.SceneManager;
10. import com.example.project.services.sqlite.dAOs.UsersDAO;
11. import com.example.project.services.Session;
12. import javafx.fxml.FXML;
13. import javafx.scene.control.Label;
14. import javafx.scene.control.TextField;
15. import javafx.scene.image.Image;
16. import javafx.scene.image.ImageView;
17. import javafx.scene.layout.Pane;
18.
19. import java.util.ArrayList;
20. import java.util.List;
21. import java.util.Objects;
22.
23. /**
24. * Controller for the login scene.
25. */
26. public class LoginController extends GameScreenController
27. {
28.     @FXML
29.     Pane root;
30.
31.     @FXML
32.     Pane titleRow;
33.
34.     @FXML
35.     ImageView imageBG;
36.
37.     @FXML
38.     Pane backgroundContainer;
39.
40.     @FXML
41.     private Label infoText;
42.
43.     @FXML
44.     private TextField usernameTextField;
45.
46.     @FXML
47.     private TextField passwordTextField;
48.
49.     private LoginModel loginModel;
50.     private final TileControllerFactory tileControllerFactory = new TileControllerFactory();
51.
52.     /**
53.      * No arg constructor.
54.     */
55.     public LoginController() { }
56.
57.     @Override
58.     public void onSceneChangedToThis()
59.     {
60.         this.logger.logMessage("Login page loaded.");
61.
62.         loginModel.getWelcomeTextProperty().addListener((obs, oldVal, newVal) ->
63.             this.infoText.setText(newVal));
64.     }
65.
66.     @Override
67.     public void setup(Session session, SceneManager sceneManager)
68.     {
69.         this.loginModel = new LoginModel(session, sceneManager, new UsersDAO(), new PasswordHasher());
70.
71.         var newIm = new Image(Objects.requireNonNull(getClass().getResource("/com/example/project/gameScreens/loginBgImage.jpg")).toExternalForm());
72.         imageBG.setImage(newIm);
73.         imageBG.fitWidthProperty().bind(backgroundContainer.widthProperty());
74.         imageBG.fitHeightProperty().bind(backgroundContainer.heightProperty());
75.
76.         List<LetterTileModel> lettersInWordPlayWord = new ArrayList<>();
77.         var letters = List.of('w', 'o', 'r', 'd', 'p', 'l', 'a', 'y');
78.         for (char letter : letters){
79.             lettersInWordPlayWord.add(new LetterTileModel(letter));
80.         }
81.
82.         for (var t : lettersInWordPlayWord){
83.             var ltController = tileControllerFactory.createLetterTileController(t);
84.             titleRow.getChildren().add(ltController.getRoot());
85.             InfiniteFloatingAnimation fa = new InfiniteFloatingAnimation();
86.             fa.apply(ltController.getRoot(), 4);
87.         }
88.     }
89.
90.     @FXML
91.     protected void onLoginButtonClick()
92.     {
93.         loginModel.onLoginClicked(usernameTextField.getText(), passwordTextField.getText());
94.     }
95.
```

```
96.     @FXML
97.     protected void onSignupButtonClick()
98.     {
99.         this.loginModel.onSignUpClicked(usernameTextField.getText(), passwordTextField.getText());
100.    }
101.
102.    // TODO: remove later
103.    @FXML
104.    private void skipLogin()
105.    {
106.        loginModel.getSceneManager().switchScene(GameScene.LEVEL);
107.    }
108.}
```

Created with JaCoCo 0.8.12.202403310830

MainMenuController

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
setup(Session, SceneManager)		0%		0%	3	3	20	20	1	1
onSceneChangedToThis()		0%		0%	5	5	9	9	1	1
onFastForwardClick()		0%		n/a	1	1	6	6	1	1
MainMenuController()		0%		n/a	1	1	3	3	1	1
updateDailyRewardUI()		0%		0%	2	2	2	2	1	1
onLoadButtonClick()		0%		n/a	1	1	3	3	1	1
onDailyRewardClicked()		0%		n/a	1	1	1	1	1	1
onStartButtonClick()		0%		n/a	1	1	2	2	1	1
onLogoutButtonClick()		0%		n/a	1	1	2	2	1	1
Total	240 of 240	0%	14 of 14	0%	16	16	48	48	9	9

Created with JaCoCo 0.8.12.202403310830

MainMenuController.java

```

1. package com.example.project.controllers.gameScreens;
2.
3. import com.example.project.controllers.gameScreens.animations.InfiniteFloatingAnimation;
4. import com.example.project.controllers.tiles.TileControllerFactory;
5. import com.example.project.models.gameScreens.MainMenuModel;
6. import com.example.project.models.tiles.LetterTileModel;
7. import com.example.project.services.SceneManager;
8. import com.example.project.services.Session;
9. import com.example.project.services.sqlite.dAOs.UsersDAO;
10. import javafx.fxml.FXML;
11. import javafx.scene.image.Image;
12. import javafx.scene.image.ImageView;
13. import javafx.scene.layout.Pane;
14. import java.util.ArrayList;
15. import java.util.List;
16. import java.util.Objects;
17. import com.example.project.services.GameScene;
18. import javafx.scene.control.Button;
19. import javafx.scene.layout.VBox;
20.
21. import java.time.LocalDate;
22.
23. /**
24. * controller for the main menu.
25. */
26. public class MainMenuController extends GameScreenController
27. {
28.
29.     @FXML
30.     Pane root;
31.
32.     @FXML
33.     Pane titleRow;
34.
35.     @FXML
36.     ImageView imageBG;
37.
38.     @FXML
39.     Pane backgroundContainer;
40.
41.     @FXML private Button dailyRewardButton;
42.     @FXML private Button loadButton;
43.
44.     private MainMenuModel mainMenuModel;
45.     private final TileControllerFactory tileControllerFactory = new TileControllerFactory();
46.     private final UsersDAO usersDAO = new UsersDAO();
47.
48. /**
49. * No arg constructor.
50. */
51. public MainMenuController() {}
52.
53. private VBox loadButtonParent;
54.
55. @Override
56. public void onSceneChangedToThis()
57. {
58.     var haveData = this.usersDAO.hasSaveData(this.mainMenuModel.getSession().getUser());
59.     var containsButton = loadButtonParent.getChildrenUnmodifiable().contains(loadButton);
60.     ◆◆ var hideButton = !haveData && containsButton;
61.     ◆◆ if (hideButton) {
62.         loadButtonParent.getChildren().remove(loadButton);
63.     }
64.     ◆◆ else if (!containsButton) {
65.         loadButtonParent.getChildren().add(loadButton);
66.     }
67.
68.     updateDailyRewardUI();
69. }
70.
71. @Override
72. public void setup(Session session, SceneManager sceneManager)
73. {
74.     loadButtonParent = (VBox) this.loadButton.getParent();
75.
76.     this.mainMenuModel = new MainMenuModel(session, sceneManager);
77.
78.     var newIm = new Image(Objects.requireNonNull(getClass().getResource("/com/example/project/gameScreens/loginBgImage.jpg")).toExternalForm());
79.     imageBG.setImage(newIm);
80.     imageBG.fitWidthProperty().bind(backgroundContainer.widthProperty());
81.     imageBG.fitHeightProperty().bind(backgroundContainer.heightProperty());
82.
83.     List<LetterTileModel> lettersInWordPlayWord = new ArrayList<>();
84.     var letters = List.of('w', 'o', 'r', 'd', 'p', 'l', 'a', 'y');
85.     ◆◆ for (char letter : letters){
86.         lettersInWordPlayWord.add(new LetterTileModel(letter));
87.     }
88.
89.     ◆◆ for (var t : lettersInWordPlayWord){
90.         var ltController = tileControllerFactory.createLetterTileController(t);
91.         titleRow.getChildren().add(ltController.getRoot());
92.         InfiniteFloatingAnimation fa = new InfiniteFloatingAnimation();
93.         fa.apply(ltController.getRoot(), 4);
94.     }
95.

```

```

96.     TooltipSetup tooltip = new TooltipSetup();
97.     tooltip.setupTooltip(dailyRewardButton, TooltipSetup.Element.DAILY, mainMenuModel);
98. }
99.
100.
101. @FXML
102. protected void onStartButtonClick()
103. {
104.     mainMenuModel.onStartClicked();
105.
106. @FXML
107. protected void onLoadButtonClick()
108. {
109.     this.mainMenuModel.getSession().load();
110.    this.mainMenuModel.getSceneManager().switchScene(GameScene.LEVEL);
111. }
112.
113. @FXML
114. protected void onLogoutButtonClick()
115. {
116.     mainMenuModel.onLogoutClicked();
117. }
118.
119.
120. @FXML
121. protected void onDailyRewardClicked() { mainMenuModel.getSceneManager().switchScene(GameScene.DAILY_REWARD); }
122.
123. @FXML
124. protected void onFastForwardClick() {
125.     // Fast-forward by clearing reward state and resetting money for testing
126.     var session = mainMenuModel.getSession();
127.     session.setLastRewardDate(LocalDate.now().minusDays(1));
128.     session.resetMoney();
129.     updateDailyRewardUI();
130.
131.     logger.logMessage("Fast forwarded to the next day, to next reward date and reset money.");
132. }
133.
134. /**
135. * Updates the UI for the daily reward button and label.
136. * Hides the button if already claimed today.
137. */
138. private void updateDailyRewardUI()
139. {
140.     dailyRewardButton.setVisible(!mainMenuModel.getSession().hasClaimedRewardToday());
141. }
142.

```

ShopController

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
setup(Session, SceneManager)		0%	n/a	1	1	13	13	1	1	
syncReroll()		0%		0%	2	2	4	4	1	1
save()		0%	n/a	1	1	2	2	1	1	
onRerollPressed()		0%	n/a	1	1	2	2	1	1	
ShopController()		0%	n/a	1	1	1	1	1	1	
lambda\$setup\$1(observableValue, Number, Number)		0%	n/a	1	1	1	1	1	1	
lambda\$setup\$0(observableValue, Number, Number)		0%	n/a	1	1	1	1	1	1	
onSceneChangedToThis()		100%	n/a	0	1	0	6	0	1	
ShopController(ShopModel, UpgradeTileGroup, UpgradeTileGroup, Logger)		100%	n/a	0	1	0	6	0	1	
onUpgradeClicked(UpgradeTileController)		100%	n/a	0	1	0	3	0	1	
onNextLevelPressed()		100%	n/a	0	1	0	2	0	1	
Total	118 of 164	28%	2 of 2	0%	8	12	22	39	7	11

Created with JaCoCo 0.8.12.202403310830

ShopController.java

```

1. package com.example.project.controllers.gameScreens;
2.
3. import com.example.project.models.tileGroups.UpgradeTileGroup;
4. import com.example.project.controllers.tiles.UpgradeTileController;
5. import com.example.project.models.gameScreens.ShopModel;
6. import com.example.project.services.*;
7. import javafx.fxml.FXML;
8. import javafx.scene.control.Button;
9. import javafx.scene.layout.HBox;
10. import javafx.scene.layout.Pane;
11. import javafx.scene.layout.StackPane;
12.
13. /**
14. * Shop view controller.
15. */
16. public class ShopController extends GameScreenController
17. {
18.     @FXML private Button rerollButton;
19.     @FXML private Pane root;
20.     @FXML private HBox shopItemsContainer;
21.     @FXML private HBox playersUpgradesContainer;
22.     @FXML private StackPane sidebar;
23.
24.     private ShopModel shopModel;
25.     private UpgradeTileGroup playersUpgrades;
26.     private UpgradeTileGroup shopItemsGroup;
27.
28.     /**
29.      * no arg constructor.
30.     */
31.     public ShopController() { }
32.
33.     /**
34.      * protected constructor for unit testing with mock model injection.
35.     */
36.     protected ShopController(ShopModel model, UpgradeTileGroup players, UpgradeTileGroup shopItems, Logger logger) {
37.         super();
38.         this.logger = logger;
39.         this.shopModel = model;
40.         this.playersUpgrades = players;
41.         this.shopItemsGroup = shopItems;
42.     }
43.
44.     @Override
45.     public void setup(Session session, SceneManager sceneManager)
46.     {
47.         this.shopModel = new ShopModel(session, sceneManager);
48.
49.         playersUpgrades = new UpgradeTileGroup(playersUpgradesContainer, shopModel.getSession().getPlayersUpgradesProperty());
50.         shopItemsGroup = new UpgradeTileGroup(shopItemsContainer, shopModel.getCurrentShopItemsProperty(),
51.             this::onUpgradeClicked);
52.
53.         var loadedSidebar = this.loadSidebar();
54.         var sidebarNode = ((StackPane) loadedSidebar.node());
55.         this.sidebar.getChildren().add(sidebarNode);
56.         SidebarController sidebarController = loadedSidebar.controller();
57.         sidebarController.bindPersistentInfo(session);
58.         sidebarController.hideLevelInfo();
59.
60.         this.shopModel.getRerollCostProperty().addListener((obs, oldStr, newStr) -> syncReroll());
61.         this.shopModel.getSession().getMoneyProperty().addListener((obs, oldStr, newStr) -> syncReroll());
62.         syncReroll();
63.     }
64.
65.     @Override
66.     public void onSceneChangedToThis()
67.     {
68.         this.logger.logMessage("Scene changed to shop");
69.         shopModel.regenerateShopItems();
70.         shopModel.getSession().resetPlaysRedraws();
71.         playersUpgrades.syncTiles();
72.         shopItemsGroup.syncTiles();
73.     }
74.
75.     private void syncReroll()
76.     {
77.         var rerollCost = this.shopModel.getRerollCostProperty().get();
78.         rerollButton.setDisable(rerollCost > this.shopModel.getSession().getMoneyProperty().get());
79.         rerollButton.setText(String.format("Reroll ($%d)", rerollCost));
80.     }
81.

```

```
82. /**
83. *
84. * @param controller upgrade tile ui element clicked on.
85. */
86. protected void onUpgradeClicked(UpgradeTileController controller)
87. {
88.     var model = controller.getModel();
89.     shopModel.tryPurchase(model);
90. }
91.
92. @FXML
93. protected void onNextLevelPressed()
94. {
95.     this.shopModel.onNextLevelPressed();
96. }
97.
98. @FXML
99. protected void onRerollPressed()
100. {
101.     this.shopModel.reroll();
102. }
103.
104. @FXML
105. protected void save()
106. {
107.     this.shopModel.getSession().Save();
108. }
109. }
```

SidebarController

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
setupProperties(LevelModel)		0%		n/a	1	1	10	10	1	1
bindPersistentInfo(Session)		0%		n/a	1	1	10	10	1	1
syncScoreToBeat()		0%		n/a	1	1	2	2	1	1
syncMoney()		0%		n/a	1	1	2	2	1	1
hideLevelInfo()		0%		n/a	1	1	4	4	1	1
syncwordMultiProperty(Number)		0%		n/a	1	1	2	2	1	1
syncwordPointsProperty(Number)		0%		n/a	1	1	2	2	1	1
syncTotalScoreProperty(Number)		0%		n/a	1	1	2	2	1	1
syncPlaysCount()		0%		n/a	1	1	2	2	1	1
syncRedrawsCount()		0%		n/a	1	1	2	2	1	1
lambda\$setupProperties\$6(ObservableValue, Number, Number)		0%		n/a	1	1	1	1	1	1
lambda\$setupProperties\$5(ObservableValue, Number, Number)		0%		n/a	1	1	1	1	1	1
lambda\$setupProperties\$4(ObservableValue, Number, Number)		0%		n/a	1	1	1	1	1	1
SidebarController()		0%		n/a	1	1	1	1	1	1
getComboLabel()		0%		n/a	1	1	1	1	1	1
getRawPointsLabel()		0%		n/a	1	1	1	1	1	1
getCurrentScoreLabel()		0%		n/a	1	1	1	1	1	1
getmultiplierLabel()		0%		n/a	1	1	1	1	1	1
lambda\$setupProperties\$7(ObservableValue, Number, Number)		0%		n/a	1	1	1	1	1	1
lambda\$bindPersistentInfo\$3(ObservableValue, Number, Number)		0%		n/a	1	1	1	1	1	1
lambda\$bindPersistentInfo\$2(ObservableValue, Number, Number)		0%		n/a	1	1	1	1	1	1
lambda\$bindPersistentInfo\$1(ObservableValue, Number, Number)		0%		n/a	1	1	1	1	1	1
lambda\$bindPersistentInfo\$0(ObservableValue, Number, Number)		0%		n/a	1	1	1	1	1	1
Total	225 of 225	0%	0 of 0	n/a	23	23	43	43	23	23

ConfettiAnimation.java

