PROGRAMMING ASSIGNMENT 4

Name : Muhammed Said
Surname : Kaya
Student Number : 21627428
Section : 03
Programing Language : JAVA
Subject : Abstract Classes & Interfaces

Explanation of Classes

In this Project , There is exactly 15 classes. Of course there is main class and another class , whose name is ReadWrite and applications is doing methods that in ReadWrite class. Also There is an jewel interface . It is used to compare every Jewel (Diamond , Square ,Triangle ,Wildcard and MathSymbol) . MathSymbol class has exactly 5 subclass. They are Minus, Line ,Plus ,Slash and ReverseSlash . as I said , every Jewel has different compare method. Also there is an Human class. It is used to compare player's rank in leaderboard.txt. Also There is an class and it is used to get any txt row and column.

Explanation of Code

Firstly , in the main Class , createMap method , which belong to ReadWrite class , works and in this method row and column informations is gotten and an two dimensional static array is created then again in the main Class fillMap method , which belong to ReadWrite class, works and in this method according to filename , that txt is opened and assigns jewels to 2 dimensional array according to informations . After that again in this main Class , playGame method , which belong to ReadWrite class , works and argument ,whose name is filename , is opened and according to coordinates , that jewel , which in the map , is gotten then that jewel's compare method works. (Every jewel has different compare method with using interface).If there is a match , the matching jewels is changed with null . After that in shifthingPart methods works and all nulls is shifting to map's upwards.Also there is an human , is playing the game . According to th matching result , player's point is updated. Finally, in the main Class , compareLeaderBoardTxt method works , which belong to ReadWrite class , file open and player's rank is found in this file. Also The changes are added to an ArrayList<String>, whose name is outputList .Lastly in the main Class , printTheTxt method works and the changes are suppressed to argument.

Explanation of Algorithms

* Create map (empty 2 dimensional array)
* Fill the map
* According to commands , Comparing and shifting happens in the map (If there is a match)
* Assign the point to player's point
* Find player's rank according to leaderboard
* The changes are suppressed.

ReverseSlash

+ReverseSlash()
+boolean compare(int rowCoordinate, int columnCoordinate, int row, int column, Jewel[][] array)
+boolean leftEdge(int rowCoordinate, int columnCoordinate, int row, int column, Jewel[][] array)
+boolean rightEdge(int rowCoordinate, int columnCoordinate, int row, int column, Jewel[][] array)
+boolean upEdge(int rowCoordinate, int columnCoordinate, int row, int column, Jewel[][] array)
+boolean downEdge(int rowCoordinate, int columnCoordinate, int row, int column, Jewel[][] array)
+boolean middle(int rowCoordinate, int columnCoordinate, int row, int column, Jewel[][] array)
+boolean rightDownDiagonalChecking(int rowCoordinate, int columnCoordinate, Jewel[][] array)
+boolean leftUpDiagonalChecking(int rowCoordinate, int columnCoordinate, Jewel[][] array)
+Jewel[][] shiftingPart(int firstRow, int rowCoordinate, int columnCoordinate, Jewel[][] array)

Minus

+Minus()
+boolean compare(int rowCoordinate, int columnCoordinate, int row, int column, Jewel[][] array)
+boolean leftEdge(int rowCoordinate, int columnCoordinate, int row, int column, Jewel[][] array)
+boolean rightEdge(int rowCoordinate, int columnCoordinate, int row, int column, Jewel[][] array)
+boolean upDownEdges(int rowCoordinate, int columnCoordinate, int row, int column, Jewel[][] array)
+boolean middle(int rowCoordinate, int columnCoordinate, int row, int column, Jewel[][] array)
+boolean leftChecking(int rowCoordinate, int columnCoordinate, Jewel[][] array)
+boolean rightChecking(int rowCoordinate, int columnCoordinate, Jewel[][] array)
+Jewel[][] shiftingPart(int firstRow, int rowCoordinate, int columnCoordinate, Jewel[][] array)

