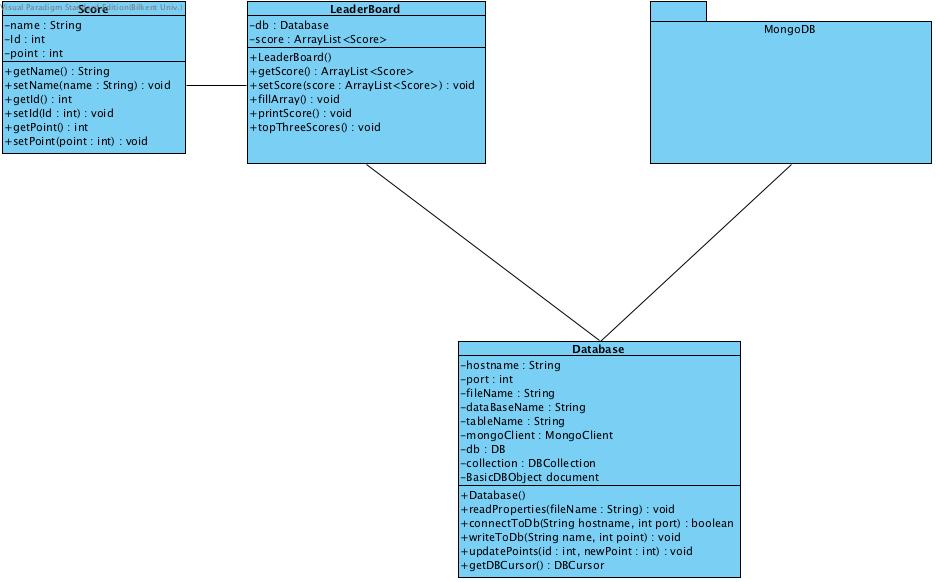
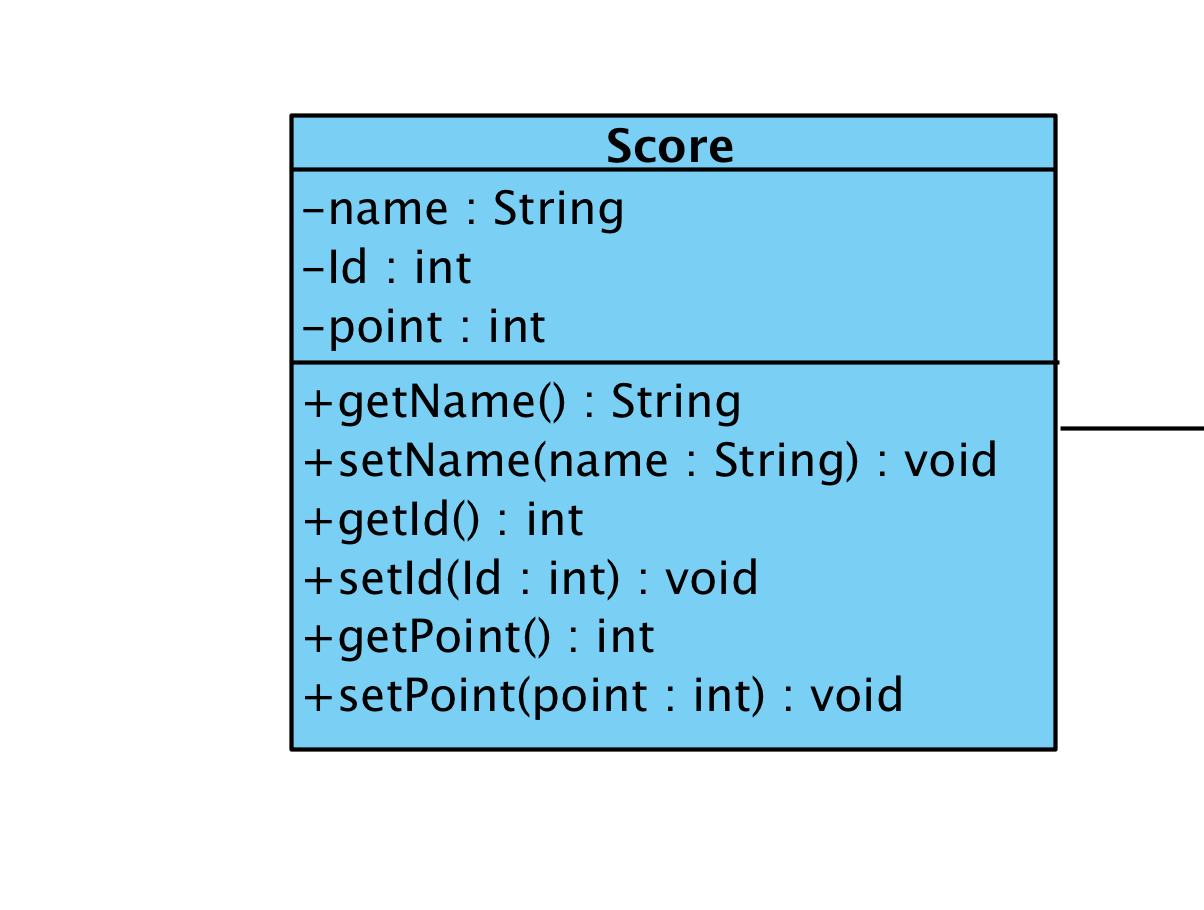
* + 1. **Adapter Pattern**