```
1. package com.example.project.controllers.gameScreens.animations;
2.
3. import javafx.scene.layout.Pane;
4. import javafx.scene.paint.Color;
5. import javafx.scene.shape.Rectangle;
6. import javafx.util.Duration;
7.
8. import java.util.Random;
9.
10. /**
11.  * class to play confetti animation.
12. */
13. public class ConfettiAnimation
14. {
15.     /**
16.      * play animation.
17.      * @param confettiLayer pane to play confetti on.
18.      */
19.     public static void playConfetti(Pane confettiLayer)
20.     {
21.         confettiLayer.getChildren().clear();
22.         Random rand = new Random();
23.         for (int i = 0; i < 75; i++) {
24.             Rectangle confetti = new Rectangle(6, 12);
25.             confetti.setFill(Color.hsb(rand.nextInt(360), 1.0, 1.0));
26.             confetti.setLayoutX(confettiLayer.getWidth() / 2);
27.             confetti.setLayoutY(confettiLayer.getHeight() / 2);

28.             var drop = new javafx.animation.TranslateTransition(Duration.seconds(1 + rand.nextDouble()), confetti);
29.             drop.setByX(rand.nextDouble() * 400 - 200);
30.             drop.setByY(rand.nextDouble() * 400 - 100);
31.             drop.setCycleCount(1);
32.             confettiLayer.getChildren().add(confetti);
33.             drop.play();
34.         }
35.     }
36. }
```

SidebarController.java

```
1. package com.example.project.controllers.gameScreens;
2.
3. import com.example.project.models.gameScreens.LevelModel;
4. import com.example.project.services.Session;
5. import javafx.fxml.FXML;
6. import javafx.scene.control.Label;
7. import javafx.scene.layout.Pane;
8.
9. /**
10. * The sidebar on shop and level with the current round info.
11. */
12. public class SidebarController
13. {
14.     @FXML
15.     Pane root;
16.
17.     /**
18.      * This runs after the constructor and after all @FXML fields are initialized once each time application opened.
19.      */
20.     @FXML
21.     private Label moneyLabel;
22.
23.     @FXML private Label playsLeftLabel;
24.
25.     @FXML private Label redrawsLeftLabel;
26.
27.     @FXML Label scoreToBeatLabel;
28.     @FXML Label currentScoreLabel;
29.     @FXML Label rawPoints;
30.     @FXML Label multiplier;
31.     @FXML private Label ScoreAtLeastText;
32.     @FXML private Pane playersScoreContainer;
33.     @FXML private Pane wordScoreContainer;
34.
35.     private Session session;
36.
37.     /**
38.      * Binds things used in multiple screens, money, redraws plays.
39.      * @param session session.
40.      */
41.     public void bindPersistentInfo(Session session)
42.     {
43.         this.session = session;
44.
45.         this.session.getMoneyProperty().addListener((obs, oldVal, newVal) -> syncMoney());
46.         this.session.getCurrentPlays().addListener((obs, oldVal, newVal) -> syncPlaysCount());
47.         this.session.getCurrentRedraws().addListener((obs, oldVal, newVal) -> syncRedrawsCount());
48.         this.session.getLevelRequirement().addListener((obs, oldVal, newVal) -> syncScoreToBeat());
49.
50.         // TODO get tooltip setup to work with sidebar containers
51.
52.         syncPlaysCount();
53.         syncRedrawsCount();
54.         syncMoney();
55.         syncScoreToBeat();
56.     }
57.
58.     /**
59.      * Only show things relevant to upgrades or the shop. Money, redraws, plays.
60.      */
61.     public void hideLevelInfo()
62.     {
63.         playersScoreContainer.visibleProperty().set(false);
64.         wordScoreContainer.visibleProperty().set(false);
65.         ScoreAtLeastText.setText("Next level");
66.     }
67.
68.     /**
69.      * Returns combo label.
70.      * @return combo label.
71.      */
72.     public Label getComboLabel(){
73.         return this.multiplier;
74.     }
75.
76.     /**
77.      * Setup sync able properties.
78.      * @param levelModel level model.
```

```

79. */
80. public void setupProperties(LevelModel levelModel)
81. {
82.     // Binds the money display to Session money property for automatic updates
83.     bindPersistentInfo(levelModel.getSession());
84.     levelModel.wordPointsProperty().addListener((obs, oldVal, newVal) -> syncwordPointsProperty(newVal));
85.     levelModel.wordMultiProperty().addListener((obs, oldVal, newVal) -> syncwordMultiProperty(newVal));
86.     levelModel.getPlayersTotalPoints().addListener((obs, oldVal, newVal) -> syncTotalScoreProperty(newVal));
87.     levelModel.getSession().getLevelRequirement().addListener((obs, oldVal, newVal) -> syncScoreToBeat());
88.
89.     syncwordPointsProperty(levelModel.wordPointsProperty().get());
90.     syncwordMultiProperty(levelModel.wordMultiProperty().get());
91.     syncTotalScoreProperty(levelModel.getPlayersTotalPoints().get());
92.     syncScoreToBeat();
93. }
94.
95. private void syncScoreToBeat(){
96.     scoreToBeatLabel.setText(String.format("%s", this.session.getLevelRequirement().get()));
97. }
98.
99. private void syncMoney(){
100. {
101.     moneyLabel.setText(String.format("Funds: $%.2f", this.session.getMoneyProperty().get()));
102. }
103.
104. private void syncPlaysCount(){
105.     playsLeftLabel.setText(String.valueOf(this.session.getCurrentPlays().get()));
106. }
107.
108. private void syncRedrawsCount(){
109.     redrawsLeftLabel.setText(String.valueOf(this.session.getCurrentRedraws().get()));
110. }
111.
112. /**
113. * raw points label to be multiplied by multiplier.
114. * @return label.
115. */
116. public Label getRawPointsLabel(){
117.     return this.rawPoints;
118. }
119.
120. /**
121. * current score label.
122. * @return label.
123. */
124. public Label getCurrentScoreLabel(){
125.     return this.currentScoreLabel;
126. }
127.
128. /**
129. * word score multiplier label.
130. * @return label.
131. */
132. public Label getmultiplierLabel(){
133.     return this.multiplier;
134. }
135.
136. private void syncwordMultiProperty(Number newVal)
137. {
138.     this.multiplier.setText(String.format("%s", newVal));
139. }
140.
141. private void syncwordPointsProperty(Number newVal)
142. {
143.     this.rawPoints.setText(String.format("%s", newVal));
144. }
145.
146. private void syncTotalScoreProperty(Number newVal)
147. {
148.     this.currentScoreLabel.setText(String.format("%s", newVal));
149. }
150. }

```

TooltipSetup.Element

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
static {...}	0%		n/a		1	1	6	6	1	1
Total	33 of 33	0%	0 of 0	n/a	1	1	6	6	1	1

Created with JaCoCo 0.8.12.202403310830

TooltipSetup

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
createTooltipContainer()		0%		n/a	1	1	9	9	1	1
createUpgradeGraphic(VBox, Object)		0%		0%	2	2	8	8	1	1
createStyledLabel(String, Color, Color)		0%		n/a	1	1	6	6	1	1
setTooltipContent(TooltipSetup.Element, Object)		0%		0%	6	6	9	9	1	1
setupTooltip(Node, TooltipSetup.Element, Object)		0%		n/a	1	1	8	8	1	1
createTooltipGraphic(VBox, String)		0%		n/a	1	1	5	5	1	1
TooltipSetup()		0%		n/a	1	1	1	1	1	1
Total	259 of 259	0%	8 of 8	0%	13	13	46	46	7	7

Created with JaCoCo 0.8.12.202403310830

TooltipSetup.java

```

1. package com.example.project.controllers.gameScreens;
2.
3. import com.example.project.models.tiles.UpgradeTileModel;
4. import javafx.geometry.Insets;
5. import javafx.geometry.Pos;
6. import javafx.scene.Node;
7. import javafx.scene.control.Tooltip;
8. import javafx.scene.control.Label;
9. import javafx.scene.layout.*;
10. import javafx.scene.paint.Color;
11. import javafx.util.Duration;
12.
13. /**
14. * sets a tooltip for desired element
15. */
16. public class TooltipSetup {
17.
18.     /**
19.      * different types of elements that require a tooltip
20.      */
21.     public enum Element {
22.         /**
23.          * tooltip for upgrade tiles
24.          */
25.         UPGRADE,
26.         /**
27.          * tooltip for daily rewards
28.          */
29.         DAILY,
30.         /**
31.          * tooltip for target score label
32.          */
33.         SCORETOBEAT,
34.         /**
35.          * tooltip for round score label
36.          */
37.         ROUNDSCORE,
38.         /**
39.          * tooltip for game funds label
40.          */
41.         FUNDS,
42.
43.     }
44.
45.     /**
46.      * @param node Node to attach tooltip to
47.      * @param element Element type
48.      * @param model Model associated with element
49.     */
50.     public void setupTooltip(Node node, Element element, Object model) {
51.         Node content = setTooltipContent(element, model);
52.
53.         // default constructor with empty string
54.         Tooltip tooltip = new Tooltip("");
55.
56.         // Set the custom graphic content
57.         tooltip.setGraphic(content);
58.
59.         tooltip.setPrefWidth(200);
60.         tooltip.setStyle("-fx-padding: 0;");
61.         tooltip.setShowDelay(Duration.seconds(0));
62.
63.         Tooltip.install(node, tooltip);
64.
65.     }
66.
67.     private Node setTooltipContent(Element element, Object model) {
68.
69.         VBox container = createTooltipContainer();
70.
71.         ◆◆ return switch (element) {
72.             case UPGRADE -> createUpgradeGraphic(container, model);
73.             case DAILY -> createTooltipGraphic(container, "Spin the wheel for your daily reward!");
74.             case SCORETOBEAT -> createTooltipGraphic(container, "The score you must reach before the number of plays run out! Be sure not to spend all of your redraws if you want some $$!");
75.             case ROUNDSCORE -> createTooltipGraphic(container, "The score you get after you play a word.");
76.             case FUNDS -> createTooltipGraphic(container, "How much $$$ you have. You earn more based on how many redraws you have left after winning!");
77.             default -> {
78.                 String description = "no description";
79.                 yield createTooltipGraphic(container, description);
80.             }
81.         };
82.     }
83.
84.     private VBox createTooltipContainer() {
85.         VBox container = new VBox(3); // 5 is the spacing between labels
86.         container.setPadding(new Insets(5));
87.
88.         container.setAlignment(Pos.TOP_CENTER);
89.
90.         container.setMaxSize(VBox.USE_PREF_SIZE, VBox.USE_PREF_SIZE);
91.
92.         Color bgColor = Color.color(1.0, 1.0, 1.0, 0.1);
93.         Color borderColor = Color.WHITE;
94.
95.         container.setBackground(new Background(new BackgroundFill(bgColor, new CornerRadii(6), Insets.EMPTY)));
96.         container.setBorder(new Border(new BorderStroke(
97.             borderColor,
98.             BorderStrokeStyle.SOLID,
99.             new CornerRadii(6),
100.            new BorderWidths(2) // 2px white border
101.        )));
102.         return container;
103.     }
104.
105.     private Node createTooltipGraphic(VBox container, String description) {
106.
107.         Label descriptionLabel = createStyledLabel(description, Color.web("#d9d8c7"), Color.BLACK);
108.
109.         descriptionLabel.setWrapText(true);
110.
111.         descriptionLabel.setPrefWidth(180);
112.
113.         container.getChildren().addAll(descriptionLabel);
114.         return container;
115.     }
116.
117.     private Node createUpgradeGraphic(VBox container, Object model) {
118.         if (!(model instanceof UpgradeTileModel upgradeModel)) {
119.             return new Label("Error: Invalid model type or missing data.");
120.         }
121.
122.         Label nameLabel = createStyledLabel(upgradeModel.getName(), Color.web("#9f1124"), Color.WHITE);
123.     }

```

```
124.         container.getChildren().add(nameLabel);
125.
126.         createTooltipGraphic(container, upgradeModel.getDescription());
127.
128.         Label costLabel = createStyledLabel(String.format("Cost: %.2f", upgradeModel.getCost()), Color.web("#f98c3f"), Color.WHITE);
129.
130.         container.getChildren().add(costLabel);
131.
132.         return container;
133.     }
134.
135.     private Label createStyledLabel(String text, Color bgColor, Color txtColor) {
136.         Label label = new Label(text);
137.         label.setTextFill(txtColor);
138.
139.         label.setBackground(new Background(new BackgroundFill(bgColor, new CornerRadii(4), Insets.EMPTY)));
140.         label.setPadding(new Insets(2, 8, 2, 8));
141.
142.         label.setStyle("-fx-font-family: 'Inter'; -fx-font-weight: bold; -fx-font-size: 14px;");
143.
144.         return label;
145.     }
146. }
```

Created with JaCoCo 0.8.12.202403310830

com.example.project.controllers.gameScreens

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods	Missed	Classes
C LevelController		6%		3%	53	57	165	177	26	30	0	1
C TooltipSetup		0%		0%	13	13	46	46	7	7	1	1
C MainMenuController		0%		0%	16	16	48	48	9	9	1	1
C SidebarController		0%		n/a	23	23	43	43	23	23	1	1
C LoginController		0%		0%	9	9	29	29	7	7	1	1
C GameScreenFactory		0%		0%	6	6	30	30	4	4	1	1
C DailyRewardController		0%		0%	11	11	37	37	7	7	1	1
C ShopController		28%		0%	8	12	22	39	7	11	0	1
C TooltipSetup.Element		0%		n/a	1	1	6	6	1	1	1	1
C GameScreenController		20%		n/a	1	2	9	11	1	2	0	1
C GameScreenController.SidebarLoaded		0%		n/a	1	1	1	1	1	1	1	1
Total	2,127 of 2,236	4%	91 of 93	2%	142	151	436	467	93	102	8	11

Created with JaCoCo 0.8.12.202403310830

com.example.project.controllers.gameScreens

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods	Missed	Classes
LevelController.java		6%		3%	53	57	165	177	26	30	0	1
TooltipSetup.java		0%		0%	14	14	52	52	8	8	2	2
MainMenuController.java		0%		0%	16	16	48	48	9	9	1	1
SidebarController.java		0%		n/a	23	23	43	43	23	23	1	1
LoginController.java		0%		0%	9	9	29	29	7	7	1	1
GameScreenFactory.java		0%		0%	6	6	30	30	4	4	1	1
DailyRewardController.java		0%		0%	11	11	37	37	7	7	1	1
ShopController.java		28%		0%	8	12	22	39	7	11	0	1
GameScreenController.java		16%		n/a	2	3	10	12	2	3	1	2
Total	2,127 of 2,236	4%	91 of 93	2%	142	151	436	467	93	102	8	11

Created with JaCoCo 0.8.12.202403310830

DefinitionController

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
syncwordProperty(String)		0%		0%	3	3	14	14	1	1
initialize(DefinitionPopup)		0%		n/a	1	1	5	5	1	1
syncDefinitionProperty(String)		0%		n/a	1	1	2	2	1	1
DefinitionController()		0%		n/a	1	1	2	2	1	1
getModel()		0%		n/a	1	1	1	1	1	1
lambda\$initialize\$1(ObservableValue, String, String)		0%		n/a	1	1	1	1	1	1
lambda\$initialize\$0(ObservableValue, String, String)		0%		n/a	1	1	1	1	1	1
getStack()		0%		n/a	1	1	1	1	1	1
Total	139 of 139	0%	4 of 4	0%	10	10	25	25	8	8

Created with JaCoCo 0.8.12.202403310830

DefinitionController.java