Slash

+Slash()
+boolean compare(int rowCoordinate, int columnCoordinate, int row, int column, Jewel[][] array)
+boolean leftEdge(int rowCoordinate, int columnCoordinate, int row, int column, Jewel[][] array)
+boolean rightEdge(int rowCoordinate, int columnCoordinate, int row, int column, Jewel[][] array)
+boolean upEdge(int rowCoordinate, int columnCoordinate, int row, int column, Jewel[][] array)
+boolean downEdge(int rowCoordinate, int columnCoordinate, int row, int column, Jewel[][] array)
+boolean middle(int rowCoordinate, int columnCoordinate, int row, int column, Jewel[][] array)
+boolean rightUpDiagonalChecking(int rowCoordinate, int columnCoordinate, Jewel[][] array)
+boolean leftDownDiagonalChecking(int rowCoordinate, int columnCoordinate, Jewel[][] array)
+Jewel[][] shiftingPart(int firstRow, int rowCoordinate, int columnCoordinate, Jewel[][] array)

Line

+Line()
+boolean compare(int rowCoordinate, int columnCoordinate, int row, int column, Jewel[][] array)
+boolean rightLeftEdge(int rowCoordinate, int columnCoordinate, int row, int column, Jewel[][] array)
+boolean upEdge(int rowCoordinate, int columnCoordinate, int row, int column, Jewel[][] array)
+boolean downEdge(int rowCoordinate, int columnCoordinate, int row, int column, Jewel[][] array)
+boolean middle(int rowCoordinate, int columnCoordinate, int row, int column, Jewel[][] array)
+boolean upChecking(int rowCoordinate, int columnCoordinate, Jewel[][] array)
+boolean downChecking(int rowCoordinate, int columnCoordinate, Jewel[][] array)
+Jewel[][] shiftingPart(int firstRow, int rowCoordinate, int columnCoordinate, Jewel[][] array)

<> ReadWrite

- static Jewel array
- static int row
- static Human player
- static ArrayList<String> outputList

+ static void createMap(String filename)
+ static void fillMap(String filename)
+ static void playGame(String filename)
+ static void compareLeaderBoard(String filename)
+ static void printTheTxt(String filename)

Main

+static void main(String[] args)

Human

- String name
- int point

+Human()
+Human(String name, int point)
+String getName()
+void setName(String name)
+int getPoint()
+void setPoint(int point)

<<interface>> Jewel

~boolean compare(int rowCoordinate, int columnCoordinate, int row, int column, Jewel[][] array)
~String getName()
~int getPoint()
~String getType()

<> MathSymbol

- String name
- int point

+MathSymbol(String name)
+String getName()
+void setName(String name)
+int getPoint()
+void setPoint(int point)
+String getType()

Plus

+Plus()
+boolean compare(int rowCoordinate, int columnCoordinate, int row, int column, Jewel[][] array)
+boolean leftEdge(int rowCoordinate, int columnCoordinate, int row, int column, Jewel[][] array)
+boolean rightEdge(int rowCoordinate, int columnCoordinate, int row, int column, Jewel[][] array)
+boolean upEdge(int rowCoordinate, int columnCoordinate, int row, int column, Jewel[][] array)
+boolean downEdge(int rowCoordinate, int columnCoordinate, int row, int column, Jewel[][] array)
+boolean middle(int rowCoordinate, int columnCoordinate, int row, int column, Jewel[][] array)
+boolean leftChecking(int rowCoordinate, int columnCoordinate, Jewel[][] array)
+boolean rightChecking(int rowCoordinate, int columnCoordinate, Jewel[][] array)
+boolean upChecking(int rowCoordinate, int columnCoordinate, Jewel[][] array)
+boolean downChecking(int rowCoordinate, int columnCoordinate, Jewel[][] array)
+Jewel[][] shiftingPart(int firstRow, int rowCoordinate, int columnCoordinate, Jewel[][] array)

<> NumberOf

+ static int getRow(String filename)
+ static int getColumn(String filename)

Diamond

- String name
- int point

+Diamond()
+String getName()
+void setName(String name)
+int getPoint()
+void setPoint(int point)
+String getType()
+boolean compare(int rowCoordinate, int columnCoordinate, int row, int column, Jewel[][] array)
+boolean leftEdge(int row, int column, int rowCoordinate, int columnCoordinate, Jewel[][] array)
+boolean rightEdge(int row, int column, int rowCoordinate, int columnCoordinate, Jewel[][] array)
+boolean upEdge(int row, int column, int rowCoordinate, int columnCoordinate, Jewel[][] array)
+boolean downEdge(int row, int column, int rowCoordinate, int columnCoordinate, Jewel[][] array)
+boolean middle(int row, int column, int rowCoordinate, int columnCoordinate, Jewel[][] array)
+boolean leftUpDiagonalChecking(int rowCoordinate, int columnCoordinate, Jewel[][] array)
+boolean rightDownDiagonalChecking(int rowCoordinate, int columnCoordinate, Jewel[][] array)
+boolean rightUpDiagonalChecking(int rowCoordinate, int columnCoordinate, Jewel[][] array)
+boolean leftDownDiagonalChecking(int rowCoordinate, int columnCoordinate, Jewel[][] array)
+Jewel[][] shiftingPart(int firstRow, int rowCoordinate, int columnCoordinate, Jewel[][] array)

