Sprint 2 - Design Patterns

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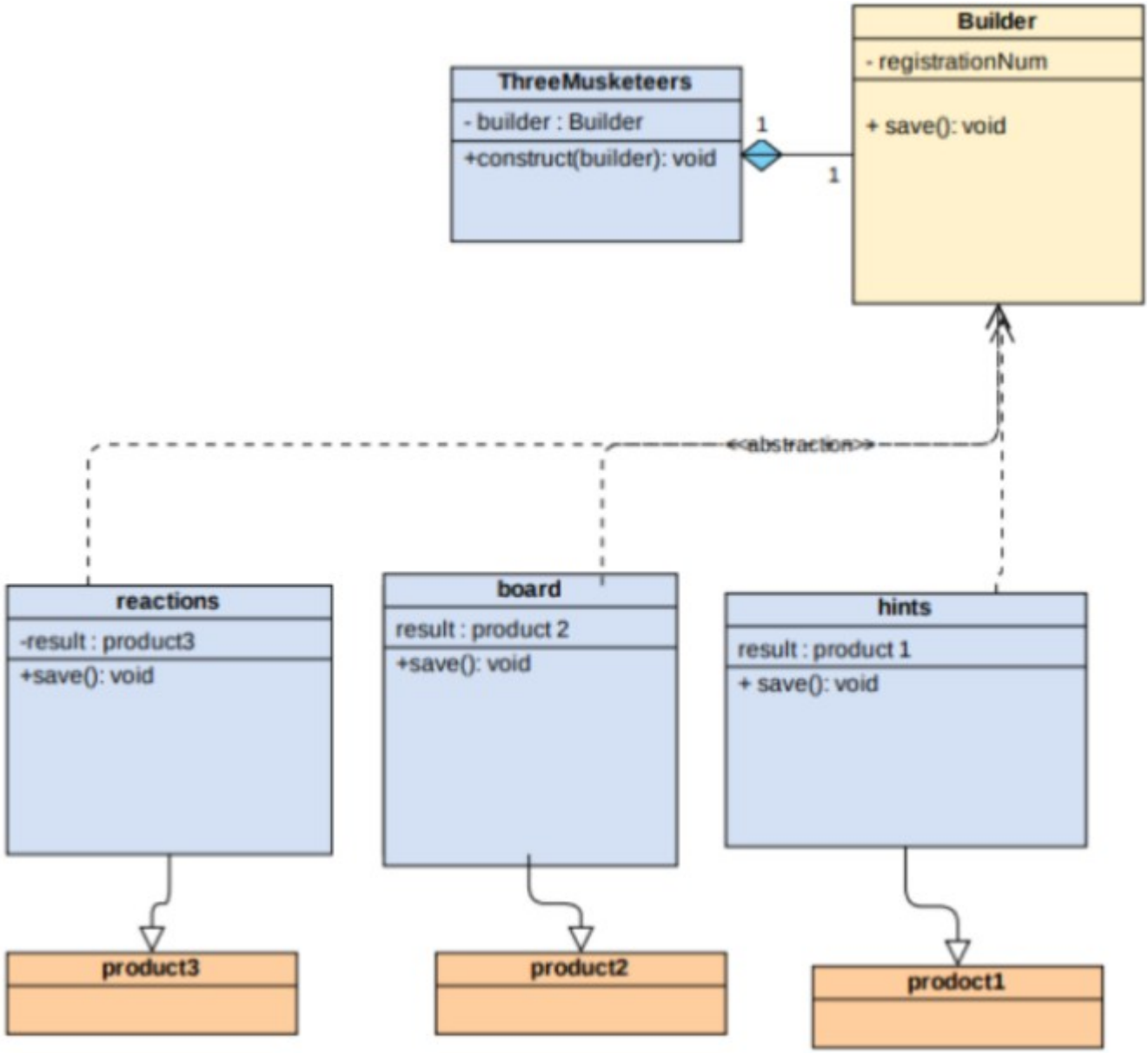
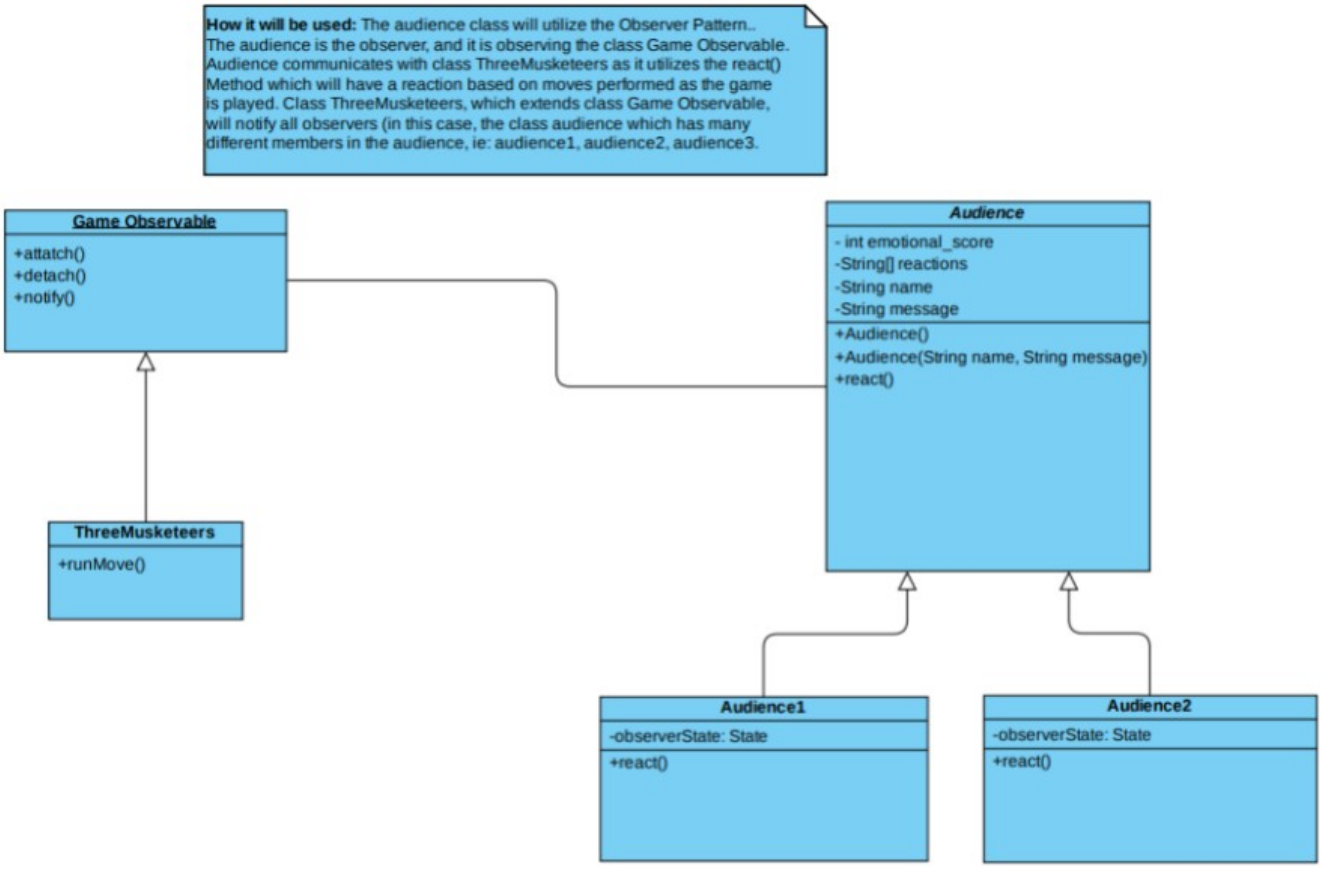
1) Builder pattern

