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# BONKS AND ZAPS

# INTRODUCTION

In the proceeding text of this document I will discuss the aforementioned bonks and zaps assignment that I have completed to my best efforts in programming and walkthrough what it does and how. There will be sections on design, testing, and evaluation.

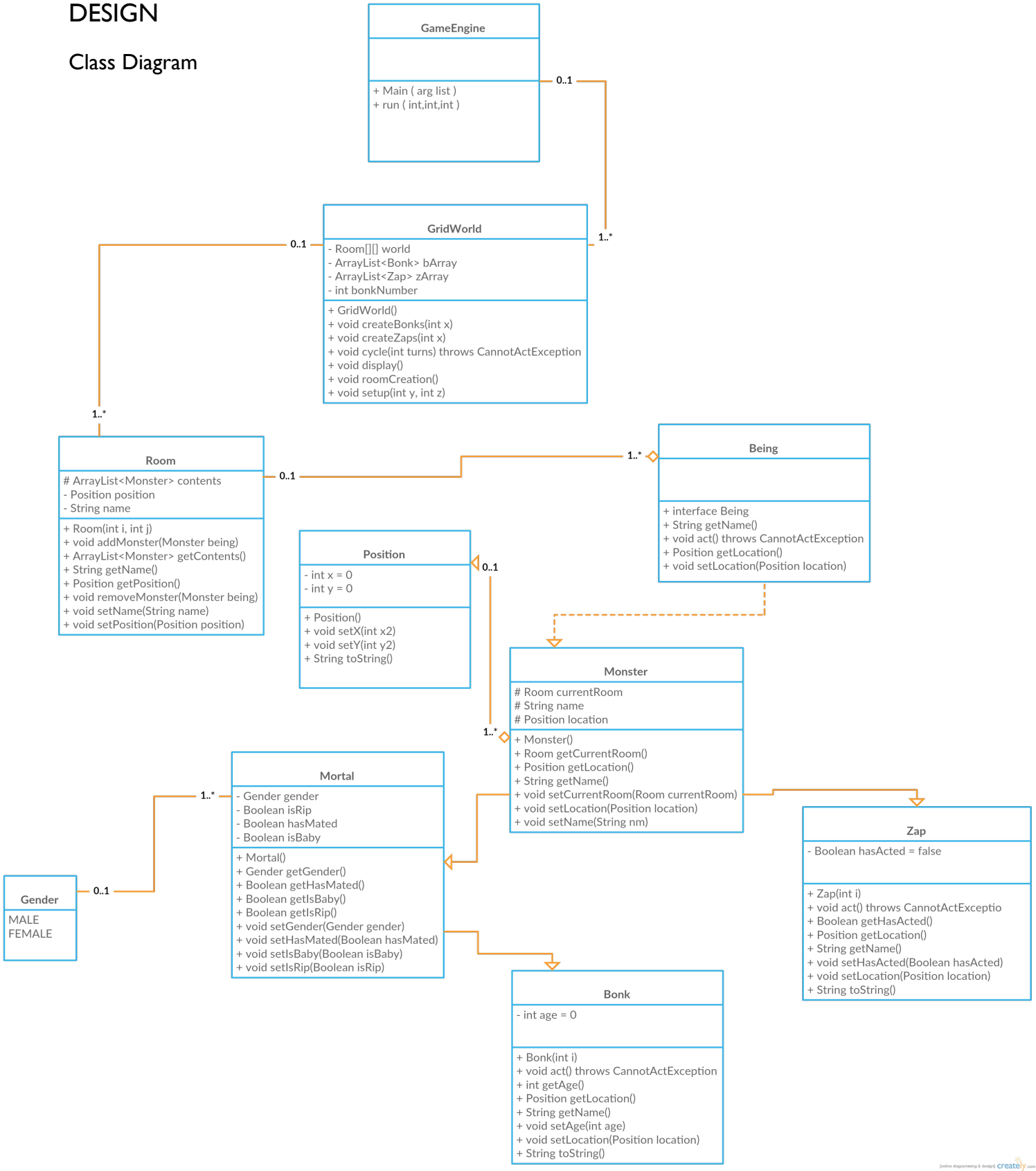
The design section will have the diagrams and descriptions for all the classes, methods and attributes. There will be some pseudo-code and diagrams for the more complex code.

In the testing section there will be screenshots of the running code and its outcome. In this section there will be a discussion of test data used in the program and the results of the code sing the test data. There will be a testing table to better lay out the results.

In the Evaluation section will describe how I went about fulfilling the requirements of the of the assignment. I will discuss what I found difficult and what went by without much of a hitch, what I learnt for and during the assignment and what I think I should get for the assignment.

