

# Team redpanda: Sprint0

University of Toronto Mississauga, CSC207 Assignment 3

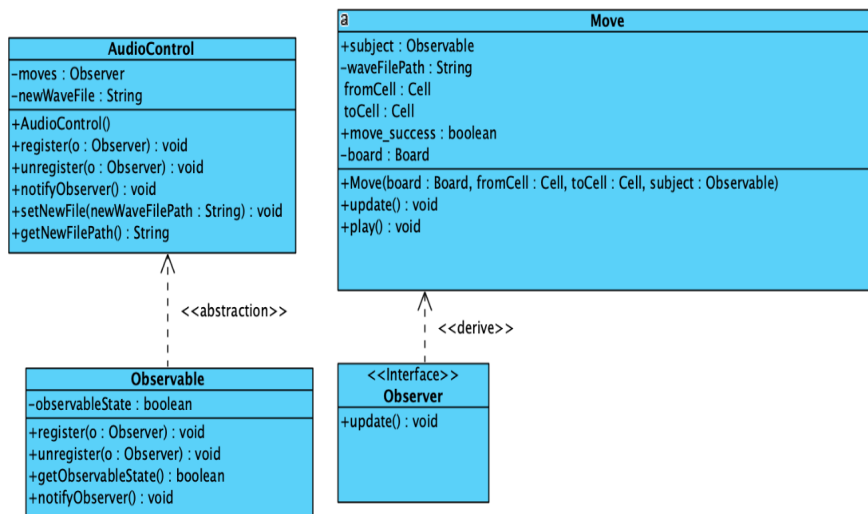
DATE: Sunday, November 21st, 2021

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## 1. Observable pattern

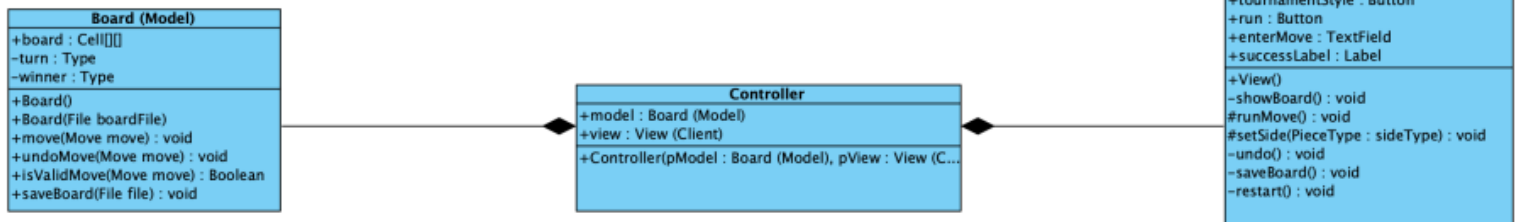


**Description:**  
 How does the Observer Pattern Work?  
 The Observable AudioControl updates each Move by updating its waveFilePath attribute with the String path present in the Observable newWaveFile attribute. It does so by calling notifyObserver()  
 What does it solve?  
 It simply adds entertainment value to the game, as most games have sounds. Whenever any piece on the board moves, a sound is made.