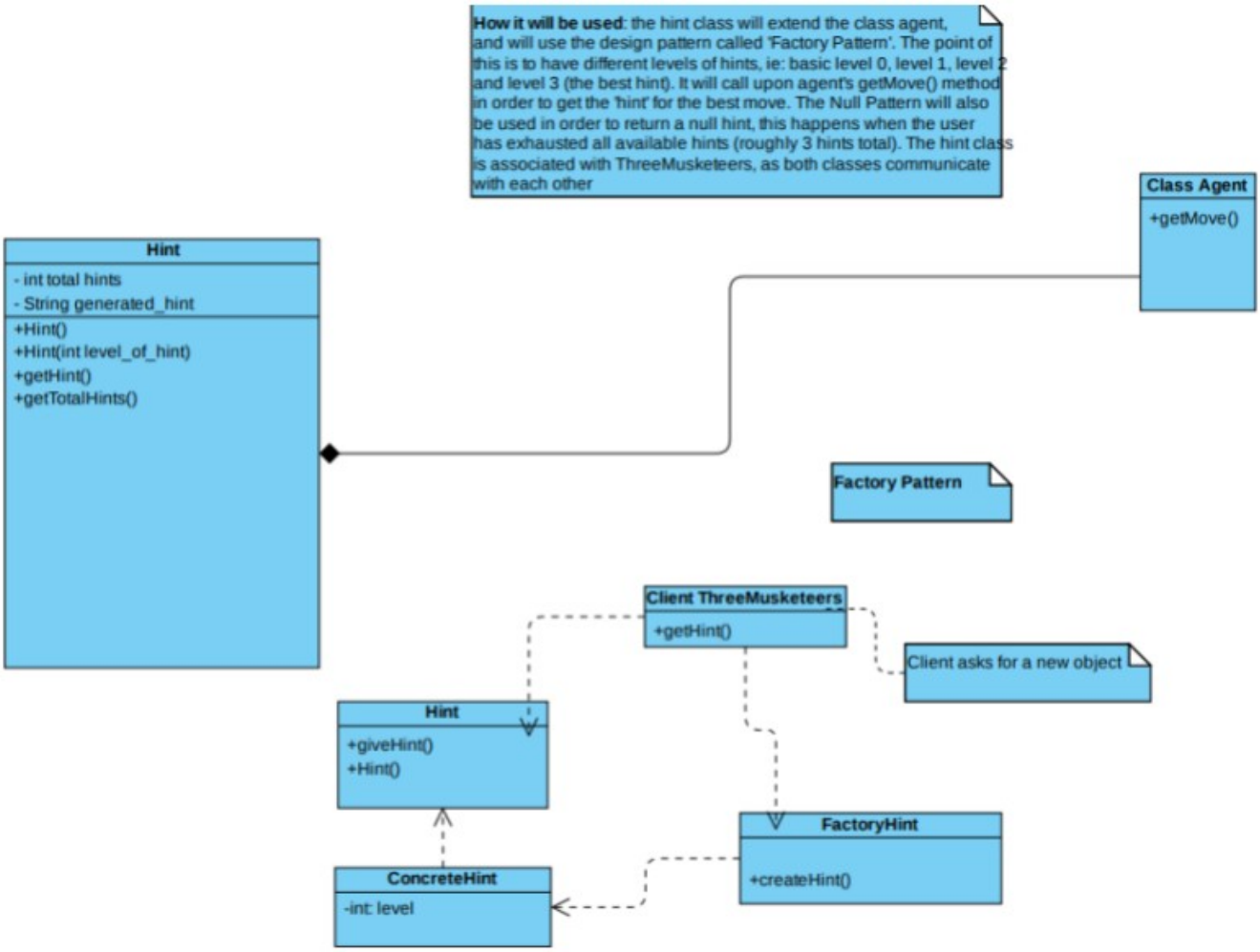
The builder pattern defines an instance for the object but lets subclasses decide which class to start. It also refers to the newly created object through a common interface. To save the game, we use the builder interface and three classes of hints and reaction and board, which is implemented by the builder. Each of the three classes share the save() method inside.



