Design Patterns - Template Pattern

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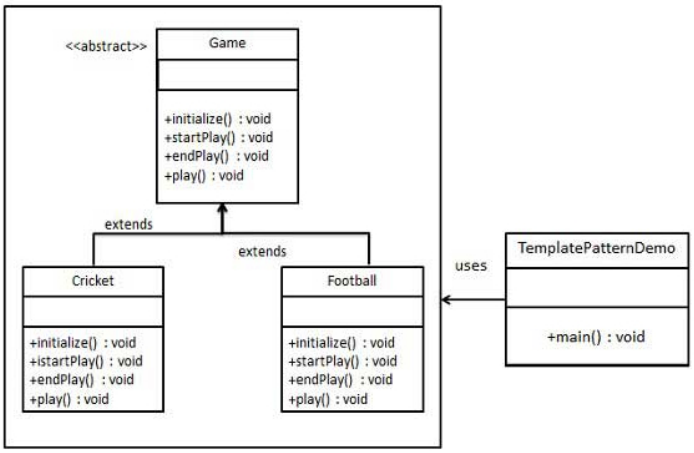
In Template pattern, an abstract class exposes defined way(s)/template(s) to execute its methods. Its subclasses can override the method implementation as per need but the invocation is to be in the same way as defined by an abstract class. This pattern comes under behavior pattern category.

Implementation

We are going to create a *Game* abstract class defining operations with a template method set to be final so that it cannot be overridden. *Cricket* and *Football* are concrete classes that extend *Game* and override its methods.

TemplatePatternDemo, our demo class, will use *Game* to demonstrate use of template pattern.



Step 1

Create an abstract class with a template method being final.

Game.java

```
public abstract class Game {
   abstract void initialize();
   abstract void startPlay();
   abstract void endPlay();

   //template method
   public final void play(){

      //initialize the game
      initialize();

      //start game
      startPlay();

      //end game
      endPlay();
   }
}
```

Step 2

Create concrete classes extending the above class.

Cricket.java

```
public class Cricket extends Game {

   @Override
   void endPlay() {
      System.out.println("Cricket Game Finished!");
```

```
   }

   @Override
   void initialize() {
      System.out.println("Cricket Game Initialized! Start playing.");
   }

   @Override
   void startPlay() {
      System.out.println("Cricket Game Started. Enjoy the game!");
   }
}
```

Football.java

```
public class Football extends Game {

   @Override
   void endPlay() {
      System.out.println("Football Game Finished!");
   }

   @Override
   void initialize() {
      System.out.println("Football Game Initialized! Start playing.");
   }

   @Override
   void startPlay() {
      System.out.println("Football Game Started. Enjoy the game!");
   }
}
```

Step 3

Use the *Game*'s template method play() to demonstrate a defined way of playing game.

TemplatePatternDemo.java

```
public class TemplatePatternDemo {
   public static void main(String[] args) {

      Game game = new Cricket();
      game.play();
      System.out.println();
      game = new Football();
      game.play();
   }
}
```

Step 4

Verify the output.

```
Cricket Game Initialized! Start playing.
Cricket Game Started. Enjoy the game!
Cricket Game Finished!

Football Game Initialized! Start playing.
Football Game Started. Enjoy the game!
Football Game Finished!
```