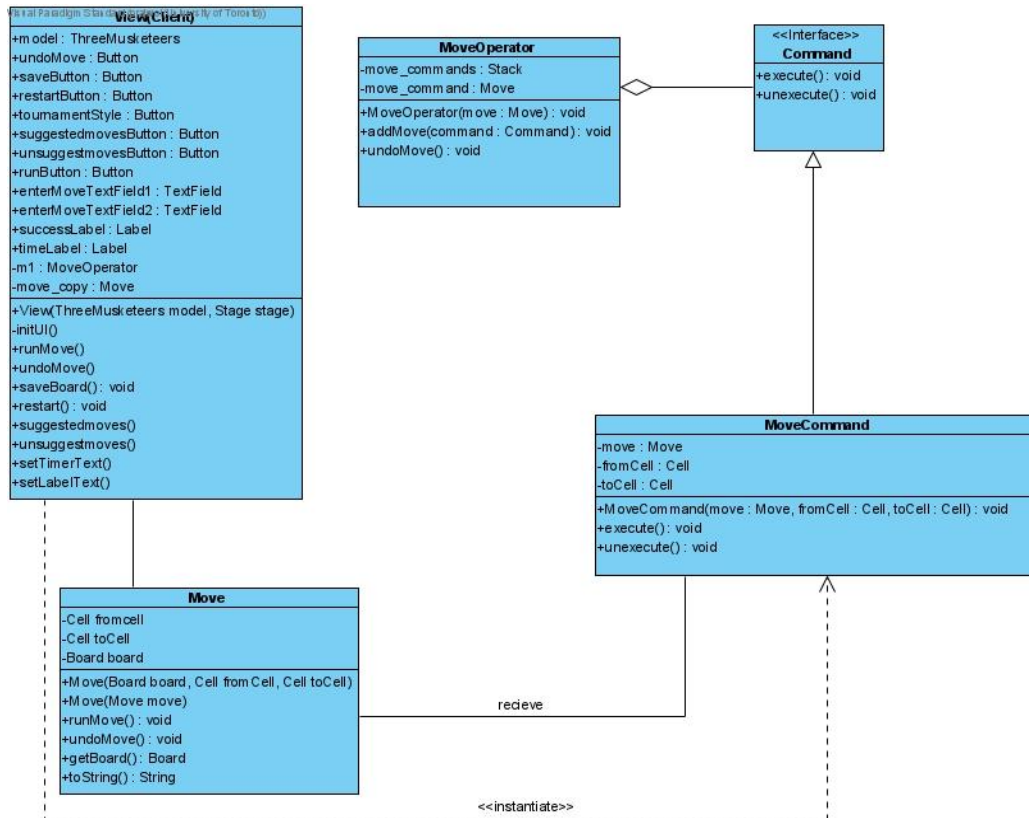
## 2. MVC pattern

**Description:**  
 How does the MVC Pattern Work?  
 successLabel is added to the View of our GUI which is a Label that indicates whether the move was successful or not. When a user clicks on a cell. The handle function of the boardPanel that we create for our GUI will set an attribute of our boardPanel class with "Success" or "Fail". In the updateCells() function of our boardPanel GUI, we will set the view successLabel attribute to the new boardPanel variable we just created.

**What does it solve?**  
 This allows the user to know whether their move failed or succeeded. They will not be clicking aimlessly on the screen



### 3. Command Pattern



#### What does it do :

The Command Pattern is used here to run and undo move commands in the board.

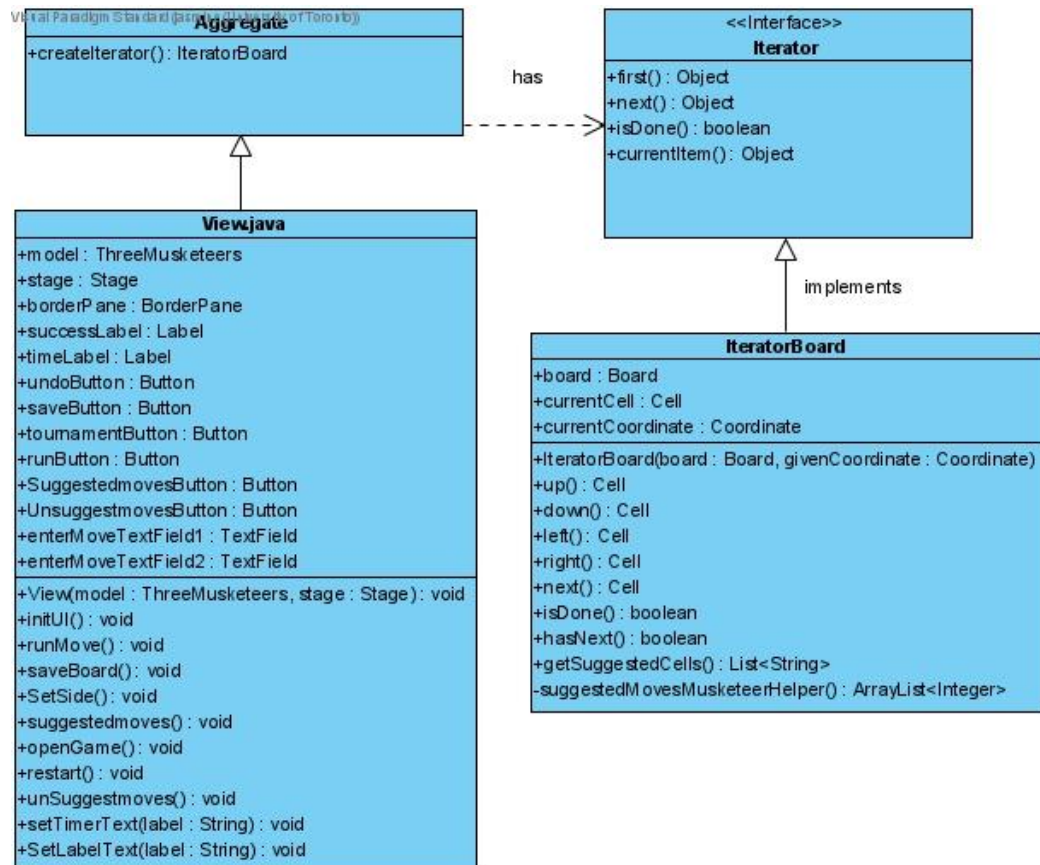
#### How does it work:

Here, the view(client) asks for a command to be executed when the user presses the buttons, run or undoMove. Then, a MoveCommand is created from the user inputs. The MoveOperator(Invoker) takes the new MoveCommand, encapsulates it, adds it to the move\_commands list and calls the execute method and then the Move class performs the operations. When the undo operations are called the invoker removes the last performed move.