```
1. package com.example.project.controllers.popupControllers;
2.
3. import com.example.project.controllers.gameScreens.animations.InfiniteFloatingAnimation;
4. import com.example.project.controllers.tiles.TileControllerFactory;
5. import com.example.project.models.tiles.LetterTileModel;
6. import javafx.fxml.FXML;
7. import javafx.scene.image.ImageView;
8. import javafx.scene.control.Label;
9. import javafx.scene.layout.Pane;
10. import javafx.scene.Node;
11. import javafx.scene.layout.StackPane;
12. import com.example.project.models.popups.DefinitionPopup;
13. import java.util.ArrayList;
14. import java.util.List;
15.
16.
17. /**
18. * Controller for definition popup
19. */
20. public class DefinitionController extends PopupController<DefinitionPopup>
21. {
22.     @FXML
23.     private StackPane defStack;
24.
25.     @FXML
26.     Pane wordRow;
27.
28.     @FXML
29.     Label definitionLabel;
30.
31.     @FXML
32.     ImageView definitionImage;
33.
34.     /**
35.      * @return returns Node
36.     */
37.     public Node getStack() { return defStack; }
38.
39.     public DefinitionPopup getModel(){
40.         return model;
41.     }
42.
43.     private final TileControllerFactory tileControllerFactory = new TileControllerFactory();
44.
45.     @Override
46.     public void initialize(DefinitionPopup model)
47.     {
48.         this.model = model;
49.         wordRow.setMouseTransparent(true);
50.         model.definitionProperty().addListener((obs, oldStr, newStr) -> syncDefinitionProperty(newStr));
51.         model.wordProperty().addListener((obs, oldStr, newStr) -> syncwordProperty(newStr));
52.     }
53.
54.     private void syncDefinitionProperty(String newStr){
55.         this.definitionLabel.setText(String.format("%s", newStr));
56.     }
57.
58.     private void syncwordProperty(String newStr){
59.         // TODO: turn this into a reusable external function (same used in LoginController)
60.         wordRow.getChildren().clear();
61.         List<LetterTileModel> lettersInWordPlayed = new ArrayList<>();
62.         char[] charArray = newStr.toCharArray();
63.
64.         for (char letter : charArray){
65.             lettersInWordPlayed.add(new LetterTileModel(letter));
66.         }
67.
68.         for (var t : lettersInWordPlayed){
69.             var ltController = tileControllerFactory.createLetterTileController(t);
70.             ltController.getRoot().setScaleX(-(wordRow.getMaxWidth()/1.5));
71.             ltController.getRoot().setScaleY(-(wordRow.getMaxWidth()/1.5));
72.             wordRow.getChildren().add(ltController.getRoot());
73.             InfiniteFloatingAnimation fa = new InfiniteFloatingAnimation();
74.             fa.apply(ltController.getRoot(), 4);
75.         }
76.     }
77.
78. }
```


PopupController

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
PopupController()	0%		n/a		1	1	1	1	1	1
getModel()	0%		n/a		1	1	1	1	1	1
Total	6 of 6	0%	0 of 0	n/a	2	2	2	2	2	2

Created with JaCoCo 0.8.12.202403310830

PopupController.java

```
1. package com.example.project.controllers.popupControllers;
2.
3. import com.example.project.models.popups.PopupModel;
4. import javafx.fxml.FXML;
5. import javafx.scene.Node;
6.
7. /**
8. * Parent class for PopupControllers
9. * @param <P> Popup model type
10.*/
11. public abstract class PopupController<P extends PopupModel>
12. {
13.     /**
14.      * root ui node.
15.      * @return root ui Node
16.      */
17.     public abstract Node getStack();
18.
19.     /**
20.      * sets elements of the ui
21.      * @param popup popup to initialize
22.      */
23.     @FXML
24.     public abstract void initialize(P popup);
25.
26.     protected P model;
27.
28.     /**
29.      * gets the popup model.
30.      * @return model.
31.      */
32.     public P getModel()
33.     {
34.         return this.model;
35.     }
36. }
```

InfiniteFloatingAnimation

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
moveToRandom(Node, double, double)		0%	n/a	1	1	10	10	1	1	
InfiniteFloatingAnimation()		0%	n/a	1	1	2	2	1	1	
apply(Node, double)		0%	n/a	1	1	2	2	1	1	
lambda\$moveToRandom\$0(Node, double, double, ActionEvent)		0%	n/a	1	1	1	1	1	1	
Total	68 of 68	0%	0 of 0	n/a	4	4	14	14	4	4

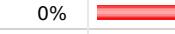
Created with JaCoCo 0.8.12.202403310830

com.example.project.controllers.popupControllers

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods	Missed	Classes
DefinitionController	 0%	0%		0%	10	10	25	25	8	8	1	1
PopupController	 0%	0%	n/a	n/a	2	2	2	2	2	2	1	1
Total	145 of 145	0%	4 of 4	0%	12	12	27	27	10	10	2	2

Created with JaCoCo 0.8.12.202403310830

com.example.project.controllers.popupControllers

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods	Missed	Classes
DefinitionController.java	 0%	 0%	10	10	25	25	8	8	1	1		
PopupController.java	 0%	n/a	2	2	2	2	2	2	1	1		
Total	145 of 145	0%	4 of 4	0%	12	12	27	27	10	10	2	2

Created with JaCoCo 0.8.12.202403310830

EmptyTileSlotController

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
setLetter(LetterTileController)	100%	100%	100%	100%	0	3	0	6	0	1
updateView()	100%	100%	100%	100%	0	2	0	4	0	1
bind(EmptyTileSlotModel)	100%	100%		n/a	0	1	0	2	0	1
EmptyTileSlotController()	100%	100%		n/a	0	1	0	1	0	1
getRoot()	100%	100%		n/a	0	1	0	1	0	1
Total	0 of 50	100%	0 of 6	100%	0	8	0	14	0	5

Created with JaCoCo 0.8.12.202403310830

EmptyTileSlotController.java

```
1. package com.example.project.controllers.tiles;
2.
3. import com.example.project.models.tiles.EmptyTileSlotModel;
4. import javafx.fxml.FXML;
5. import javafx.scene.Node;
6. import javafx.scene.layout.StackPane;
7.
8. /**
9. * Empty Tile controller for EmptyTile view.
10.*/
11. public class EmptyTileSlotController extends TileController<EmptyTileSlotModel>
12. {
13.     @FXML
14.     protected StackPane root;
15.
16.     @FXML
17.     protected StackPane slotForLetterTile;
18.
19.     public void bind(EmptyTileSlotModel modelToUse)
20.     {
21.         this.model = modelToUse;
22.     }
23.
24.     private LetterTileController letterTileController;
25.
26.     public Node getRoot()
27.     {
28.         return root;
29.     }
30.
31.     /**
32.      * updates the tile slot with a new letter tile controller.
33.      * @param letterController the letter tiles controller.
34.      */
35.     public void setLetter(LetterTileController letterController)
36.     {
37.         if (this.model == null){
38.             throw new RuntimeException("model was null. call bind first.");
39.         }
40.
41.         this.model.setTile(letterController == null ? null : letterController.getModel());
42.         letterTileController = letterController;
43.         updateView();
44.     }
45.
46.     private void updateView()
47.     {
48.         slotForLetterTile.getChildren().clear();
49.
50.         if (this.letterTileController != null){
51.             slotForLetterTile.getChildren().add(this.letterTileController.getRoot());
52.         }
53.     }
54. }
```

LetterTileController

Element	Missed Instructions Cov.	Missed Branches Cov.	Missed Cxts	Missed Lines	Missed Methods
bind(LetterTileModel)	0%	n/a	1 1	10 10	1 1
getModel()	0%	n/a	1 1	1 1	1 1
LetterTileController()	0%	n/a	1 1	1 1	1 1
getRoot()	0%	n/a	1 1	1 1	1 1
Total	54 of 54	0% 0 of 0	n/a	4 4	13 13

Created with JaCoCo 0.8.12.202403310830

LetterTileController.java

```
1. package com.example.project.controllers.tiles;
2.
3. import com.example.project.models.tiles.LetterTileModel;
4. import javafx.fxml.FXML;
5. import javafx.scene.CacheHint;
6. import javafx.scene.Node;
7. import javafx.scene.control.Label;
8. import javafx.scene.image.ImageView;
9. import javafx.scene.layout.StackPane;
10.
11. /**
12. * Controls the layout of the letterUIModel. Which is a letter tile.
13. */
14. public class LetterTileController extends TileController<LetterTileModel>
15. {
16.     @FXML
17.     private StackPane root;
18.
19.     @FXML
20.     ImageView tileImage;
21.
22.     @FXML
23.     Label letterLabel;
24.
25.     @FXML
26.     Label valueLabel;
27.
28.     public Node getRoot()
29.     {
30.         return root;
31.     }
32.
33.     public LetterTileModel getModel(){
34.         return model;
35.     }
36.
37.     @Override
38.     public void bind(LetterTileModel tile)
39.     {
40.         this.model = tile;
41.         letterLabel.setText(String.valueOf(model.getLetter()));
42.         valueLabel.setText(String.valueOf(model.getValue()));
43.
44.         letterLabel.setCache(true);
45.         letterLabel.setCacheHint(CacheHint.QUALITY);
46.
47.         valueLabel.setCache(true);
48.         valueLabel.setCacheHint(CacheHint.QUALITY);
49.
50.         tileImage.setCache(true);
51.         tileImage.setCacheHint(CacheHint.QUALITY);
52.     }
53. }
```

TileController

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
setModel(TileModel)	100%		n/a		0	1	0	2	0	1
TileController()	100%		n/a		0	1	0	1	0	1
getModel()	100%		n/a		0	1	0	1	0	1
Total	0 of 10	100%	0 of 0	n/a	0	3	0	4	0	3

Created with JaCoCo 0.8.12.202403310830

TileController.java

```
1. package com.example.project.controllers.tiles;
2.
3. import com.example.project.models.tiles.TileModel;
4. import javafx.scene.Node;
5.
6. /**
7.  * Parent class of TileControllers.
8.  * @param <T> tile model type.
9. */
10. public abstract class TileController<T extends TileModel>
11. {
12.     /**
13.      * root ui node.
14.      * @return root ui Node
15.      */
16.     public abstract Node getRoot();
17.
18.     /**
19.      * Binds tile to the controller as its model.
20.      * @param tile tile to bind.
21.      */
22.     public abstract void bind(T tile);
23.
24.     /**
25.      * Set the model this controller will observe.
26.      * @param tile tile model class.
27.      */
28.     public void setModel(T tile){
29.         model = tile;
30.     }
31.
32.     protected T model;
33.
34.     /**
35.      * gets the tile model.
36.      * @return model.
37.      */
38.     public T getModel()
39.     {
40.         return this.model;
41.     }
42. }
```

TileControllerFactory

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
lambda\$createLetterTileController\$3(LetterTileController)		0%	n/a	1	1	1	1	1	1	1
createTileController(TileModel, Class)		100%		100%	0	4	0	6	0	1
createGenericTileController(TileModel)		100%	n/a	0	1	0	8	0	0	1
createUpgradeTileController(UpgradeTileModel)		100%	n/a	0	1	0	4	0	0	1
createLetterTileController(LetterTileModel)		100%	n/a	0	1	0	4	0	0	1
TileControllerFactory(FXMLLoaderPageLoader)		100%	n/a	0	1	0	4	0	0	1
addHoverEffects(Node, Runnable)		100%	n/a	0	1	0	3	0	0	1
lambda\$addHoverEffects\$0(Node, Runnable, MouseEvent)		100%	n/a	0	1	0	4	0	0	1
TileControllerFactory()		100%	n/a	0	1	0	2	0	0	1
lambda\$addHoverEffects\$1(Node, MouseEvent)		100%	n/a	0	1	0	3	0	0	1
lambda\$createUpgradeTileController\$2(UpgradeTileController)		100%	n/a	0	1	0	1	0	0	1
createEmptyTileController(EmptyTileSlotModel)		100%	n/a	0	1	0	1	0	0	1
Total	5 of 167	97%	0 of 4	100%	1	15	0	38	1	12

Created with JaCoCo 0.8.12.202403310830

TileControllerFactory.java

```
1. package com.example.project.controllers.tiles;
2.
3. import com.example.project.models.tiles.EmptyTileSlotModel;
4. import com.example.project.models.tiles.LetterTileModel;
5. import com.example.project.models.tiles.TileModel;
6. import com.example.project.models.tiles.UpgradeTileModel;
7. import com.example.project.services.FXMLPageLoader;
8. import javafx.scene.Node;
9.
10. import java.io.IOException;
11.
12. /**
13.  * class to load the tile model controller for that tile model type.
14. */
15. public class TileControllerFactory
16. {
17.     private FXMLPageLoader loader = new FXMLPageLoader();
18.
19.     /**
20.      * Creates instance of {@link TileControllerFactory}.
21.     */
22.     public TileControllerFactory() {}
23.
24.     protected TileControllerFactory(FXMLPageLoader loader)
25.     {
26.         this.loader = loader;
27.     }
28.
29.     /**
30.      * create tile controller.
31.      * @param tileObject tile object.
32.      * @param <C> class of tile controller.
33.      * @param <T> class of tile.
34.      * @return returns controller of the tile.
35.     */
36.     private <C extends TileController<T>, T extends TileModel> C createGenericTileController(T tileObject)
37.     {
38.         try
39.         {
40.             String fxmlPath = tileObject.getFXMLPath();
41.             loader.load(fxmlPath);
42.             C controller = loader.getController();
43.             controller.setModel(tileObject);
44.             controller.bind(tileObject);
45.             return controller;
46.         } catch (IOException e) {
47.             throw new RuntimeException("Failed to create tile controller: " + tileObject.getFXMLPath(), e);
48.         }
49.     }
50.
51.     private void addHoverEffects(Node pane, Runnable onEnter)
52.     {
53.         pane.setOnMouseEntered(e -> {
54.             pane.setScaleX(1.1);
55.             pane.setScaleY(1.1);
56.             onEnter.run();
57.         });
58.         pane.setOnMouseExited(e -> {
59.             pane.setScaleX(1.0);
60.             pane.setScaleY(1.0);
61.         });
62.     }
63.
64.     /**
65.      * @param upgradeTile upgrade tile model.
66.      * @return new upgrade tile controller.
67.     */
68.     private UpgradeTileController createUpgradeTileController(UpgradeTileModel upgradeTile)
69.     {
70.         UpgradeTileController upgradeTileController = createGenericTileController(upgradeTile);
71.         var pane = upgradeTileController.getRoot();
72.         addHoverEffects(pane, () -> upgradeTileController.getModel().getHoverSoundPlayer().replay());
73.         return upgradeTileController;
74.     }
75.
76.     /**
77.      * Returns controller of type.
78.      * @param tile tile model.
```

```
79.     * @param controllerType controller type.
80.     * @return return controller.
81.     * @param <C> controller type.
82.     * @param <T> tile type.
83.     */
84.     public <C extends TileController<T>, T extends TileModel> C createTileController(T tile, Class<C> controllerType)
85.     {
86.         var controller = switch (tile)
87.         {
88.             case UpgradeTileModel upgradeTileModel -> createUpgradeTileController(upgradeTileModel);
89.             case LetterTileModel letterTile -> createLetterTileController(letterTile);
90.             case EmptyTileSlotModel emptyTileSlotModel -> createEmptyTileController(emptyTileSlotModel);
91.             default -> throw new IllegalArgumentException("Unsupported tile type: " + tile.getClass());
92.         };
93.
94.         return controllerType.cast(controller);
95.     }
96.
97.     /**
98.      * @param lt letter tile model.
99.      * @return returns letter tile controller.
100.     */
101.    public LetterTileController createLetterTileController(LetterTileModel lt)
102.    {
103.        LetterTileController controller = createGenericTileController(lt);
104.        var pane = controller.getRoot();
105.        addHoverEffects(pane, () -> controller.getModel().getHoverSoundPlayer().replay());
106.        return controller;
107.    }
108.
109.    /**
110.     * @param emptyTile empty tile model.
111.     * @return returns empty tile controller.
112.     */
113.    private EmptyTileSlotController createEmptyTileController(EmptyTileSlotModel emptyTile){
114.        return createGenericTileController(emptyTile);
115.    }
116. }
```

InfiniteFloatingAnimation.java