# DESIGN

## Class Diagram



## Class Descriptions

### Being

The Being interface was provided by the class instructor as a basis for all creatures or monsters that would inhabit the world in the program.

### Bonk

The Bonk class is a creature in the world that is a a mortal that was extended from the Monster class and being classes. the bonk is able to move around the world one room at a time and can mate with other bonks of the opposite gender if they are both adults. This class also interacts with the zap class in which the zap kills all the bonks in the same room at the start of every cycle.

### GameEngine

The GameEngine class is the main class which runs the program. This is the class that initializes the GridWorld class, gets the inputs for the number of cycles, bonks and zaps and then runs the GridWorld with the variables it has stored.

### Gender

This is the Enumerator that assigns the bonks a gender at random when they are created which allows them to reproduce.

### GridWorld

The GridWorld class is where the 2d grid of rooms are stored and where the main cycle of the program is situated. In this class is where all the bonks and zaps for the current instance of the game are created and put into their corresponding rooms which is selected at random. It is also the class from which the GridWorld is displayed after every cycle and where the bonks and zaps are stored temporarily when the are being moved around the world.

### Monster

Monster is the class which implements beings and is extended at a base level by the bonks and zaps. This is where they get their location and name variables from.

### Mortal

Mortal is the class from which the bonks get the variables of gender and the ability to age, reproduce and die. This in-between class extends monster and is extended by bonks and was created to separate the bonks and zaps and any other beings mortals that are created in the further development of the program. This was created so that the variables that the bonks needed to function as a bonk was not initialized in the zaps.

### Position

The Position class was created so that the rooms and monsters would know where on the grid they where and is used for movement of the monsters around the grid.

### Room

In the Room class is where all the current monsters are stored while they are within the grid world. They are how the monsters interact if they are in the same room and where the bonks stay if they where killed by a zap.

### Zap

The Zaps are the immortals of the world. This Class extends the Monster class and is the one that can kill the bonks if they are in the same room and only share names and location with the Bonk class from the Monster class.

# TESTING

## Screenshots

### Test 1

```
<terminated> GameEngine [Java Application] /Library/Java/Ja
//////////////////////////////////////////////////
Welcome to bonks and zaps
How many turns would you like the game to run
//////////////////////////////////////////////////
30
//////////////////////////////////////////////////
How many starting bonks would you like
//////////////////////////////////////////////////
20
//////////////////////////////////////////////////
How many starting zaps would you like
//////////////////////////////////////////////////
5

20bonks 0deadBonks 5zaps
```

```
38bonks 1deadBonks 5zaps

Cycle30

 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 1b0db0z 0b0db0z 0b0db0z 0b0db0z 1b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z
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 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z
```

Test 2

```
//////////////////////////////////////////////////
Welcome to bonks and zaps
How many turns would you like the game to run
//////////////////////////////////////////////////
100
//////////////////////////////////////////////////
How many starting bonks would you like
//////////////////////////////////////////////////
40
//////////////////////////////////////////////////
How many starting zaps would you like
//////////////////////////////////////////////////
10

39bonks 1deadBonks 10zaps
```

```
64bonks 10deadBonks 10zaps

Cycle100

 1b0db0z 0b0db0z 1b0db1z 1b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z
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 1b0db0z 0b0db0z 0b0db0z 1b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 1b0db0z 0b0db0z
 1b0db0z 1b0db0z 0b0db1z 0b0db0z 0b0db0z 0b0db0z 1b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 0b0db0z 1b0db0z 0b0db0z 0b0db0z 0b0db0z 1b0db0z
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```

## EVALUATION

In this assignment I've learnt more about Java whether from in the workshops or online in trying to completely fulfill the requirements that where given to us on the assignment sheet. However some of it I already knew from previously and these where the parts that went by without a hitch. The parts that I found the most difficult where the movement of all the beings, the killing of the bonks and the reproduction of the bonks. On these sections I had to get help at the workshops and advisories. the part that I struggled with the most has to be the movement. in the end I went with a temporary array in the grid world the took the bonks and zaps out of their respective rooms after the other functions such as kill and mate where performed and then checked the bonks that where alive and gave them new coordinates respective of their old ones. I then when through the temporary array and put all the bonks and zaps in their new rooms respective of their new coordinates. Overall I think that all the requirements have been met however I would have like to take it further with a GUI and some more functions like trying to get the bonks to avoid the zaps so that they could have lasted longer, unfortunately I underestimated the amount of time I had left and could not at least try to attempt these methods and functions. Regarding what I have completed I think I should at least get 50% in this assignment.