Name: Tejaswini Anil Kamble

Email: teju000kamble@gmail.com

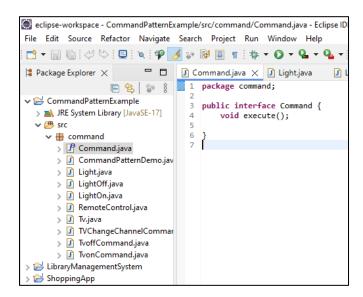
**Assignment**: 18/06/2022

## **Task**

Q. Imagine a remote control with buttons(invoker) that can control various electronics devices(Receivers) such as TVs or lights. Each button press sends a command (Concreate Command) to the respective device to perform actions like turning ON / OFF or changing channels.

Use Command Design paatern and impelemt it.

**Solution: Source Code** 



```
🥘 eclipse-workspace - CommandPatternExample/src/command/CommandPatternDemo.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
 🗸 🌁 src
                                                           Tv tv = new Tv();
Light light = new Light();
     >   Command.java
         > D CommandPatternDemo.jav
                                                           Command tvOn = new TvonCommand(tv);
Command tvOff = new TvoffCommand(tv);
         > 🚺 Light.java
                                                           Command tvo: = new rvo:rcommand(tv);
Command tvchangeChannel = new TvChangeChannelCommand(tv, 5);
Command lightOn = new LightOn(light);
Command lightOff = new LightOff(light);
         > II LightOff.iava
                                            11
12
13
14
         > I LightOn.java
         > RemoteControl.java
         > 🚺 Tv.java
                                                           RemoteControl remote = new RemoteControl();
         > II TVChangeChannelCommar
                                                          remote.setCommand("TV ON", tvOn);
remote.setCommand("TV OFF", tvOff);
remote.setCommand("TV CHANMEL", tvChangeChannel);
remote.setCommand("LIGHT ON", lightOn);
remote.setCommand("LIGHT OFF", lightOff);
         > 1 TvoffCommand.java
         > / TvonCommand.java
                                            18
                                            19
20
21
 > 📂 LibraryManagementSystem
 > 📂 ShoppingApp
                                            22
23
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26
27
                                                           remote.pressButton("TV ON");
remote.pressButton("TV CHANNEL");
remote.pressButton("LIGHT ON");
remote.pressButton("LIGHT OFF");
remote.pressButton("TV OFF");
                                            28
                                                     }
                                            29 }
```

```
🧱 eclipse-workspace - CommandPatternExample/src/command/Light.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
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📮 Package Explorer 🗙 📅 🗖 🚺 Command.java 🚺 CommandPatt... 🚺 Light.java 🗴
               package command;
3 public class Light [
 > M JRE System Library [JavaSE-17]
                                     public void on() {
                                      System.out.println("Light is ON");
}
  > 🧗 Command.java
      Command, Java
CommandPatternDemo.jav
Light.java
                                    public void off() {
                                        System.out.println("Light is OFF");
      > D LightOff.java
                               11 }
      > I LightOn.java
      >  RemoteControl.java
      > 🚺 Tv.java
      > / TVChangeChannelCommar
      > / TvoffCommand.java
      > 1 TvonCommand.java
> 📂 LibraryManagementSystem
> 📂 ShoppingApp
```

```
🌉 eclipse-workspace - CommandPatternExample/src/command/LightOff.java - Eclipse IDE
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                                                 □ □ Command.java ☑ CommandPatt...

☐ Package Explorer ×
                                                                                                                                           Light.java
                                 🖹 😫 🝃 🖇 📕 1 package command;
                                                                 2 public class LightOff implements Command {

✓ 

CommandPatternExample

                                                                               private Light light;
   > A JRE System Library [JavaSE-17]
   🗸 进 src
                                                                                public LightOff(Light light) {
                                                                                   this.light = light;
        🗸 🌐 command
            > 🗗 Command.java
             > CommandPatternDemo.jav
                                                                                @Override
                                                                  90
             > 🚺 Light.java
                                                                                public void execute() {
                                                              △10
             > 🚺 LightOff.java
                                                               11
                                                                                      light.off();
             > 🗾 LightOn.java
                                                              12
13 }
             >  RemoteControl.java
             > 🚺 Tv.java
            > I TVChangeChannelCommar
             > I TvoffCommand.java
             > I TvonCommand.java
> 📂 LibraryManagementSystem
> 📂 ShoppingApp
```

```
🥘 eclipse-workspace - CommandPatternExample/src/command/LightOn.java - Eclipse IDE
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🛱 Package Explorer 🗴 📅 🗖 Command.java 📝 CommandPatt...
                                                                     🖹 😩 🝃  a package command;

✓ 

CommandPatternExample

                                 3 public class LightOn implements Command {
  > M JRE System Library [JavaSE-17]
                                       private Light light;
  🗸 进 src
                                  60
                                      public LightOn(Light light) {
    v 🌐 command
                                            this.light = light;
      > IP Command.java
                                 8
      > CommandPatternDemo.jav
      > 🚺 Light.java
                                 10⊝
                                        @Override
      > I LightOff.java
                               △11
                                        public void execute() {
                                12
                                            light.on();
      > 🚺 LightOn.java
                                13
      >  RemoteControl.java
                                14 }
      > 🚺 Tv.java
      > I TVChangeChannelCommar
      > I TvoffCommand.java
      > / TvonCommand.java
> 📂 LibraryManagementSystem
> 📂 ShoppingApp
```

```
g eclipse-workspace - CommandPatternExample/src/command/RemoteControl.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
□ □ ① Command.java
                                              CommandPatt...
                                                                Light.java
                                                                            LightOn.java
                🖹 🚼 🍃 🖇 📕 1 package command;

✓ 

CommandPatternExample

                               3⊕ import java.util.HashMap; ...
 > M JRE System Library [JavaSE-17]
  🗸 进 src
                               6 public class RemoteControl {
                                     private Map<String, Command> buttons = new HashMap<>();

✓ 

⊕ command

                              8
      > IP Command.java
                                     public void setCommand(String button, Command command) {
      10
                                         buttons.put(button, command);
      > 🚺 Light.java
                              11
      > I LightOff.java
                              12
      > 🗾 LightOn.java
                              13⊖
                                     public void pressButton(String button) {
                                         if (buttons.containsKey(button)) {
                              14
      >  RemoteControl.java
                                            buttons.get(button).execute();
                              15
      > 🚺 Tv.java
                              16
                                         } else {
      > / TVChangeChannelCommar
                              17
                                            System.out.println("No command assigned to this button");
      > I TvoffCommand.java
                              18
      > I TvonCommand.java
                              19
                              20 }
> 📂 LibraryManagementSystem
                              21
> 📂 ShoppingApp
```

```
🥘 eclipse-workspace - CommandPatternExample/src/command/Tv.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
□ □ D Command.java D CommandPatt...
□ Package Explorer ×

☑ LightOff.java

                                                                                             J) Lig
                                                                 Light.java
                 🖹 🚼 🝃 🖇 📕 1 package command;

✓ 

CommandPatternExample

                                3 public class Tv {
  > M JRE System Library [JavaSE-17]
                                40
                                      public void on() {
  System.out.println("TV is ON");
    v 🖶 command
                                6
      > II Command.java
                                80
                                      public void off() {
      > CommandPatternDemo.jav
                                9
                                          System.out.println("TV is OFF");
      > / Light.java
                               10
      > I LightOff.java
                               11
                               12⊖
                                      public void changeChannel(int channel) {
      > I LightOn.java
                                          System.out.println("TV channel changed to " + channel);
                               13
      > I RemoteControl.java
                               14
      > J Tv.java
                               15 }
      > J TVChangeChannelCommar
      > I TvoffCommand.java
      > 🚺 TvonCommand.java
> B LibraryManagementSystem
> ShoppingApp
```