```
1. package com.example.project.controllers.gameScreens.animations;
2.
3. import javafx.animation.TranslateTransition;
4. import javafx.scene.Node;
5. import javafx.util.Duration;
6.
7. import java.util.Random;
8.
9. /**
10. * floating tile animation.
11. */
12. public class InfiniteFloatingAnimation
13. {
14.     private final Random random = new Random();
15.
16.     /**
17.      * apply to node.
18.      * @param node node.
19.      * @param intervalSeconds time between changing directions.
20.      */
21.     public void apply(Node node, double intervalSeconds)
22.     {
23.         moveToRandom(node, intervalSeconds, intervalSeconds);
24.     }
25.
26.     private void moveToRandom(Node node, double minD, double maxD)
27.     {
28.         // pick random target position
29.         double x = random.nextDouble(0, 10);
30.         double y = random.nextDouble(0, 10);
31.
32.         double duration = minD + random.nextDouble() * (maxD - minD);
33.
34.         TranslateTransition tt = new TranslateTransition(Duration.seconds(duration), node);
35.         tt.setToX(x);
36.         tt.setToY(y);
37.         tt.setInterpolator(javafx.animation.Interpolator.LINEAR); // constant speed
38.
39.         // when done, pick a new target
40.         tt.setOnFinished(e -> moveToRandom(node, minD, maxD));
41.         tt.play();
42.     }
43. }
```

UpgradeTileController

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
bind(UpgradeTileModel)		18%		50%	1	2	14	16	0	1
updateCount(int)		0%		0%	2	2	6	6	1	1
getRoot()		0%	n/a	n/a	1	1	1	1	1	1
UpgradeTileController()		100%	n/a	n/a	0	1	0	1	0	1
Total	83 of 99	16%	3 of 4	25%	4	6	21	24	2	4

Created with JaCoCo 0.8.12.202403310830

UpgradeTileController.java

```
1. package com.example.project.controllers.tiles;
2.
3. import com.example.project.models.tiles.TileModel;
4. import com.example.project.models.tiles.UpgradeTileModel;
5. import com.example.project.controllers.gameScreens.TooltipSetup;
6. import javafx.fxml.FXML;
7. import javafx.scene.Node;
8. import javafx.scene.control.Label;
9. import javafx.scene.image.Image;
10. import javafx.scene.image.ImageView;
11. import javafx.scene.layout.StackPane;
12.
13. import javafx.scene.shape.Rectangle;
14.
15. /**
16. * Controls the upgrade tile view fxml file.
17. */
18. public class UpgradeTileController extends TileController<UpgradeTileModel>
19. {
20.     @FXML
21.     protected StackPane root;
22.
23.     @FXML
24.     protected ImageView imageView;
25.
26.     @FXML
27.     protected Label countText;
28.
29.     public Node getRoot()
30.     {
31.         return root;
32.     }
33.
34.     public void bind(UpgradeTileModel tileModel)
35.     {
36.         var path = getClass().getResource(tileModel.getAbilityImagePath());
37.         if (path == null) { throw new RuntimeException("path null"); }
38.         var url = path.toExternalForm();
39.         var image = new Image(url);
40.         this.imageView.setImage(image);
41.
42.         Rectangle clip = new Rectangle();
43.         // set corner radii
44.         clip.setArcWidth(TileModel.CORNER_RADIUS);
45.         clip.setArcHeight(TileModel.CORNER_RADIUS);
46.
47.         clip.widthProperty().bind(imageView.fitWidthProperty());
48.         clip.heightProperty().bind(imageView.fitHeightProperty());
49.
50.         imageView.setClip(clip);
51.
52.         TooltipSetup tooltip = new TooltipSetup();
53.         tooltip.setupTooltip(this.root, TooltipSetup.Element.UPGRADE, model);
54.
55.         this.countText.setText("");
56.         this.countText.setVisible(false);
57.     }
58.
59.     /**
60.      * updates upgrade # subscript
61.      * @param count the number of duplicate upgrades
62.      */
63.     public void updateCount(int count)
64.     {
65.         if (count > 1)
66.         {
67.             this.countText.setText(String.valueOf(count));
68.             this.countText.setVisible(true);
69.         }
70.         else
71.         {
72.             this.countText.setText("");
73.             this.countText.setVisible(false);
74.         }
75.     }
76. }
```

com.example.project.controllers.tiles

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods	Missed	Classes
C UpgradeTileController		16%		25%	4	6	21	24	2	4	0	1
C LetterTileController		0%		n/a	4	4	13	13	4	4	1	1
C TileControllerFactory		97%		100%	1	15	0	38	1	12	0	1
C EmptyTileSlotController		100%		100%	0	8	0	14	0	5	0	1
C TileController		100%		n/a	0	3	0	4	0	3	0	1
Total	142 of 380	62%	3 of 14	78%	9	36	34	93	7	28	1	5

Created with JaCoCo 0.8.12.202403310830

com.example.project.controllers.tiles

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxt	Missed	Lines	Missed	Methods	Missed	Classes	
UpgradeTileController.java		16%		25%	4	6	21	24	2	4	0	1	
LetterTileController.java		0%		n/a	4	4	13	13	4	4	1	1	
TileControllerFactory.java		97%		100%	1	15	0	38	1	12	0	1	
EmptyTileSlotController.java		100%		100%	0	8	0	14	0	5	0	1	
TileController.java		100%		n/a	0	3	0	4	0	3	0	1	
Total	142 of 380	62%	3 of 14		78%	9	36	34	93	7	28	1	5

Created with JaCoCo 0.8.12.202403310830

RootLayoutController

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
toggleSound()		0%		0%	3	3	5	5	1	1
setContent(Parent)		0%		n/a	1	1	3	3	1	1
initialize()		0%		n/a	1	1	4	4	1	1
RootLayoutController()		0%		n/a	1	1	2	2	1	1
Total	49 of 49	0%	4 of 4	0%	6	6	14	14	4	4

Created with JaCoCo 0.8.12.202403310830

RootLayoutController.java

```
1. package com.example.project.controllers;
2.
3. import com.example.project.services.sound.GameMusicPlayer;
4. import com.example.project.services.SVGIcons;
5. import javafx.fxml.FXML;
6. import javafx.scene.Parent;
7. import javafx.scene.control.Button;
8. import javafx.scene.layout.BorderPane;
9. import javafx.scene.layout.StackPane;
10.
11.
12. /**
13. * Root layout that remains the root scene of the application to switch scenes within.
14. */
15. public class RootLayoutController
16. {
17.     @FXML
18.     private BorderPane rootPane;
19.
20.     @FXML
21.     private StackPane contentPane;
22.
23.     @FXML
24.     private StackPane headerPane;
25.
26.     @FXML
27.     Button soundToggle;
28.
29.     private final GameMusicPlayer musicPlayer = new GameMusicPlayer();
30.
31.     private boolean isPlaying;
32.
33.     /**
34.      * @param page Set page content to a game scene.
35.     */
36.     public void setContent(Parent page) {
37.         contentPane.getChildren().clear();
38.         contentPane.getChildren().add(page);
39.     }
40.
41.     @FXML
42.     void initialize()
43.     {
44.         soundToggle.setGraphic(SVGIcons.getCogIcon());
45.         musicPlayer.playGameMusicLoop();
46.         this.isPlaying = true;
47.     }
48.
49.     @FXML
50.     private void toggleSound()
51.     {
52.         if (isPlaying){
53.             musicPlayer.mute();
54.         }
55.         else{
56.             musicPlayer.unMute();
57.         }
58.
59.         isPlaying = !isPlaying;
60.     }
61. }
```

com.example.project.controllers

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods	Missed	Classes
C RootLayoutController	0%		0%		6	6	14	14	4	4	1	1
Total	49 of 49	0%	4 of 4	0%	6	6	14	14	4	4	1	1

Created with JaCoCo 0.8.12.202403310830

com.example.project.controllers

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods	Missed	Classes
RootLayoutController.java	 0%	0%	 0%	0%	6	6	14	14	4	4	1	1
Total	49 of 49	0%	4 of 4	0%	6	6	14	14	4	4	1	1

Created with JaCoCo 0.8.12.202403310830

DailyRewardModel

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
applyReward(DailyRewardType)		0%		0%	3	3	5	5	1	1
DailyRewardModel(Session, SceneManager)		0%		n/a	1	1	4	4	1	1
rollReward()		0%		n/a	1	1	1	1	1	1
Total	47 of 47	0%	3 of 3	0%	5	5	10	10	3	3

Created with JaCoCo 0.8.12.202403310830

DailyRewardModel.java

```
1. package com.example.project.models.gameScreens;
2.
3. import com.example.project.services.SceneManager;
4. import com.example.project.services.Session;
5.
6. import java.time.LocalDate;
7. import java.util.List;
8. import java.util.Random;
9.
10. /**
11.  * Model for handling daily reward logic and state.
12. */
13. public class DailyRewardModel extends GameScreenModel
14. {
15.     /**
16.      * Constructor.
17.      * @param session session.
18.      * @param sceneManager scene manager.
19.      */
20.     public DailyRewardModel(Session session, SceneManager sceneManager)
21.     {
22.         super(session, sceneManager);
23.     }
24.
25.     private final List<DailyRewardType> possibleRewards = List.of(
26.         DailyRewardType.Daily_Reward_Won_1Dollar,
27.         DailyRewardType.Daily_Reward_Won_5Dollars,
28.         DailyRewardType.Daily_Reward_Won_NOTHING
29.     );
30.
31.     private final Random random = new Random();
32.
33.     /**
34.      * Randomly selects a daily reward.
35.      * @return a randomly selected reward
36.      */
37.     public DailyRewardType rollReward() {
38.         return possibleRewards.get(random.nextInt(possibleRewards.size()));
39.     }
40.
41.     /**
42.      * Applies the effect of the given reward to the session and marks it as claimed.
43.      * @param reward the reward to apply
44.      */
45.     public void applyReward(DailyRewardType reward)
46.     {
47.         switch (reward) {
48.             case Daily_Reward_Won_1Dollar -> session.modifyMoney(1);
49.             case Daily_Reward_Won_5Dollars -> session.modifyMoney(5);
50.             case Daily_Reward_Won_NOTHING -> {
51.                 // no-op
52.             }
53.         }
54.
55.         session.setLastRewardDate(LocalDate.now());
56.     }
57. }
```

LevelScoreSequence

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
• LevelScoreSequence(List, LevelModel, Label, Label)		0%		0%	2	2	16	16	1	1
• lambda\$new\$0(LevelModel, LetterTileController, ActionEvent)		0%		n/a	1	1	3	3	1	1
Total	94 of 94	0%	2 of 2	0%	3	3	19	19	2	2

Created with JaCoCo 0.8.12.202403310830

DailyRewardType

Element	Missed Instructions Cov.	Missed Branches Cov.	Missed Cxty	Missed Lines	Missed Methods
 static {...}	0%	n/a	1 1	4 4	1 1
Total	21 of 21	0% 0 of 0	n/a	1 1	4 4

Created with JaCoCo 0.8.12.202403310830

DailyRewardType.java

```
1. package com.example.project.models.gameScreens;
2.
3. /**
4.  * Enum representing the possible daily reward outcomes.
5. */
6. public enum DailyRewardType {
7.     /**
8.      * Player wins $1
9.     */
10.    Daily_Reward_Won_1Dollar,
11.
12.    /**
13.     * Player wins $5
14.     */
15.    Daily_Reward_Won_5Dollars,
16.
17.    /**
18.     * Player wins nothing
19.     */
20.    Daily_Reward_Won_NOTHING
21. }
```

GameScreenModel

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
getSession()		0%		n/a	1	1	1	1	1	1
getSceneManager()		0%		n/a	1	1	1	1	1	1
GameScreenModel(Session, SceneManager)		100%		n/a	0	1	0	5	0	1
Total	6 of 20	70%	0 of 0	n/a	2	3	2	7	2	3

Created with JaCoCo 0.8.12.202403310830

GameScreenModel.java

```
1. package com.example.project.models.gameScreens;
2.
3. import com.example.project.services.Logger;
4. import com.example.project.services.SceneManager;
5. import com.example.project.services.Session;
6.
7. /**
8. * Game Screen Model. extended by loginModel, shopModel, levelModel.
9. */
10. public abstract class GameScreenModel
11. {
12.     protected Logger logger = new Logger();
13.
14.     protected final Session session;
15.
16.     protected final SceneManager sceneManager;
17.
18.     /**
19.      * Get session.
20.      * @return session.
21.     */
22.     public Session getSession() { return session; }
23.
24.     /**
25.      * get scene manager
26.      * @return scene manager
27.     */
28.     public SceneManager getSceneManager() { return sceneManager; }
29.
30.     protected GameScreenModel (Session session, SceneManager sceneManager)
31.     {
32.         this.sceneManager = sceneManager;
33.         this.session = session;
34.     }
35. }
```

LevelModel

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
calcTotalWordScore()		0%		0%	2	2	4	4	1	1
addToCombo(LetterTileModel)		0%		n/a	1	1	3	3	1	1
refillTileTack()		66%		50%	1	2	1	5	0	1
resetCombo()		0%		n/a	1	1	3	3	1	1
setWordPoints(int)		0%		n/a	1	1	2	2	1	1
setWordMulti(int)		0%		n/a	1	1	2	2	1	1
getPlayersTotalPoints()		0%		n/a	1	1	1	1	1	1
wordPointsProperty()		0%		n/a	1	1	1	1	1	1
wordMultiProperty()		0%		n/a	1	1	1	1	1	1
getIsRedrawActive()		0%		n/a	1	1	1	1	1	1
getTileScoreSoundPlayer()		0%		n/a	1	1	1	1	1	1
LevelModel(Session, Logger, SceneManager)		100%		n/a	0	1	0	13	0	1
LevelModel(Session, SceneManager)		100%		n/a	0	1	0	13	0	1
tryMoveTile(LetterTileModel)		100%		100%	0	6	0	11	0	1
onWonLevel()		100%		50%	1	2	0	9	0	1
tryMoveTileToRedrawArea(LetterTileModel)		100%		66%	2	4	0	5	0	1
tryMoveToTileRack(LetterTileModel)		100%		75%	1	3	0	7	0	1
tryMoveTileToWordArea(LetterTileModel)		100%		50%	2	3	0	4	0	1
getCurrentWord()		100%		100%	0	2	0	5	0	1
generateLetters()		100%		100%	0	2	0	4	0	1
returnRedrawTilesToTheRack()		100%		100%	0	2	0	3	0	1
redrawTiles()		100%		n/a	0	1	0	4	0	1
playTiles()		100%		n/a	0	1	0	4	0	1
setupNewLevel()		100%		n/a	0	1	0	5	0	1
hasWon()		100%		100%	0	2	0	1	0	1
onLostLevel()		100%		n/a	0	1	0	4	0	1
hasLost()		100%		100%	0	2	0	1	0	1
resetLevelVariables()		100%		n/a	0	1	0	3	0	1
getWordWindowTilesProperty()		100%		n/a	0	1	0	1	0	1
getTileRackTilesProperty()		100%		n/a	0	1	0	1	0	1
getRedrawWindowTilesProperty()		100%		n/a	0	1	0	1	0	1
addTileToWordWindow(LetterTileModel)		100%		n/a	0	1	0	2	0	1
addTileToRack(LetterTileModel)		100%		n/a	0	1	0	2	0	1
addTileToRedrawWindow(LetterTileModel)		100%		n/a	0	1	0	2	0	1
isCurrentWordValid()		100%		n/a	0	1	0	1	0	1
setIsRedrawActive(boolean)		100%		n/a	0	1	0	2	0	1
setTotalScore(int)		100%		n/a	0	1	0	2	0	1
getPlayersCurrentPoints()		100%		n/a	0	1	0	1	0	1
Total	93 of 627	85%	9 of 40	77%	18	58	20	125	10	38

LevelModel.java