#### What does it solve:

It allows for encapsulating the commands and storing them in a list, or undoing the last command.

## 4. Iterator Pattern



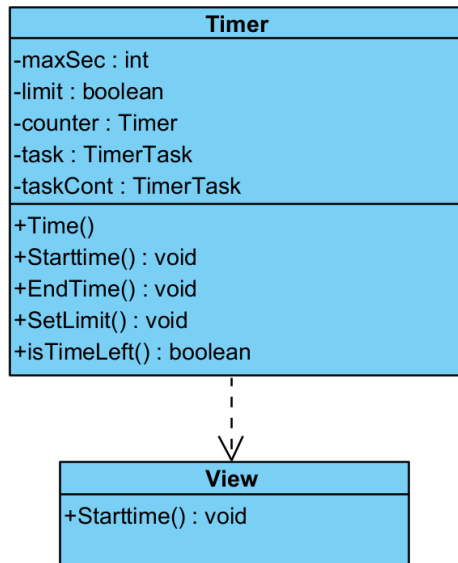
**Description:**

**What does it do?**  
The Iterator Pattern allows the traversal of the board using a pointer, which is a Cell in the board.

**How does Iteration Pattern Work?**  
When initialized, the `IteratorBoard` class has a `Board` object and `Coordinate` Object. In the constructor, the current Cell is derived using the current `Coordinate`. For each method that takes a `Piece`, `Cell`, `Coordinate`, `currentItem` returns that `Cell` and `next` returns the next `Cell`. In addition, for a given `Piece` in the board, the function `getSuggestedCells()` return a List of strings that contain the Coordinates (i.e. A4) of the suggested Cells that the current `Piece` can move to. In general, the Iterator pattern contains methods that allow traversal of a Collection (i.e. `first()`, `hasNext()`, `next()`).

**What does it solve?**  
It allows the user to get suggestion(s) for their next move for the `Coordinate`

## 5. Singleton Pattern



### Timer Implementation

#### What does it do?

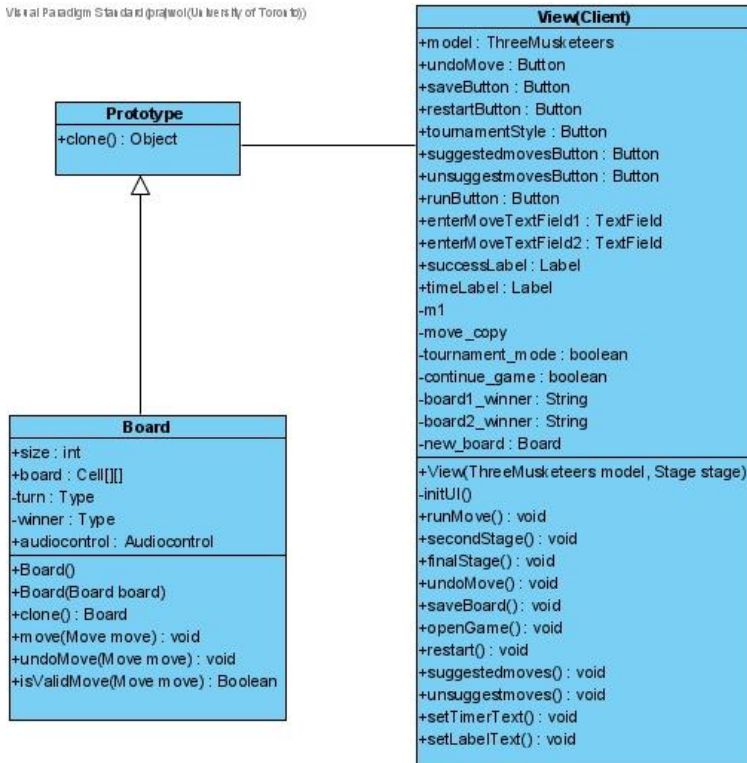
The timer counts up from 0 seconds, and continues to count until instance of game is over. Shows the total seconds on GUI.

#### How does the singleton pattern work?

It simply starts with the creation of the timer object in the timer class, which would have many functions that will be implemented. The view class would contain the GUI elements that would use the Starttime() function to run the instance of the time object to display on the user interface.

## 6. Prototype Pattern

Visual Paradigm Standard (copyrighted by University of Toronto)



### What does it do:

Here, the prototype pattern allows the cloning of an instance of a board

### How does it work:

The client class creates a new Board object when the user clicks the tournamentStyle button. Then, depending on the needed board, the board will handle the cloning and makes a new instance of itself.

### What does it solve:

It allows for more people to participate in the game and also using the prototype pattern uses less computer resources.