3815ICT-Software Engineering Workshop 7

**Activity 1**

Study the entry in Wikipedia for the “Command pattern” (en.wikipedia.org/wiki/Command\_pattern).

Review the following piece of code. Explain why this represents an anti-pattern:

*if (op==1) {*

*User u = new User( request.getAttribute("user"), request.getAttribute("pass"));*

*} else if (op==2) {*

*...*

*}*

*...*

What are the disadvantages of the template suggested by the anti-pattern above?

**Response 1**

**Activity 2**

Examine the code below that defines an abstract class. What part of the Command pattern does this achieve? What does the constructor achieve?

//Action.java

*public abstract class Action*

*{*

*protected Model model;*

*public Action(Model model) {*

*this.model = model;*

*}*

*public abstract String getName();*

*public abstract Object perform(HttpServletRequest req);*

*}*

**Response 2**

**Activity 3**

Examine the code below that defines a concrete class. What part of the Command pattern does this achieve? What does the constructor achieve? Explain the method getName().

// CreateUserAction.java:

*public class CreateUserAction extends Action {*

*public CreateUserAction(Model model) {*

*super(model);*

*}*

*public String getName() {*

*return "createUser";*

*}*

*public Object perform(HttpServletRequest req) {*

*return model.createUser(req.getAttribute("user"),req.getAttribute("pass"));*

*}*

*}*

**Response 3**

**Activity 4**

Examine the code below that defines a concrete class. What part of the Command pattern does this achieve? Is this linked to some part of MVC?

*public class ControllerServlet extends HttpServlet {*

*private HashMap actions;*

*public void init() throws ServletException {*

*actions = new HashMap();*

*CreateUserAction que = new CreateUserAction(model);*

*actions.put(que.getName(), que);*

//... create and add more actions

*}*

*public void doPost(HttpServletRequest req, HttpServletResponse resp) throws IOException, ServletException {*

// First identify operation "op" from URL.

// method getOperation() is defined elsewhere.

*String op = getOperation(req.getRequestURL());*

// Then find and execute corresponding Action

*Action action = (Action)actions.get(op);*

*Object result = null;*

*try {*

*result = action.perform(req);*

*}*

*catch (NullPointerException npx) {*

*...*

*}*

//determine next view result to determine next view

*} ..*

**Response 4**

**Activity 5**

Study the short entry in Wikipedia for the “Stateless protocol” (en.wikipedia.org/wiki/Stateless\_protocol).

Research the concept of session and discuss what are the implications that the HTTP protocol of the Web is stateless with respect to sessions?

**Response 5**

**Activity 6**

Frameworks for Web architectures are very varied. Even for Java Server pages there are several variants. Browse over the chapter “The Spring Web MVC Framework” (available at Learning@GU).

Identify 4 advantages that this chapter attributes to the Spring Web MVC Framework.

**Response 6**

**Activity 7**

Attempt to complete the tutorial named “Introduction to Spring Web MVC” (netbeans.org/kb/docs/web/quickstart-webapps-spring.html)

This tutorial can be followed with almost no background on Java Server Pages (JSP) or java beans. Although learning about such technologies might be useful. The point of competing such exercise is for you to experience a Web architecture based around Model View Controller (MVC). In particular, several of the components are configured by setting properties in XML-files, for example.

I recommend you follow this tutorial using NetBeans. You will probably find that you should install some plug-ins so you can complete the tutorial. If you are trying to find the category "java Web" to create a project of type "Web Application" you probably are missing the “java EE Base”, and if you find that after creating some project you are missing some libraries (a message about resources missing), you probably need the "EJB and EAR" plug-in.

Similarly, as you develop the project, you will need a WEB server that support Java beans. Chose the GlassFish server, and if it is not installed, NetBeans will fetch it and install it for you.

The entire project will be made available for you in Learning@GU, but it is important you attempt to follow the tutorial yourself. Also, you should introduce debugging print statements so you can follow some of what is going on. The challenge is, how would you represent the behavior with an UML sequence diagram?

**Response 7**

**Activity 8**

Write 15 lines of a reflective report on the previous activities. Analyse and evaluate the match of the activities to the learning objectives proposed in this workshop/laboratory.

**Response 8**