```
1. package com.example.project.models.gameScreens;
2.
3. import com.example.project.models.tiles.LetterTileModel;
4. import com.example.project.models.tiles.UpgradeTileModel;
5. import com.example.project.services.GameScene;
6. import com.example.project.services.Logger;
7. import com.example.project.services.SceneManager;
8. import com.example.project.services.Session;
9. import com.example.project.models.tiles.ScrabbleTileProvider;
10. import com.example.project.services.sqlite.DAOs.DictionaryDAO;
11. import javafx.beans.property.*;
12. import javafx.collections.FXCollections;
13. import javafx.collections.ObservableList;
14.
15.
16. /**
17. * Represents the level model.
18. */
19. public class LevelModel extends GameScreenModel
20. {
21.     private final ObservableList<LetterTileModel> wordWindowTiles = FXCollections.observableArrayList();
22.     private final ObservableList<LetterTileModel> tileRackTiles = FXCollections.observableArrayList();
23.     private final ObservableList<LetterTileModel> redrawWindowTiles = FXCollections.observableArrayList();
24.     private final ReadOnlyBooleanWrapper isRedrawActive = new ReadOnlyBooleanWrapper(false);
25.     private final ReadOnlyIntegerWrapper wordPoints = new ReadOnlyIntegerWrapper(0);
26.     private final ReadOnlyIntegerWrapper wordMulti = new ReadOnlyIntegerWrapper(0);
27.     private final ReadOnlyIntegerWrapper playersTotalPoints = new ReadOnlyIntegerWrapper(0);
28.     private final DictionaryDAO dictionary = new DictionaryDAO();
29.
30.     private final ScoreChimePlayer tileScoreSoundPlayer = new ScoreChimePlayer();
31.     private final ScrabbleTileProvider scrabbleLettersBalancer = new ScrabbleTileProvider();
32.
33.     protected LevelModel(Session session, Logger logger, SceneManager sceneManager)
34.     {
35.         super(session, sceneManager);
36.         this.logger = logger;
37.     }
38.
39.     /**
40.      * Default constructor.
41.      * @param session session
42.      * @param sceneManager scene manager.
43.      */
44.     public LevelModel(Session session, SceneManager sceneManager)
45.     {
46.         super(session, sceneManager);
47.         generateLetters();
48.     }
49.
50.     /**
51.      * Gets the tile score sound effect player.
52.      * @return LevelTileScoreSoundPlayer.
53.      */
54.     public ScoreChimePlayer getTileScoreSoundPlayer() { return this.tileScoreSoundPlayer; }
55.
56.     /**
57.      * @return Read-only list of tiles currently in the word area
58.      */
59.     public ReadOnlyListProperty<LetterTileModel> getWordWindowTilesProperty() {
60.         return new ReadOnlyListWrapper<>(wordWindowTiles).getReadOnlyProperty();
61.     }
62.
63.     /**
64.      * @return Read-only list of tiles currently in the rack
65.      */
66.     public ReadOnlyListProperty<LetterTileModel> getTileRackTilesProperty() {
67.         return new ReadOnlyListWrapper<>(tileRackTiles).getReadOnlyProperty();
68.     }
69.
70.     /**
71.      * @return Read-only list of tiles currently in the redraw window.
72.      */
73.     public ReadOnlyListProperty<LetterTileModel> getRedrawWindowTilesProperty() {
74.         return new ReadOnlyListWrapper<>(redrawWindowTiles).getReadOnlyProperty();
75.     }
76.     /**
77.      * @return the total points property to observe.
78.      */
```

```

79.     public ReadOnlyIntegerProperty getPlayersTotalPoints() {
80.         return playersTotalPoints.getReadOnlyProperty();
81.     }
82.
83.     /**
84.      * @return the sum combo points property to observe.
85.     */
86.     public ReadOnlyIntegerProperty wordPointsProperty() {
87.         return wordPoints.getReadOnlyProperty();
88.     }
89.
90.     /**
91.      * @return the players current level points property to observe.
92.     */
93.     public ReadOnlyIntegerProperty getPlayersCurrentPoints() { return playersTotalPoints.getReadOnlyProperty(); }
94.
95.     /**
96.      * word multiplier.
97.      * @return multiplier.
98.     */
99.     public ReadOnlyIntegerProperty wordMultiProperty() {
100.        return wordMulti.getReadOnlyProperty();
101.    }
102.
103.    /**
104.     * gets the redraw property.
105.     * @return returns indication if redraw active.
106.    */
107.    public ReadOnlyBooleanProperty getIsRedrawActive()
108.    {
109.        return isRedrawActive.getReadOnlyProperty();
110.    }
111.
112.    /**
113.     * set redraw active.
114.     * @param newValue get if redraw window is on screen.
115.    */
116.    public void setIsRedrawActive(boolean newValue)
117.    {
118.        this.isRedrawActive.set(newValue);
119.    }
120.
121.    protected void addTileToWordWindow(LetterTileModel tile)
122.    {
123.        this.wordWindowTiles.add(tile);
124.    }
125.
126.    protected void addTileToRack(LetterTileModel tile)
127.    {
128.        this.tileRackTiles.add(tile);
129.    }
130.
131.    protected void addTileToRedrawWindow(LetterTileModel tile)
132.    {
133.        this.redrawWindowTiles.add(tile);
134.    }
135.
136.    /**
137.     * Called when the level has been lost.
138.     * resets the players session info and logs back out to the login screen.
139.    */
140.    public void onLostLevel()
141.    {
142.        this.resetLevelVariables();
143.        this.session.resetGame();
144.        this.sceneManager.switchScene(GameScene.MAINMENU);
145.    }
146.
147.    /**
148.     * Called when level has been won.
149.     * reset the per level info: redraws plays. Goes to shop window.
150.    */
151.    public void onWonLevel()
152.    {
153.        //award money equal to remaining plays
154.        int remainingPlays = this.session.getCurrentPlays().get();
155.        if (remainingPlays > 0)
156.        {
157.            session.getMoneyProperty().set(session.getMoneyProperty().get() + remainingPlays);
158.            this.logger.logMessage(String.format("You Won! Awarded $%d for %d remaining plays",
159.                remainingPlays, remainingPlays));
160.        }
161.
```

```

162.     this.resetLevelVariables();
163.     this.session.updateLevelInfo();
164.     this.sceneManager.switchScene(GameScene.SHOP);
165. }
166.
167. /**
168.  * returns true if player has won.
169.  * @return value indicating if player has won.
170. */
171. public boolean hasWon()
172. {
173.     return (this.session.getLevelRequirement().get() <= this.playersTotalPoints.get());
174. }
175.
176. /**
177.  * true if player has lost
178.  * @return value indicating if player has lost.
179. */
180. public boolean hasLost()
181. {
182.     return this.session.getCurrentPlays().get() == 0;
183. }
184.
185. /**
186.  * Attempts to move a tile from rack to word area
187.  * @param tile The tile to move
188.  * @return true if move was successful, false otherwise
189. */
190. private boolean tryMoveTileToWordArea(LetterTileModel tile) {
191.     if (tileRackTiles.contains(tile) && wordWindowTiles.size() < session.getWordWindowSize()) {
192.         tileRackTiles.remove(tile);
193.         wordWindowTiles.add(tile);
194.     }
195.     return wordWindowTiles.contains(tile);
196. }
197.
198. /**
199.  * Attempts to move a tile from rack to redraw area
200.  * @param tile The tile to move
201.  * @return true if move was successful, false otherwise
202. */
203. private boolean tryMoveTileToRedrawArea(LetterTileModel tile)
204. {
205.     if (redrawWindowTiles.size() < session.getRedrawWindowSize() && !redrawWindowTiles.contains(tile))
206.     {
207.         var rowItsIn = tileRackTiles.contains(tile) ? tileRackTiles : wordWindowTiles;
208.         rowItsIn.remove(tile);
209.         redrawWindowTiles.add(tile);
210.     }
211.
212.     return redrawWindowTiles.contains(tile);
213. }
214.
215. /**
216.  * Attempts to move a tile from word area or redraw area to rack
217.  * @param tile The tile to move
218.  * @return true if move was successful, false otherwise
219. */
220. private boolean tryMoveToTileRack(LetterTileModel tile) {
221.     if (wordWindowTiles.contains(tile)) {
222.         wordWindowTiles.remove(tile);
223.         tileRackTiles.add(tile);
224.     } else if (redrawWindowTiles.contains(tile)) {
225.         redrawWindowTiles.remove(tile);
226.         tileRackTiles.add(tile);
227.     }
228.
229.     return tileRackTiles.contains(tile);
230. }
231.
232. /**
233.  * determines where tile should go and moves it
234.  * @param tile The tile to move
235.  * @return true if move was successful, false otherwise
236. */
237. public boolean tryMoveTile(LetterTileModel tile) {
238.     boolean moved = false;
239.
240.     // When no redraw window is open.
241.     if (!isRedrawActive.get()) {
242.         if (tileRackTiles.contains((tile))) {
243.             moved = tryMoveTileToWordArea(tile);
244.         }

```

```

245.         else if (wordWindowTiles.contains(tile)) {
246.             moved = tryMoveToTileRack(tile);
247.         }
248.     }
249.     // when redraw window is open.
250.     else
251.     {
252.         if (!redrawWindowTiles.contains(tile)) {
253.             moved = tryMoveTileToRedrawArea(tile);
254.         }
255.         else {
256.             moved = tryMoveToTileRack(tile);
257.         }
258.     }
259.
260.     if (moved) { tile.getClackSoundPlayer().replay(); }
261.     return moved;
262. }
263.
264. /**
265. * Gets the current word formed by tiles in the word area
266. * @return returns current word string.
267. */
268. public String getCurrentWord() {
269.     StringBuilder word = new StringBuilder();
270.     for (LetterTileModel tile : wordWindowTiles) {
271.         word.append(tile.getLetter());
272.     }
273.     return word.toString();
274. }
275.
276. /**
277. * returns true if word is in dictionary.
278. * @return value indicating if word is valid.
279. */
280. public boolean isCurrentWordValid(){
281.     return dictionary.isWordInDictionary(this.getCurrentWord());
282. }
283.
284. /**
285. * redraws tiles into the tile rack and removes from redraw window.
286. */
287. public void redrawTiles()
288. {
289.     this.session.getCurrentRedraws().set(this.session.getCurrentRedraws().get() - 1);
290.     this.redrawWindowTiles.clear();
291.     refillTileTack();
292. }
293.
294. /**
295. * add combo sum and multiCombo
296. * @param tile tile.
297. */
298. public void addToCombo(LetterTileModel tile) {
299.     this.wordPoints.set(this.wordPoints.get() + tile.getValue());
300.     this.wordMulti.set(this.wordMulti.get() + 1);
301. }
302.
303. /**
304. * @return total score int
305. */
306. public int calcTotalWordScore() {
307.     for (UpgradeTileModel upgrade : session.getPlayersUpgradesProperty())
308.     {
309.         upgrade.runUpgradeEffect(this);
310.     }
311.
312.     return this.wordPoints.get() * this.wordMulti.get();
313. }
314.
315. /**
316. * sets the current word points before multipliers
317. * @param newWordPoints the new word points value
318. */
319. public void setWordPoints(int newWordPoints) {
320.     this.wordPoints.set(newWordPoints);
321. }
322.
323. /**
324. * sets the current word multiplier
325. * @param newMulti the new multiplier value
326. */
327. public void setWordMulti(int newMulti) {

```

```

328.     this.wordMulti.set(newMulti);
329. }
330.
331. /**
332. * @param totalScore from calcTotalScore
333. * sets Total Score
334. */
335. public void setTotalScore(int totalScore){
336.     this.playersTotalPoints.set(totalScore);
337. }
338.
339. /**
340. * clears the word row tiles. and refills the tile rack. and decreases the plays left.
341. */
342. public void playTiles()
343. {
344.     this.wordWindowTiles.clear();
345.     this.refillTileTack();
346.     this.session.getCurrentPlays().set(this.session.getCurrentPlays().get() - 1);
347. }
348.
349. /**
350. * sends the selected redraw tiles back to the rack
351. */
352. public void returnRedrawTilesToTheRack() {
353.     for (int i = 0; i < redrawWindowTiles.size(); i++) {
354.         tryMoveToTileRack(redrawWindowTiles.get(i));
355.     }
356. }
357.
358. /**
359. * Initialise new level. Clears word row, redraw rack. draws new tiles for the player's tile rack.
360. */
361. public void setupNewLevel()
362. {
363.     this.wordWindowTiles.clear();
364.     this.returnRedrawTilesToTheRack();
365.     isRedrawActive.set(false);
366.     this.session.resetPlaysRedraws();
367. }
368.
369. /**
370. * resets counts for sum and multi in combo
371. */
372. public void resetCombo()
373. {
374.     this.wordPoints.set(0);
375.     this.wordMulti.set(0);
376. }
377.
378. private void resetLevelVariables()
379. {
380.     this.playersTotalPoints.set(0);
381.     this.session.resetPlaysRedraws();
382. }
383.
384. private void generateLetters() {
385.     for (int i = 0; i < session.getHandSize(); i++) {
386.         var newLetter = new LetterTileModel(this.scrabbleLettersBalancer.drawRandomTile());
387.         this.tileRackTiles.add(newLetter); // Start all tiles in rack
388.     }
389. }
390.
391. /**
392. * Refills tile rack. Only up to the hand size allowed this level.
393. */
394. private void refillTileTack()
395. {
396.     var tilesPlayerHas = tileRackTiles.size() + wordWindowTiles.size() + redrawWindowTiles.size();
397.     var tilesToReplace = (this.session.getHandSize() - tilesPlayerHas);
398.     for (int i = 0; i < tilesToReplace; i++){
399.         tileRackTiles.add(new LetterTileModel(this.scrabbleLettersBalancer.drawRandomTile()));
400.     }
401. }
402. }

```

LoginModel

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
● isInputLegal(String, String)	100%	100%	91%	91%	1	7	0	13	0	1
● onLoginClicked(String, String)	100%	100%	100%	100%	0	3	0	10	0	1
● onSignUpClicked(String, String)	100%	100%	100%	100%	0	3	0	8	0	1
● LoginModel(Session, SceneManager, UsersDAO, PasswordHasher)	100%	100%		n/a	0	1	0	5	0	1
● doesPasswordMatch(String, String)	100%	100%		n/a	0	1	0	2	0	1
● getWelcomeTextProperty()	100%	100%		n/a	0	1	0	1	0	1
Total	0 of 144	100%	1 of 20	95%	1	16	0	39	0	6

Created with JaCoCo 0.8.12.202403310830

LoginModel.java