Square

- String name
- int point

+Square()
+String getName()
+void setName(String name)
+int getPoint()
+void setPoint(int point)
+String getType()
+boolean compare(int rowCoordinate, int columnCoordinate, int row, int column, Jewel[][] array)
+boolean upDownEdges(int row, int column, int rowCoordinate, int columnCoordinate, Jewel[][] array)
+boolean leftEdge(int row, int column, int rowCoordinate, int columnCoordinate, Jewel[][] array)
+boolean rightEdge(int row, int column, int rowCoordinate, int columnCoordinate, Jewel[][] array)
+boolean middle(int row, int column, int rowCoordinate, int columnCoordinate, Jewel[][] array)
+boolean leftChecking(int rowCoordinate, int columnCoordinate, Jewel[][] array)
+boolean rightChecking(int rowCoordinate, int columnCoordinate, Jewel[][] array)
+Jewel[][] shiftingPart(int firstRow, int rowCoordinate, int columnCoordinate, Jewel[][] array)

Triangle

- String name
- int point

+Triangle()
+String getName()
+void setName(String name)
+int getPoint()
+void setPoint(int point)
+String getType()
+boolean compare(int rowCoordinate, int columnCoordinate, int row, int column, Jewel[][] array)
+boolean upEdge(int row, int column, int rowCoordinate, int columnCoordinate, Jewel[][] array)
+boolean downEdge(int row, int column, int rowCoordinate, int columnCoordinate, Jewel[][] array)
+boolean rightLeftEdge(int row, int column, int rowCoordinate, int columnCoordinate, Jewel[][] array)
+boolean middle(int row, int column, int rowCoordinate, int columnCoordinate, Jewel[][] array)
+boolean upChecking(int rowCoordinate, int columnCoordinate, Jewel[][] array)
+boolean downChecking(int rowCoordinate, int columnCoordinate, Jewel[][] array)
+Jewel[][] shiftingPart(int firstRow, int rowCoordinate, int columnCoordinate, Jewel[][] array)

Wildcard

- String name
- int point

+Wildcard()
+String getName()
+void setName(String name)
+int getPoint()
+void setPoint(int point)
+String getType()
+boolean compare(int rowCoordinate, int columnCoordinate, int row, int column, Jewel[][] array)
+boolean leftEdge(int row, int column, int rowCoordinate, int columnCoordinate, Jewel[][] array)
+boolean rightEdge(int row, int column, int rowCoordinate, int columnCoordinate, Jewel[][] array)
+boolean upEdge(int row, int column, int rowCoordinate, int columnCoordinate, Jewel[][] array)
+boolean downEdge(int row, int column, int rowCoordinate, int columnCoordinate, Jewel[][] array)
+boolean middle(int row, int column, int rowCoordinate, int columnCoordinate, Jewel[][] array)
+boolean leftUpDiagonalChecking(int rowCoordinate, int columnCoordinate, Jewel[][] array)
+boolean rightDownDiagonalChecking(int rowCoordinate, int columnCoordinate, Jewel[][] array)
+boolean rightUpDiagonalChecking(int rowCoordinate, int columnCoordinate, Jewel[][] array)
+boolean leftDownDiagonalChecking(int rowCoordinate, int columnCoordinate, Jewel[][] array)
+boolean leftChecking(int rowCoordinate, int columnCoordinate, Jewel[][] array)
+boolean rightChecking(int rowCoordinate, int columnCoordinate, Jewel[][] array)
+boolean upChecking(int rowCoordinate, int columnCoordinate, Jewel[][] array)
+boolean downChecking(int rowCoordinate, int columnCoordinate, Jewel[][] array)
+Jewel[][] shiftingPart(int firstRow, int rowCoordinate, int columnCoordinate, Jewel[][] array)

extends
extends
extends
extends
extends
implements
implements
implements
implements
implements