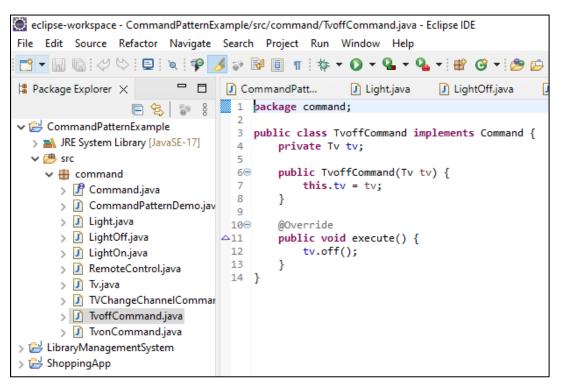
```
🥘 eclipse-workspace - CommandPatternExample/src/command/TVChangeChannelCommand.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help

☐ Package Explorer ×
                            Command.java
                                             CommandPatt...
                                                              1 package command;
public class TVChangeChannelCommand implements Command {
                               3
  > M JRE System Library [JavaSE-17]
                                    private Tv tv;
  private int channel;
                               5

✓ 

⊕ command

                                    public TVChangeChannelCommand(Tv tv, int channel) {
                              7⊝
      > If Command.java
                                        this.tv = tv;
                             9
                              8
      > CommandPatternDemo.jav
                                        this.channel = channel;
      > 🚺 Light.java
                             10
      > I LightOff.java
                             11
                                    @Override
      > I LightOn.java
                             12⊖
                            △13
                                    public void execute() {
      >  RemoteControl.java
                             14
                                        tv.changeChannel(channel);
      > J Tv.java
                             15
      > J TVChangeChannelCommar 16 }
      > 🚺 TvoffCommand.java
      > I TvonCommand.java
> 📂 LibraryManagementSystem
> 📂 ShoppingApp
```



```
💽 eclipse-workspace - CommandPatternExample/src/command/TvonCommand.java - Eclipse IDE
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☐ Package Explorer ×
                                                                                                         Light.java

☑ LightOff.java

                                                                                                                                                                                                                                         LightOn.java
                                                                                                                                          package command;
                                                                                                                                1

→ 

CommandPatternExample

CommandPatter
                                                                                                                                          public class TvonCommand implements Command ₹
                                                                                                                                3
         > M JRE System Library [JavaSE-17]
                                                                                                                                                        private Tv tv;
         v 🌐 command
                                                                                                                                                        public TvonCommand(Tv tv) {
                                                                                                                                6⊖
                                                                                                                                7
                                                                                                                                                                       this.tv = tv;
                          > II Command.java
                                                                                                                                8
                          > 🚺 CommandPatternDemo.jav
                                                                                                                                9
                          > I Light.java
                                                                                                                             10⊝
                                                                                                                                                        @Override
                          > I LightOff.java
                                                                                                                                                        public void execute() {
                                                                                                                         △11
                          > I LightOn.java
                                                                                                                            12
                                                                                                                                                                      tv.on();
                                                                                                                             13
                          > I RemoteControl.java
                                                                                                                            14 }
                          > J Tv.java
                          > I TVChangeChannelCommar
                          > I TvoffCommand.java
                          > J TvonCommand.java
  > 📂 LibraryManagementSystem
  > ShoppingApp
```

## **Output:**