In software engineering, the adapter pattern is a software design pattern that allows the interface of an existing class to be used from another interface. It is often used to make existing classes work with others without modifying their source code. An adapter helps two incompatible interfaces to work together. In our program, adapter pattern enables two incompatible classes to work together. There classes are Database and Mongodb. MongoDB is a cross-platform document-oriented database. In order connect to database and to use it, we need adapter class, so it is Database class in our case. Database class lets Mongodb and LeaderBoard class to work together. So, LeaderBoard can connect to database using Database class’s methods. It can manage database, add, remove modify in database easily. Therefore, Adapter pattern provides us with easy access to other objects that monogdb without modifying our class.



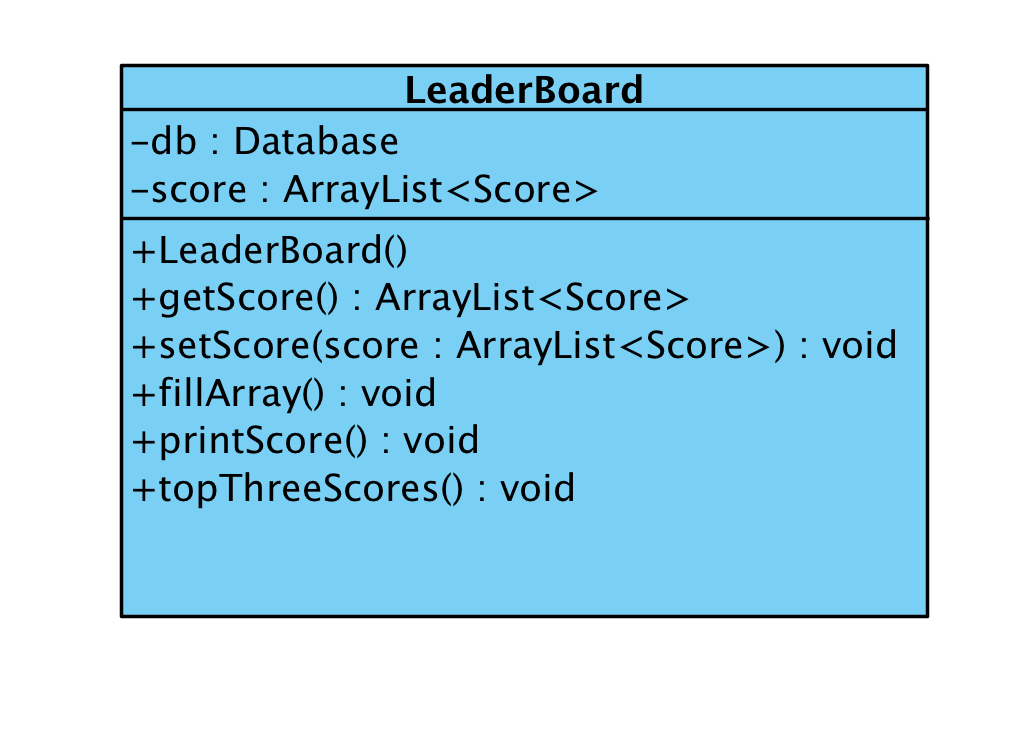
**5.1 Class Interfaces**

**SCORE CLASS**

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Score Class is used to take name of user, and point of his/ her after that it will write these data to database. So, Score class has 3 private property such that name(String), id(int), point(int). It has just one default constructor. However there are 6 public methods. These 6 methods are setter and getters of private variables. These methods used for easy get value or set it to score object. Due to the fact that score variables are private, we can’t access to them directly so we have to use these methods. Name of these methods are getName(), setName(String name), getId(), setId(int id), getPoint(), setPoint(int point).

**LeaderBoard CLASS**



Leaderboard class has two private variables or properties. They are db and type is Database, second one is array list so, score and type is ArrayList<Score>. The array list of score will store all score objects in this list. LeaderBoard class has one default constructor that will just call fillArray() method. Lets talk about our methods. There are 6 methods that will help us to get data and put it leaderboard. User can see all his/her opponents’ score and name. It will get all players name, score and will add all of them to array list as score object. However, it will just show 10 best players score at leaderboard panel. First method is getScore(), it will return score Arraylist which stores all of the database object or score objects in order to other classes can also use these data. Second important method is fillArray() which takes all database objects and maps it to array after that it sets name, id and point by using score class’s set methods. When it ready it returns Score as object and finally it writes this object to score array list. printScores(), and topThreeScores methods print result of score to panel. Finally, readFromDb() method is able to read all data from database.

**InfoPanel CLASS**

InfoPanel class uses methods of Leaderbord. It enables us to put top three players name and score to gameplay GUI, so, at the right side we can see top 3 players name and score while playing this game. In addition, it will print users own score and his/ her name.

**Help**

Help class includes all instructions about the game. Player can read all instructions,