```
1. package com.example.project.models.gameScreens;
2.
3. import com.example.project.models.User;
4. import com.example.project.services.PasswordHasher;
5. import com.example.project.services.Session;
6. import com.example.project.services.sqlite.dAOs.UsersDAO;
7. import com.example.project.services.GameScene;
8. import com.example.project.services.SceneManager;
9. import javafx.beans.property.ReadOnlyStringProperty;
10. import javafx.beans.property.ReadOnlyStringWrapper;
11.
12. /**
13.  * Login model class.
14. */
15. public class LoginModel extends GameScreenModel
16. {
17.     private final UsersDAO usersDAO;
18.     private final PasswordHasher passwordHasher;
19.
20.     private final ReadOnlyStringWrapper infoText = new ReadOnlyStringWrapper("");
21.
22.     /**
23.      * Gets the info text property.
24.      * @return ReadonlyStringProperty.
25.     */
26.     public ReadOnlyStringProperty getWelcomeTextProperty(){
27.         return this.infoText;
28.     }
29.
30.     /**
31.      * constructor.
32.      * @param session session to use for the game.
33.      * @param sceneManager scenes.
34.      * @param dao users database implementation.
35.      * @param passwordHasher password hasher for this login
36.     */
37.     public LoginModel(Session session, SceneManager sceneManager, UsersDAO dao, PasswordHasher passwordHasher)
38.     {
39.         super(session, sceneManager);
40.         this.usersDAO = dao;
41.         this.passwordHasher = passwordHasher;
42.     }
43.
44.     /**
45.      * @param username username
46.      * @param password password
47.      * @return returns value indicating if login is valid.
48.     */
49.     private boolean doesPasswordMatch(String username, String password)
50.     {
51.         var user = this.usersDAO.getUser(username);
52.         return this.passwordHasher.doesPasswordMatch(password, user.getPassword());
53.     }
54.
55.     /**
56.      * @param username username.
57.      * @param password password.
58.     */
59.     public void onLoginClicked(String username, String password)
60.     {
61.         if (!this.usersDAO.doesUserExist(username)) {
62.             this.infoText.set("No account found. Sign up first.");
63.             return;
64.         }
65.
66.         if (!this.doesPasswordMatch(username, password)) {
67.             this.infoText.set("Incorrect password.");
68.             return;
69.         }
70.
71.         var user = this.usersDAO.getUser(username);
72.         this.session.setUser(user);
73.         this.sceneManager.switchScene(GameScene.MAINMENU);
74.     }
75.
76.     /**
77.      * returns value indicating if the input is legal. Illegal if blank.
78.      * @param username username.
```

```

79.     * @param password password.
80.     * @return value indicating if the input is legal.
81.     */
82.     private boolean isInputLegal(String username, String password)
83.     {
84.         if (username.isBlank() || password.isBlank()) {
85.             this.infoText.set("Fields cannot be empty.");
86.             return false;
87.         }
88.
89.         if (username.length() < 3 || username.length() > 30) {
90.             this.infoText.set("Username must be between 3-30 characters long.");
91.             return false;
92.         }
93.
94.         if (password.length() < 8) {
95.             this.infoText.set("Password must be at least 8 characters.");
96.             return false;
97.         }
98.
99.         if (password.equals(username)) {
100.             this.infoText.set("Password must not match username.");
101.             return false;
102.         }
103.
104.         return true;
105.     }
106.
107. /**
108. * Adds user to database.
109. * @param username username
110. * @param password password
111. */
112. public void onSignUpClicked(String username, String password)
113. {
114.     if (!isInputLegal(username, password)){
115.         return;
116.     }
117.
118.     if (this.usersDAO.doesUserExist(username))
119.     {
120.         this.infoText.set("Already signed up. Click login.");
121.         return;
122.     }
123.
124.     this.usersDAO.addUser(new User(username, password, 0));
125.     this.infoText.set("User added successfully.");
126. }
127. }

```

MainMenuModel

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
MainMenuModel(Session, SceneManager)	100%		n/a	0	1	0	2	0	1	
onStartClicked()	100%		n/a	0	1	0	2	0	1	
onLogoutClicked()	100%		n/a	0	1	0	2	0	1	
Total	0 of 15	100%	0 of 0	n/a	0	3	0	6	0	3

Created with JaCoCo 0.8.12.202403310830

MainMenuModel.java

```
1. package com.example.project.models.gameScreens;
2.
3. import com.example.project.services.GameScene;
4. import com.example.project.services.SceneManager;
5. import com.example.project.services.Session;
6.
7. /**
8. * main menu model class
9. */
10. public class MainMenuModel extends GameScreenModel
11. {
12.     /**
13.      * constructor.
14.      * @param session session to use for the game.
15.      * @param sceneManager scenes.
16.      */
17.     public MainMenuModel(Session session, SceneManager sceneManager)
18.     {
19.         super(session, sceneManager);
20.     }
21.
22.     /**
23.      * switches to the level screen
24.      */
25.     public void onStartClicked()
26.     {
27.         this.sceneManager.switchScene(GameScene.LEVEL);
28.     }
29.
30.     /**
31.      * switches to the login screen
32.      */
33.     public void onLogoutClicked()
34.     {
35.         this.sceneManager.switchScene(GameScene.LOGIN);
36.     }
37. }
38. }
```

LevelScoreSequence.java

```
1. package com.example.project.controllers.gameScreens.animations;
2.
3. import com.example.project.controllers.tiles.LetterTileController;
4. import com.example.project.models.gameScreens.LevelModel;
5. import javafx.animation.*;
6. import javafx.scene.control.Label;
7. import javafx.scene.paint.Color;
8. import javafx.util.Duration;
9.
10. import java.util.List;
11.
12. /**
13. * Animates each level tile popping up and the score text increasing for every tile in the word row.
14. */
15. public class LevelScoreSequence extends AnimationWrapper
16. {
17.     /**
18.      * Constructor.
19.      * @param wordTileControllers tiles to animate.
20.      * @param levelModel level model.
21.      * @param comboCountLabel the text label to add the sum to.
22.      * @param multiplierLabel the text label to add the multi to.
23.      */
24.     public LevelScoreSequence(List<LetterTileController> wordTileControllers, LevelModel levelModel, Label comboCountLabel, Label multiplierLabel)
25.     {
26.         super();
27.
28.         for (LetterTileController control : wordTileControllers)
29.         {
30.             var translateUp = new TranslateTransition(Duration.seconds(0.1), control.getRoot());
31.             translateUp.setByY(-10);
32.             translateUp.setOnFinished(e ->
33.             {
34.                 levelModel.addToCombo(control.getModel());
35.                 levelModel.getTileScoreSoundPlayer().playNextNote();
36.             });
37.
38.             this.sequentialAnimation.getChildren().add(translateUp);
39.             var pointsTextColour = multiplierLabel.getTextFill();
40.             var multiplierTextColour = comboCountLabel.getTextFill();
41.             TextEmphasisAnimation sumComboSequence = new TextEmphasisAnimation(comboCountLabel, Color.GREEN, pointsTextColour, Duration.seconds(0));
42.             TextEmphasisAnimation multiComboSequence = new TextEmphasisAnimation(multiplierLabel, Color.GREEN, multiplierTextColour, Duration.seconds(0));
43.             this.sequentialAnimation.getChildren().addAll(sumComboSequence.getChildren());
44.             this.sequentialAnimation.getChildren().addAll(multiComboSequence.getChildren());
45.         }
46.
47.         // After all tiles
48.         var timeDelay = new PauseTransition(Duration.seconds(1));
49.         this.sequentialAnimation.getChildren().add(timeDelay);
50.     }
51. }
```

ScoreChimePlayer

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
● playNextNote()		0%		0%	2	2	5	5	1	1
● reset()		0%	n/a	n/a	1	1	2	2	1	1
● ScoreChimePlayer()		100%	n/a	n/a	0	1	0	12	0	1
Total	26 of 107	75%	2 of 2	0%	3	4	7	19	2	3

Created with JaCoCo 0.8.12.202403310830

ScoreChimePlayer.java

```
1. package com.example.project.models.gameScreens;
2.
3.
4. import com.example.project.services.sound.GameSoundPlayer;
5.
6. import java.util.List;
7.
8. /**
9. * plays a note from the F major scale ascending in pitch each time for a nice score combo sound.
10.*/
11. public class ScoreChimePlayer
12. {
13.     private final GameSoundPlayer F_4 = new GameSoundPlayer("/com/example/project/Sounds/scoreSounds/F_4.wav");
14.     private final GameSoundPlayer G_4 = new GameSoundPlayer("/com/example/project/Sounds/scoreSounds/G_4.wav");
15.     private final GameSoundPlayer A_4 = new GameSoundPlayer("/com/example/project/Sounds/scoreSounds/A_4.wav");
16.     private final GameSoundPlayer Bb_4 = new GameSoundPlayer("/com/example/project/Sounds/scoreSounds/Bb_4.wav");
17.     private final GameSoundPlayer C_4 = new GameSoundPlayer("/com/example/project/Sounds/scoreSounds/C_4.wav");
18.     private final GameSoundPlayer D_4 = new GameSoundPlayer("/com/example/project/Sounds/scoreSounds/D_5.wav");
19.     private final GameSoundPlayer E_4 = new GameSoundPlayer("/com/example/project/Sounds/scoreSounds/E_5.wav");
20.     private final GameSoundPlayer F_5 = new GameSoundPlayer("/com/example/project/Sounds/scoreSounds/F_5.wav");
21.     private final GameSoundPlayer G_5 = new GameSoundPlayer("/com/example/project/Sounds/scoreSounds/G_5.wav");
22.
23.     private final List<GameSoundPlayer> theCMajorScale = List.of(F_4, G_4, A_4, Bb_4, C_4, D_4, E_4, F_5, G_5);
24.
25.     private int currentNote = 0;
26.
27.     /**
28.      * resets back to 0.
29.     */
30.     public void reset(){
31.         currentNote = 0;
32.     }
33.
34.     /**
35.      * plays the note then increments the int index.
36.     */
37.     public void playNextNote()
38.     {
39.         if (theCMajorScale.size() == currentNote){
40.             reset();
41.         }
42.
43.         theCMajorScale.get(currentNote).replay();
44.         currentNote++;
45.     }
46. }
```

ShopModel

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
reroll()		0%		n/a	1	1	3	3	1	1
getRerollCostProperty()		0%		n/a	1	1	1	1	1	1
tryPurchase(UpgradeTileModel)		100%		100%	0	3	0	14	0	1
ShopModel(Session, SceneManager)		100%		n/a	0	1	0	5	0	1
regenerateShopItems()		100%		100%	0	2	0	4	0	1
ShopModel(Session, SceneManager, Logger)		100%		n/a	0	1	0	3	0	1
onNextLevelPressed()		100%		n/a	0	1	0	2	0	1
getCurrentShopItemsProperty()		100%		n/a	0	1	0	1	0	1
Total	14 of 141	90%	0 of 6	100%	2	11	4	33	2	8

Created with JaCoCo 0.8.12.202403310830

ShopModel.java

```
1. package com.example.project.models.gameScreens;
2.
3. import com.example.project.models.tiles.UpgradeTileModel;
4. import com.example.project.services.GameScene;
5. import com.example.project.services.Logger;
6. import com.example.project.services.SceneManager;
7. import com.example.project.services.Session;
8. import com.example.project.services.shopItems.UpgradeTiles;
9. import javafx.beans.property.IntegerProperty;
10. import javafx.beans.property.ListProperty;
11. import javafx.beans.property.ReadOnlyIntegerWrapper;
12. import javafx.beans.property.SimpleListProperty;
13. import javafx.collections.FXCollections;
14.
15. /**
16. * Shop Model.
17. */
18. public class ShopModel extends GameScreenModel
19. {
20.     protected final int numberOfShopItems = 3;
21.
22.     private final ListProperty<UpgradeTileModel> currentInShop = new SimpleListProperty<>(FXCollections.observableArrayList());
23.
24.     /**
25.      * Current items in the shop row that you can buy.
26.      * @return shop items.
27.     */
28.     public ListProperty<UpgradeTileModel> getCurrentShopItemsProperty(){
29.         return currentInShop;
30.     }
31.
32.     /**
33.      * Constructor for tests.
34.      * @param session session.
35.      * @param logger logger to use.
36.     */
37.     protected ShopModel(Session session, SceneManager sceneManager, Logger logger)
38.     {
39.         this(session, sceneManager);
40.         this.logger = logger;
41.     }
42.
43.     /**
44.      * Constructor
45.      * @param session game session.
46.      * @param sceneManager scenes.
47.     */
48.     public ShopModel(Session session, SceneManager sceneManager)
49.     {
50.         super(session, sceneManager);
51.     }
52.
53.     /**
54.      * create new shop items.
55.     */
56.     public void regenerateShopItems()
57.     {
58.         currentInShop.clear();
59.         ◆◆◆ for (int i = 0; i < numberOfShopItems; i++)
60.         {
61.             currentInShop.add(UpgradeTiles.getRandomUpgradeTile());
62.         }
63.     }
64.
65.     /**
66.      * reroll.
67.     */
68.     public void reroll(){
69.         this.regenerateShopItems();
70.         this.reRollCost.set(reRollCost.get() * 2);
71.     }
72.
73.     private final IntegerProperty reRollCost = new ReadOnlyIntegerWrapper(3);
74.
75.     /**
76.      * Get reroll cost.
77.      * @return integer property.
78.     */
79.     public IntegerProperty getRerollCostProperty(){
80.         return reRollCost;
81.     }
82.
```

```

83. /**
84. * This should attempt to purchase an upgrade tile from the shop.
85. * Verifies the player has sufficient funds, deducts the cost, removes the item
86. * from the shop, and logs the transaction.
87. * @param tileClickedOn the upgrade tile the player is trying to purchase
88. * @throws IllegalArgumentException if tileClickedOn is empty (null)
89. * @see Session#addUpgrade(UpgradeTileModel) for adding to player's collection
90. */
91. public void tryPurchase(UpgradeTileModel tileClickedOn)
92. {
93.     ◆◆ if (tileClickedOn == null) {
94.         throw new IllegalArgumentException("Cannot purchase null tile");
95.     }
96.
97.     ◆◆ if (session.getMoneyProperty().get() >= tileClickedOn.getCost())
98.     {
99.         currentInShop.remove(tileClickedOn);
100.        session.addUpgrade(tileClickedOn);
101.        session.modifyMoney(tileClickedOn.getCost());
102.
103.        this.logger.logMessage(String.format("Purchased %s for $%.2f",
104.            tileClickedOn.getName(),
105.            tileClickedOn.getCost()));
106.    }
107.    else
108.    {
109.        // TODO: some indication that they can't afford. money sfx or red currency emphasis.
110.        this.logger.logMessage(String.format("Cannot afford %s (costs $%.2f, have $%f)",
111.            tileClickedOn.getName(),
112.            tileClickedOn.getCost(),
113.            session.getMoneyProperty().get()));
114.    }
115. }
116.
117. /**
118. * exists shop and increments level requirement for the next level.
119. */
120. public void onNextLevelPressed()
121. {
122.     sceneManager.switchScene(GameScene.LEVEL);
123. }
124. }
```

com.example.project.models.gameScreens

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods	Missed	Classes
C LevelModel		85%		77%	18	58	20	125	10	38	0	1
C DailyRewardModel		0%		0%	5	5	10	10	3	3	1	1
C ScoreChimePlayer		75%		0%	3	4	7	19	2	3	0	1
C DailyRewardType		0%		n/a	1	1	4	4	1	1	1	1
C ShopModel		90%		100%	2	11	4	33	2	8	0	1
C GameScreenModel		70%		n/a	2	3	2	7	2	3	0	1
C LoginModel		100%		95%	1	16	0	39	0	6	0	1
C MainMenuModel		100%		n/a	0	3	0	6	0	3	0	1
Total	207 of 1,122	81%	15 of 71	78%	32	101	47	243	20	65	2	8

Created with JaCoCo 0.8.12.202403310830

com.example.project.models.gameScreens

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods	Missed	Classes
LevelModel.java	85%	77%	18	58	20	125	10	38	0	1	0	1
DailyRewardModel.java	0%	0%	5	5	10	10	3	3	1	1	1	1
ScoreChimePlayer.java	75%	0%	3	4	7	19	2	3	0	1	0	1
DailyRewardType.java	0%	n/a	1	1	4	4	1	1	1	1	1	1
ShopModel.java	90%	100%	2	11	4	33	2	8	0	1	0	1
GameScreenModel.java	70%	n/a	2	3	2	7	2	3	0	1	0	1
LoginModel.java	100%	95%	1	16	0	39	0	6	0	0	0	1
MainMenuModel.java	100%	n/a	0	3	0	6	0	3	0	0	0	1
Total	207 of 1,122	81%	15 of 71	78%	32	101	47	243	20	65	2	8

Created with JaCoCo 0.8.12.202403310830

DefinitionPopup

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
setIsDefinitionActive(boolean)		85%		75%	1	3	1	5	0	1
DefinitionPopup()		100%		n/a	0	1	0	4	0	1
setPopup(String)		100%		n/a	0	1	0	5	0	1
definitionProperty()		100%		n/a	0	1	0	1	0	1
wordProperty()		100%		n/a	0	1	0	1	0	1
getIsDefinitionActive()		100%		n/a	0	1	0	1	0	1
getFXMLPath()		100%		n/a	0	1	0	1	0	1
Total	3 of 73	95%	1 of 4	75%	1	9	1	18	0	7

Created with JaCoCo 0.8.12.202403310830

DefinitionPopup.java

