

```
1 import java.util.ArrayList;
2
3 abstract class MenuElement {
4     public String name;
5     public String url;
6
7     MenuElement(String name, String url) {
8         this.name = name;
9         this.url = url;
10    }
11
12    public void add(MenuElement component) {
13        throw new UnsupportedOperationException();
14    }
15
16    abstract void displayMenu();
17 }
18
19 class MenuItem extends MenuElement {
20     public MenuItem(String name, String url) {
21         super(name, url);
22     }
23
24     public void displayMenu() {
25         System.out.println(this.name + " : " + this.url);
26     }
27 }
28
29 class Menu extends MenuElement {
30     ArrayList<MenuElement> subMenus = new ArrayList<>();
31
32     public Menu(String name, String url) {
33         super(name, url);
34     }
35
36     public void add(MenuElement menuElement) {
37         this.subMenus.add(menuElement);
38     }
39
40     public void displayMenu() {
41         System.out.println(this.name + " : " + this.url + "\n");
42         this.subMenus.forEach(MenuElement::displayMenu);
43     }
44
45     class Client {
46         public static void main(String[] args) {
47             MenuElement allTutorials = new Menu("Tutorials", "/Tutorials");
48             MenuElement spring = new Menu("Spring", "/Spring");
49             MenuElement versioning = new Menu("Version Management", "/versioning");
50             MenuElement java = new MenuItem("Java", "/Java");
51
52             allTutorials.add(spring);
53             allTutorials.add(versioning);
54             allTutorials.add(java);
55             spring.add(new MenuItem("Spring Core", "/core"));
56             spring.add(new MenuItem("Spring Boot", "/boot"));
57         }
58     }
59 }
```

Pattern STRUTTURALI	Pattern CREAZIONALI	Pattern COMPORTAMENTALI
<input type="checkbox"/> Adapter <input type="checkbox"/> Decorator <input type="checkbox"/> Composite	<input type="checkbox"/> Abstract Factory <input type="checkbox"/> Singleton	<input type="checkbox"/> Observer <input type="checkbox"/> State <input type="checkbox"/> Visitor <input type="checkbox"/> Strategy