2) Observer pattern

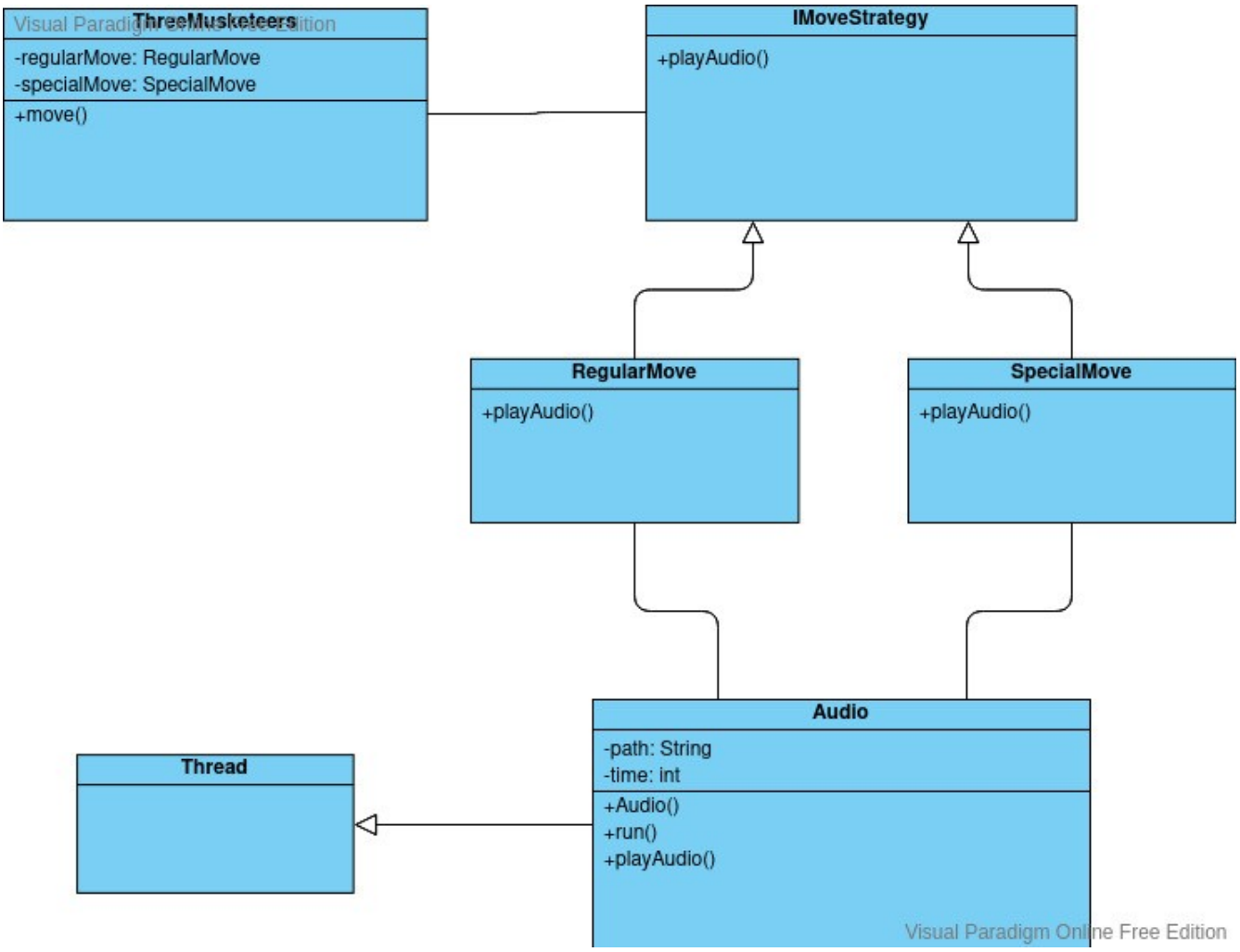


3) Factory Pattern



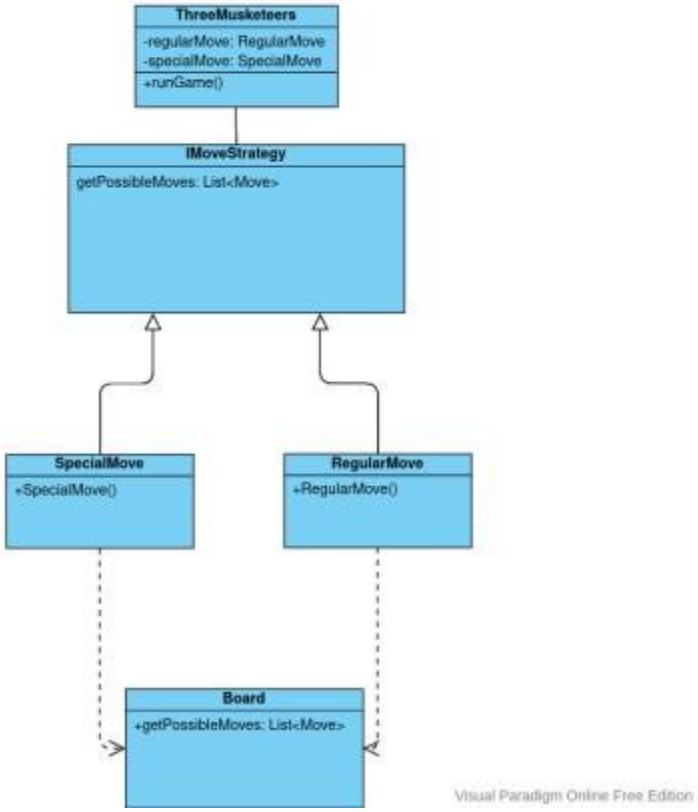
4) Adapter Patterns

The IMoveStrategy defines an interface for the Regular and Special move classes, which each inherit the playAudio method. The move() method in ThreeMusketeers accesses the IMoveStrategy objects, calls the playAudio() method, which in turn calls the Audio method.



5) Strategy Pattern

How it's used: The special move class uses the command pattern. It associates itself with the ThreeMusketeers class. There are many kinds of moves, specifically: RegularMove and SpecialMove which are subclasses of move. They are special kinds of moves like 'killing 2 pieces / moving twice'. RegularMove is just 1 move, ie: for guard it is moving a guard once, and for musketeer it is killing a guard.



6) Singleton pattern

How it's used: These classes use the singleton design pattern. The singletons are the RandomAgent, HumanAgent and GreedyAgent. Agent is an abstract class, and Greedy and Random and Human Agent implement Agent.
One instance of each object (everything is static), there will be only one object of each agent. Run game essentially takes all the agent's and utilizes them. The point of this is to be able to switch agent's mid game (just like how you could state which agent at the start of the game, the user is also able to change agents mid-way through.