```

1. package com.example.project.models.popups;
2. import com.example.project.services.sqlite.dAOs.DictionaryDAO;
3. import javafx.beans.property.*;
4.
5. /**
6. * Represents Definition window called when a word is played
7. */
8. public class DefinitionPopup extends PopupModel {
9.
10.    private final ReadOnlyStringWrapper definition = new ReadOnlyStringWrapper("lorem ipsum");
11.
12.    private final ReadOnlyStringWrapper word = new ReadOnlyStringWrapper("lorem");
13.
14.    private final ReadOnlyBooleanWrapper isDefinitionActive = new ReadOnlyBooleanWrapper(false);
15.
16.    /**
17.     * @return returns property of definition
18.     */
19.    public ReadOnlyStringProperty definitionProperty(){
20.        return definition.getReadOnlyProperty();
21.    }
22.
23.    /**
24.     * @return returns property of word
25.     */
26.    public ReadOnlyStringProperty wordProperty(){
27.        return word.getReadOnlyProperty();
28.    }
29.
30.    /**
31.     * @return returns boolean
32.     */
33.    public ReadOnlyBooleanProperty getIsDefinitionActive(){
34.    {
35.        return isDefinitionActive.getReadOnlyProperty();
36.    }
37.
38.    /**
39.     * toggle isDefinitionActive
40.     * @param newState current state of definition window
41.     */
42.    public void setIsDefinitionActive(boolean newState)
43.    {
44.        if(this.isDefinitionActive.get() == newState) { return; }
45.        if (newState){getPaperSoundPlayer().replay();}
46.        else {getReversePaperSoundPlayer().replay();}
47.        this.isDefinitionActive.set(newState);
48.    }
49.
50.    /**
51.     * @param currentWord Word, when OnPlayButton is passed
52.     */
53.    public void setPopup(String currentWord){
54.        word.set(currentWord);
55.        DictionaryDAO dictionary = new DictionaryDAO();
56.        currentWord = currentWord.toLowerCase();
57.        definition.set(dictionary.getWordDefinition(currentWord));
58.    }
59.
60.    // TODO this is only used here are there other classes with popups? Otherwise can remove parent Popup class and just have a single concrete DefinitionPopup model and controller.
61.    @Override
62.    public String getFXMLPath() {
63.        return "/com/example/project/PopUps/DefinitionView.fxml";
64.    }
65. }
```

PopupModel

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cqty	Missed	Lines	Missed	Methods
PopupModel()	100%		n/a		0	1	0	3	0	1
getPaperSoundPlayer()	100%		n/a		0	1	0	1	0	1
getReversePaperSoundPlayer()	100%		n/a		0	1	0	1	0	1
Total	0 of 21	100%	0 of 0	n/a	0	3	0	5	0	3

Created with JaCoCo 0.8.12.202403310830

PopupModel.java

```
1. package com.example.project.models.popups;
2.
3. import com.example.project.services.sound.GameSoundPlayer;
4.
5. /**
6.  * Parent class for popup windows
7. */
8. public abstract class PopupModel {
9.
10.    /**
11.     * gets FXML path
12.     * @return string path
13.    */
14.    public abstract String getFXMLPath();
15.
16.    protected final GameSoundPlayer paperSoundPlayer = new GameSoundPlayer("/com/example/project/Sounds/PaperFlip.wav");
17.
18.    protected final GameSoundPlayer reversePaperSoundPlayer = new GameSoundPlayer("/com/example/project/Sounds/PaperFlipReversed.wav");
19.    /**
20.     * gets paper sound player
21.     * @return sound player
22.    */
23.    public GameSoundPlayer getPaperSoundPlayer() {return paperSoundPlayer;}
24.
25.    /**
26.     * gets reversed paper sound player
27.     * @return sound player
28.    */
29.    public GameSoundPlayer getReversePaperSoundPlayer() {return reversePaperSoundPlayer;}
30. }
```

ScoreTimeline

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
animateTotalScore(int, int, Label, long)		0%	n/a		1	1	10	10	1	1
lambda\$animateTotalScore\$0(IntegerProperty, int, Label, ActionEvent)		0%		0%	2	2	4	4	1	1
lambda\$animateTotalScore\$1(Label, int, ActionEvent)		0%	n/a		1	1	2	2	1	1
ScoreTimeline()		0%	n/a		1	1	1	1	1	1
Total	70 of 70	0%	2 of 2	0%	5	5	17	17	4	4

Created with JaCoCo 0.8.12 202403310830

com.example.project.models.popups

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods	Missed	Classes
C DefinitionPopup		95%		75%	1	9	1	18	0	7	0	1
C PopupModel		100%		n/a	0	3	0	5	0	3	0	1
Total	3 of 94	96%	1 of 4	75%	1	12	1	23	0	10	0	2

Created with JaCoCo 0.8.12.202403310830

com.example.project.models.popups

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods	Missed	Classes
DefinitionPopup.java		95%		75%	1	9	1	18	0	7	0	1
PopupModel.java		100%		n/a	0	3	0	5	0	3	0	1
Total	3 of 94	96%	1 of 4	75%	1	12	1	23	0	10	0	2

Created with JaCoCo 0.8.12.202403310830

LetterTileGroup

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
updateVisuals()	100%	100%	100%	n/a	0	3	0	6	0	1
LetterTileGroup(int, Pane, ReadOnlyListProperty, Consumer, List, TileControllerFactory)	100%	100%	100%	n/a	0	2	0	5	0	1
createEmptySlots()	100%	100%	100%	n/a	0	1	0	4	0	1
loadEmptySlotIntoContainer()	100%	100%	100%	n/a	0	1	0	5	0	1
LetterTileGroup(int, Pane, ReadOnlyListProperty, Consumer)	100%	100%	100%	n/a	0	1	0	3	0	1
LetterTileGroup(int, Pane, ReadOnlyListProperty, Consumer, List)	100%	100%	100%	n/a	0	1	0	1	0	1
lambda\$new\$1(List, ObservableValue, ObservableList, ObservableList)	100%	100%	100%	n/a	0	1	0	1	0	1
lambda\$new\$0(List, ObservableValue, ObservableList, ObservableList)	100%	100%	100%	n/a	0	1	0	1	0	1
Total	0 of 136	100%	0 of 6	100%	0	11	0	29	0	8

Created with JaCoCo 0.8.12.202403310830

LetterTileGroup.java

```
1. package com.example.project.models.tileGroups;
2.
3. import com.example.project.controllers.tiles.EmptyTileSlotController;
4. import com.example.project.controllers.tiles.LetterTileController;
5. import com.example.project.models.tiles.EmptyTileSlotModel;
6. import com.example.project.models.tiles.LetterTileModel;
7. import com.example.project.controllers.tiles.TileControllerFactory;
8. import javafx.beans.property.ReadOnlyListProperty;
9. import javafx.scene.layout.Pane;
10. import java.util.ArrayList;
11. import java.util.List;
12. import java.util.function.Consumer;
13.
14. /**
15. * tile group that observes an observable list and updates the ui Tile Controller's nodes into their EmptyTileSlotController nodes.
16. */
17. public class LetterTileGroup extends TileGroup<LetterTileModel, LetterTileController>
18. {
19.     private final List<EmptyTileSlotController> tileSlots = new ArrayList<>();
20.     private final int numberofEmptyTileSlots;
21.
22.     protected LetterTileGroup(int numberofEmptyTileSlots, Pane container,
23.                               ReadOnlyListProperty<LetterTileModel> observedList,
24.                               Consumer<LetterTileController> onClickHandler,
25.                               List<Runnable> afterSyncActions,
26.                               TileControllerFactory factory)
27.     {
28.         super(container, onClickHandler, LetterTileController.class, observedList);
29.         this.tileControllerFactory = factory;
30.         observedList.addListener((obs, oldVal, newVal) -> afterSyncActions.forEach(Runnable::run));
31.         this.numberofEmptyTileSlots = numberofEmptyTileSlots;
32.         createEmptySlots();
33.     }
34.
35.     /**
36.      * Constructor
37.      * @param numberofEmptyTileSlots number of max tiles in group (empty slots)
38.      * @param container container to place all in.
39.      * @param observedList the observed list.
40.      * @param onClickHandler On tile click action.
41.      * @param afterSyncActions additional synchronisation actions that need to happen when this observed list changes.
42.      */
43.     public LetterTileGroup(int numberofEmptyTileSlots, Pane container,
44.                           ReadOnlyListProperty<LetterTileModel> observedList,
45.                           Consumer<LetterTileController> onClickHandler,
46.                           List<Runnable> afterSyncActions)
47.     {
48.         this(numberofEmptyTileSlots, container, observedList, onClickHandler);
49.         observedList.addListener((obs, oldVal, newVal) -> afterSyncActions.forEach(Runnable::run));
50.     }
51.
52.     /**
53.      * Constructor
54.      * @param numberofEmptyTileSlots number of max tiles in group (empty slots)
55.      * @param container container to place all in.
56.      * @param observedList the observed list.
57.      * @param onClickAction On tile click action.
58.      */
59.     public LetterTileGroup(int numberofEmptyTileSlots, Pane container,
60.                           ReadOnlyListProperty<LetterTileModel> observedList,
61.                           Consumer<LetterTileController> onClickAction)
62.     {
63.         super(container, onClickAction, LetterTileController.class, observedList);
64.         this.numberofEmptyTileSlots = numberofEmptyTileSlots;
65.         createEmptySlots();
66.     }
67.
68.     /**
69.      * Create empty slots for both word area and tile rack
70.      */
71.     private void createEmptySlots()
72.     {
73.         tileSlots.clear();
74.
75.         for (var i = 0; i < numberofEmptyTileSlots; i++)
76.         {
77.             var emptyTileController = loadEmptySlotIntoContainer();
78.             tileSlots.add(emptyTileController);
79.         }
80.     }
81.
82.     /**
83.      * Load a new empty slot into a container
84.      */
```

```
85.     private EmptyTileSlotController loadEmptySlotIntoContainer()
86.     {
87.         // TODO: this model should store empty tiles and the controller of this should observe those.
88.         var emptyTile = new EmptyTileSlotModel();
89.         EmptyTileSlotController controller = tileControllerFactory.createTileController(emptyTile, EmptyTileSlotController.class);
90.         container.getChildren().add(controller.getRoot());
91.         return controller;
92.     }
93.
94.     @Override
95.     protected void updateVisuals()
96.     {
97.         // update visuals
98.         for (EmptyTileSlotController rowsEmptyTile : tileSlots) {
99.             rowsEmptyTile.setLetter(null);
100.        }
101.
102.         for (int i = 0; i < tileControllers.size(); i++){
103.             tileSlots.get(i).setLetter(tileControllers.get(i));
104.         }
105.     }
106. }
```

Created with JaCoCo 0.8.12.202403310830

TileGroup

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
● lambda\$recreateControllers\$1(TileController, MouseEvent)		0%	n/a		1	1	1	1	1	1
● recreateControllers()		100%		75%	1	3	0	8	0	1
● TileGroup(Pane, Class, ReadOnlyListProperty)		100%	n/a		0	1	0	9	0	1
● TileGroup(Pane, Consumer, Class, ReadOnlyListProperty)		100%	n/a		0	1	0	3	0	1
● syncTiles()		100%	n/a		0	1	0	3	0	1
● getControllers()		100%	n/a		0	1	0	1	0	1
● lambda\$new\$0(ObservableValue, ObservableList, ObservableList)		100%	n/a		0	1	0	1	0	1
Total	5 of 92	94%	1 of 4	75%	2	9	0	24	1	7

Created with JaCoCo 0.8.12.202403310830

TileGroup.java

```
1. package com.example.project.models.tileGroups;
2.
3. import com.example.project.controllers.tiles.TileController;
4. import com.example.project.models.tiles.TileModel;
5. import com.example.project.controllers.tiles.TileControllerFactory;
6. import javafx.beans.property.ReadOnlyListProperty;
7. import javafx.scene.layout.Pane;
8.
9. import java.util.ArrayList;
10. import java.util.List;
11. import java.util.function.Consumer;
12.
13. /**
14. * Tile Group abstract class holds a row or column of tiles.
15. * @param <modelType> tile model type.
16. * @param <controllerType> controller type.
17. */
18. public abstract class TileGroup<modelType extends TileModel, controllerType extends TileController<modelType>>
19. {
20.     protected final Pane container;
21.     protected final List<controllerType> tileControllers = new ArrayList<>();
22.     protected TileControllerFactory tileControllerFactory = new TileControllerFactory();
23.     protected Consumer<controllerType> onClickAction = null;
24.     private final Class<controllerType> controllerClass;
25.     private final ReadOnlyListProperty<modelType> observedModels;
26.
27.     TileGroup(Pane container, Consumer<controllerType> onClickAction, Class<controllerType> tileControllerClass, ReadOnlyListProperty<modelType> observedList)
28.     {
29.         this(container, tileControllerClass, observedList);
30.         this.onClickAction = onClickAction;
31.     }
32.
33.     TileGroup(Pane container, Class<controllerType> tileControllerClass, ReadOnlyListProperty<modelType> observedList)
34.     {
35.         this.container = container;
36.         this.controllerClass = tileControllerClass;
37.         this.observedModels = observedList;
38.         this.observedModels.addListener((obs, oldVal, newVal) -> syncTiles());
39.     }
40.
41.     private void recreateControllers()
42.     {
43.         tileControllers.clear();
44.         for (modelType tile : this.observedModels)
45.         {
46.             controllerType controller = tileControllerFactory.createTileController(tile, controllerClass);
47.             tileControllers.add(controller);
48.
49.             if (onClickAction != null){
50.                 controller.getRoot().setOnMouseClicked(e -> onClickAction.accept(controller));
51.             }
52.         }
53.     }
54.
55.     protected abstract void updateVisuals();
56.
57. /**
58. * Sync tiles in this tile groups controller.
59. */
60. public void syncTiles()
61. {
62.     recreateControllers();
63.     updateVisuals();
64. }
65.
66. /**
67. * Gets the groups tile controllers.
68. * @return the letter tile groups controllers
69. */
70. public List<controllerType> getControllers(){
71.     return tileControllers;
72. }
```

UpgradeTileGroup

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
UpgradeTileGroup(Pane, ReadOnlyListProperty)		0%	n/a	1	1	2	2	1	1	
lambda\$trackDuplicates\$0(Object, Integer)		60%		50%	1	2	0	1	0	1
updateVisuals()		98%		66%	4	7	1	22	0	1
trackDuplicates(List)		100%		100%	0	2	0	5	0	1
UpgradeTileGroup(Pane, ReadOnlyListProperty, Consumer)		100%	n/a	0	1	0	2	0	0	1
Total	11 of 141	92%	5 of 16	68%	6	13	3	31	1	5

Created with JaCoCo 0.8.12.202403310830

UpgradeTileGroup.java

```

1. package com.example.project.models.tileGroups;
2.
3. import com.example.project.controllers.tiles.UpgradeTileController;
4. import com.example.project.models.tiles.UpgradeTileModel;
5. import javafx.beans.property.ReadOnlyListProperty;
6. import javafx.scene.layout.Pane;
7.
8. import java.util.*;
9. import java.util.function.Consumer;
10.
11. /**
12. * tile group that observes an observable list and updates the ui nodes for some game tiles.
13. */
14. public class UpgradeTileGroup extends TileGroup<UpgradeTileModel, UpgradeTileController>
15. {
16.     /**
17.      * Constructor.
18.      * @param container container all tiles are in.
19.      * @param observedList the observed list that when changes this tile group will sync.
20.      * @param onClickAction additional synchronisation actions that need to be called.
21.      */
22.     public UpgradeTileGroup(Pane container, ReadOnlyListProperty<UpgradeTileModel> observedList, Consumer<UpgradeTileController> onClickAction)
23.     {
24.         super(container, onClickAction, UpgradeTileController.class, observedList);
25.     }
26.
27.     /**
28.      * Constructor with no additional sync action parameter.
29.      * @param container container tiles are in.
30.      * @param observedList the observed list that when changes this tile group will sync.
31.      */
32.     public UpgradeTileGroup(Pane container, ReadOnlyListProperty<UpgradeTileModel> observedList)
33.     {
34.         super(container, UpgradeTileController.class, observedList);
35.     }
36.
37.     /**
38.      * Makes hashmap that tracks the count of each element in list
39.      * @param list the input list of elements
40.      * @param <T> the type of elements in the list
41.      * @return a map for # of dupes for each unique element
42.      */
43.     public static <T> Map<T, Integer> trackDuplicates(List<T> list){
44.         Map<T, Integer> countMap = new HashMap<>();
45.
46.         for (T element : list) {
47.             countMap.compute(element, (key, count) -> (count == null) ? 1 : count + 1);
48.         }
49.
50.         return countMap;
51.     }
52.
53.     @Override
54.     protected void updateVisuals()
55.     {
56.         List<UpgradeTileModel> allModels = new ArrayList<>();
57.         for (var controller : tileControllers) {
58.             allModels.add(controller.getModel());
59.         }
60.
61.         Map<UpgradeTileModel, Integer> countMap = trackDuplicates(allModels);
62.
63.         Set<UpgradeTileModel> uniqueModels = countMap.keySet();
64.
65.         Set<UpgradeTileController> usedControllers = new HashSet<>();
66.
67.
68.
69.         container.getChildren().clear();
70.
71.         for (var uniqueModel : uniqueModels)
72.         {
73.             UpgradeTileController controllerToUse = null;
74.             for (var controller : tileControllers) {
75.                 if (controller.getModel().equals(uniqueModel) && !usedControllers.contains(controller)) {
76.                     controllerToUse = controller;
77.                     usedControllers.add(controller); // Mark as used
78.                     break;
79.                 }
80.             }
81.
82.             if (controllerToUse != null) {
83.                 int count = countMap.get(uniqueModel);
84.                 controllerToUse.updateCount(count);
85.                 container.getChildren().add(controllerToUse.getRoot());
86.             }
87.         }
88.     }
89. }
```

com.example.project.models.tileGroups

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods	Missed	Classes
C UpgradeTileGroup		92%		68%	6	13	3	31	1	5	0	1
C TileGroup		94%		75%	2	9	0	24	1	7	0	1
C LetterTileGroup		100%		100%	0	11	0	29	0	8	0	1
Total	16 of 369	95%	6 of 26	76%	8	33	3	84	2	20	0	3

Created with JaCoCo 0.8.12.202403310830

com.example.project.models.tileGroups

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods	Missed	Classes
UpgradeTileGroup.java		92%		68%	6	13	3	31	1	5	0	1
TileGroup.java		94%		75%	2	9	0	24	1	7	0	1
LetterTileGroup.java		100%		100%	0	11	0	29	0	8	0	1
Total	16 of 369	95%	6 of 26	76%	8	33	3	84	2	20	0	3

Created with JaCoCo 0.8.12.202403310830

ScoreTimeline.java

```
1. package com.example.project.controllers.gameScreens.animations;
2. import javafx.animation.KeyFrame;
3. import javafx.animation.Timeline;
4. import javafx.beans.property.IntegerProperty;
5. import javafx.beans.property.SimpleIntegerProperty;
6. import javafx.scene.control.Label;
7. import javafx.util.Duration;
8.
9. /**
10. * Class for total score counter animation
11. */
12. public class ScoreTimeline {
13.     /**
14.      * @param totalDurationMillis total duration
15.      * @param startScore int from current total score
16.      * @param endScore int from calculated current score
17.      * @param currentScoreLabel Label for total score
18.      * @return timeline of total score counter
19.     */
20.     public Timeline animateTotalScore(int startScore, int endScore, Label currentScoreLabel, long totalDurationMillis) {
21.         // Total scoring timeline
22.         Timeline scoreTimeline = new Timeline();
23.         IntegerProperty currentScore = new SimpleIntegerProperty(startScore);
24.
25.         int scoreDifference = endScore - startScore;
26.
27.         int steps = scoreDifference;
28.
29.         double durationPerStepMillis = (double) totalDurationMillis / steps;
30.
31.         scoreTimeline.getKeyFrames().add(
32.             new KeyFrame(Duration.millis(durationPerStepMillis), event -> {
33.                 if (currentScore.get() < endScore) {
34.                     currentScore.set(currentScore.get() + 1);
35.                     currentScoreLabel.setText(String.valueOf(currentScore.get()));
36.                 }
37.             })
38.         );
39.         scoreTimeline.setCycleCount(steps);
40.
41.         scoreTimeline.setOnFinished(event -> {
42.             currentScoreLabel.setText(String.valueOf(endScore));
43.         });
44.
45.         return scoreTimeline;
46.     }
47. }
```

EmptyTileSlotModel

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
EmptyTileSlotModel()	100%		n/a		0	1	0	2	0	1
getTile()	100%		n/a		0	1	0	1	0	1
setTile(LetterTileModel)	100%		n/a		0	1	0	2	0	1
getFXMLPath()	100%		n/a		0	1	0	1	0	1
Total	0 of 21	100%	0 of 0	n/a	0	4	0	6	0	4

Created with JaCoCo 0.8.12.202403310830

EmptyTileSlotModel.java

```
1. package com.example.project.models.tiles;
2.
3.
4. import javafx.beans.property.SimpleObjectProperty;
5.
6. /**
7. * An empty tile slot model. Empty tile slots store a letter tile.
8. */
9. public class EmptyTileSlotModel extends TileModel
10.
11.     private SimpleObjectProperty<LetterTileModel> currentTile = new SimpleObjectProperty<>(null);
12.
13.     /**
14.     * get letter tile in slot.
15.     * @return letter tile.
16.     */
17.     public LetterTileModel getTile(){
18.         return this.currentTile.get();
19.     }
20.
21.     /**
22.     * Set a new tile.
23.     * @param tile letter tile.
24.     */
25.     public void setTile(LetterTileModel tile)
26.     {
27.         this.currentTile.set(tile);
28.     }
29.
30.     @Override
31.     public String getFXMLPath() {
32.         return "/com/example/project/SingleTiles/emptyTileSlot.fxml";
33.     }
34. }
```

LetterTileModel

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
• LetterTileModel(Character)	100%		n/a		0	1	0	5	0	1
• getLetter()	100%		n/a		0	1	0	1	0	1
• getValue()	100%		n/a		0	1	0	1	0	1
• getFXMLPath()	100%		n/a		0	1	0	1	0	1
Total	0 of 28	100%	0 of 0	n/a	0	4	0	8	0	4

Created with JaCoCo 0.8.12.202403310830

LetterTileModel.java

```
1. package com.example.project.models.tiles;
2.
3.
4. /**
5.  * Represents the letter tiles the player plays holds, redraws.
6. */
7. public class LetterTileModel extends TileModel
8. {
9.     private final Character letter;
10.
11.    private final Integer value;
12.
13.    /**
14.     * @param newLetter letter
15.     */
16.    public LetterTileModel(Character newLetter)
17.    {
18.        this.letter = Character.toUpperCase(newLetter);
19.        ScrabbleTileProvider provider = new ScrabbleTileProvider();
20.        this.value = provider.getValue(letter);
21.    }
22.
23.    /**
24.     * @return returns the tiles character.
25.     */
26.    public Character getLetter() {
27.        return letter;
28.    }
29.
30.    /**
31.     * @return base value of scrabble letter score.
32.     */
33.    public Integer getValue(){
34.        return this.value;
35.    }
36.
37.    @Override
38.    public String getFXMLPath() {
39.        return "/com/example/project/SingleTiles/letterTileView.fxml";
40.    }
41.}
```

ScrabbleTileProvider.ScrabbleTileData

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
ScrabbleTileProvider.ScrabbleTileData(int, int)	100%		n/a		0	1	0	1	0	1
Total	0 of 9	100%	0 of 0	n/a	0	1	0	1	0	1

Created with JaCoCo 0.8.12.202403310830

ScrabbleTileProvider

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
ScrabbleTileProvider()	100%	100%	100%	100%	0	2	0	38	0	1
getValue(Character)	100%	100%	100%	100%	0	2	0	2	0	1
drawRandomTile()	100%	100%	n/a	n/a	0	1	0	2	0	1
static {...}	100%	100%	n/a	n/a	0	1	0	1	0	1
seedRandomNumberGenerator(long)	100%	100%	n/a	n/a	0	1	0	2	0	1
Total	0 of 380	100%	0 of 4	100%	0	7	0	45	0	5

Created with JaCoCo 0.8.12.202403310830

ScrabbleTileProvider.java

```
1. package com.example.project.models.tiles;
2.
3. import java.util.Map;
4. import java.util.TreeMap;
5. import java.util.Random;
6.
7. /**
8. * Static class to store the scrabble base letter value.
9. */
10. public class ScrabbleTileProvider {
11.     /**
12.      * Constructor.
13.      */
14.     public ScrabbleTileProvider() {
15.         /**
16.          // Calculate total number of tiles by summing frequencies
17.          double totalTiles = this.baseLetterData.values().stream()
18.              .mapToInt(ScrabbleTileData::frequency)
19.              .sum();
20.
21.          double cumulativeFrequency = 0.0;
22.
23.          // Populate the cdfMap
24.          for (Map.Entry<Character, ScrabbleTileData> entry : baseLetterData.entrySet()) {
25.              cumulativeFrequency += entry.getValue().frequency();
26.              cdfMap.put(cumulativeFrequency / totalTiles, entry.getKey());
27.          }
28.      }
29. }
30.
31. /**
32. * @param value value of scrabble letter
33. * @param frequency population of tile
34. */
35. public record ScrabbleTileData(int value, int frequency)
36. {
37.
38.     private final TreeMap<Double, Character> cdfMap = new TreeMap<>();
39.     private static final Random random = new Random();
40.
41.     protected static void seedRandomNumberGenerator(long newSeed){
42.         random.setSeed(newSeed);
43.     }
44.
45.     private final Map<Character, ScrabbleTileData> baseLetterData = Map.ofEntries(
46.         Map.entry('a', new ScrabbleTileData(1, 9)),
47.         Map.entry('b', new ScrabbleTileData(3, 2)),
48.         Map.entry('c', new ScrabbleTileData(3, 2)),
49.         Map.entry('d', new ScrabbleTileData(2, 4)),
50.         Map.entry('e', new ScrabbleTileData(1, 12)),
51.         Map.entry('f', new ScrabbleTileData(4, 2)),
52.         Map.entry('g', new ScrabbleTileData(2, 3)),
53.         Map.entry('h', new ScrabbleTileData(4, 2)),
54.         Map.entry('i', new ScrabbleTileData(1, 9)),
55.         Map.entry('j', new ScrabbleTileData(8, 1)),
56.         Map.entry('k', new ScrabbleTileData(5, 1)),
57.         Map.entry('l', new ScrabbleTileData(1, 4)),
58.         Map.entry('m', new ScrabbleTileData(3, 2)),
59.         Map.entry('n', new ScrabbleTileData(1, 6)),
60.         Map.entry('o', new ScrabbleTileData(1, 8)),
61.         Map.entry('p', new ScrabbleTileData(3, 2)),
62.         Map.entry('q', new ScrabbleTileData(10, 1)),
63.         Map.entry('r', new ScrabbleTileData(1, 6)),
64.         Map.entry('s', new ScrabbleTileData(1, 4)),
65.         Map.entry('t', new ScrabbleTileData(1, 6)),
66.         Map.entry('u', new ScrabbleTileData(1, 4)),
67.         Map.entry('v', new ScrabbleTileData(4, 2)),
68.         Map.entry('w', new ScrabbleTileData(4, 2)),
69.         Map.entry('x', new ScrabbleTileData(8, 1)),
70.         Map.entry('y', new ScrabbleTileData(4, 2)),
71.         Map.entry('z', new ScrabbleTileData(10, 1))
72. );
73.
74. /**
75. * Returns Integer of the letter according to scrabble
76. * @param letter letter to get value of
77. * @return Integer value of the letter, or 0 if not found
78. */
```

```
79.     public int getValue(Character letter)
80.     {
81.         ScrabbleTileData data = baseLetterData.get(Character.toLowerCase(letter));
82.         return (data != null) ? data.value() : 0;
83.     }
84.
85.    /**
86.     * @return randomly selected tile based on CDF
87.     */
88.    public Character drawRandomTile() {
89.        // Generate a random float between 0.0 (inclusive) and 1.0 (exclusive)
90.        double randomFloat = random.nextDouble();
91.
92.        // Find the first entry in the CDF map whose key is greater than or equal to the random float.
93.        return cdfMap.tailMap(randomFloat, true).firstEntry().getValue();
94.    }
95.
96. }
```

Created with JaCoCo 0.8.12.202403310830

TileModel

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
TileModel()	100%		n/a		0	1	0	3	0	1
getHoverSoundPlayer()	100%		n/a		0	1	0	1	0	1
getClackSoundPlayer()	100%		n/a		0	1	0	1	0	1
Total	0 of 23	100%	0 of 0	n/a	0	3	0	5	0	3

Created with JaCoCo 0.8.12.202403310830

TileModel.java

```
1. package com.example.project.models.tiles;
2.
3. import com.example.project.services.sound.GameSoundPlayer;
4.
5. /**
6. * Parent tile class for objects in the scene that are tiles.
7. */
8. public abstract class TileModel
9.
10. {
11.     /**
12.      * gets the fxml path.
13.      * @return string path.
14.      */
15.     public abstract String getFXMLPath();
16.
17.     protected final GameSoundPlayer hoverSoundPlayer = new GameSoundPlayer("/com/example/project/Sounds/hover.wav", -80f);
18.     protected final GameSoundPlayer ClackSoundPlayer = new GameSoundPlayer("/com/example/project/Sounds/clack3.wav", 6f);
19.
20.     /**
21.      * gets the hover sound player
22.      * @return sound player
23.      */
24.     public GameSoundPlayer getHoverSoundPlayer() { return hoverSoundPlayer; }
25.
26.     /**
27.      * gets the sound player that plays the click sound.
28.      * @return sound player.
29.      */
30.     public GameSoundPlayer getClackSoundPlayer() {return ClackSoundPlayer;}
31.
32.     /**
33.      * corner radius (rounded corners).
34.      */
35.     public static final int CORNER_RADIUS = 20;
}
```

UpgradeEffects

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods
braceletEffect(LevelModel)		0%		0%	4	4	10	10	1	1
glassesEffect(LevelModel)		0%		0%	3	3	7	7	1	1
buttonEffect(LevelModel)		0%		0%	3	3	6	6	1	1
diceEffect(LevelModel)		0%		n/a	1	1	5	5	1	1
mirrorEffect(LevelModel)		0%		0%	2	2	6	6	1	1
coinEffect(LevelModel)		0%		0%	2	2	6	6	1	1
UpgradeEffects()		0%		n/a	1	1	1	1	1	1
Total	200 of 200	0%	18 of 18	0%	16	16	41	41	7	7

Created with JaCoCo 0.8.12.202403310830