

Web application using JSF, JSP and Java servlets

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October, 9th 2017
Máster Universitario en Ingeniería Informática



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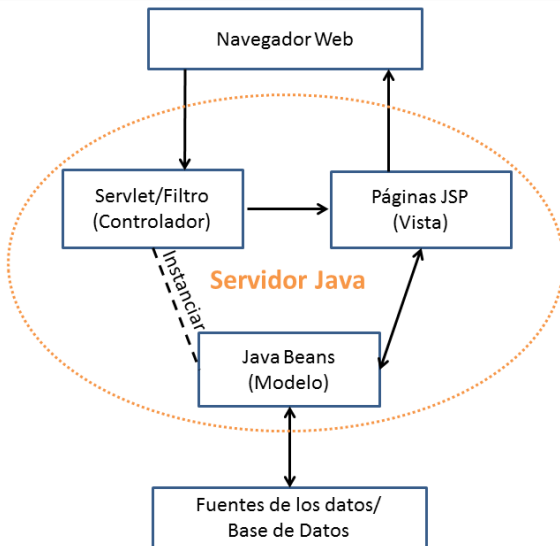
Java Servlet Faces (JSF)

Definition

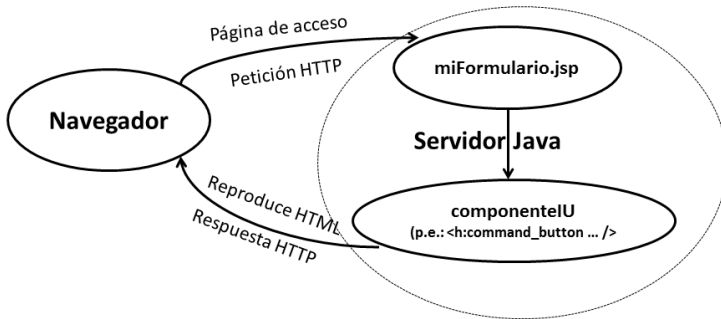
The system JSF is a MVC design pattern-based framework, which simplifies building User Interfaces (UI) for server applications with UI made up of components, inside a JSP page

With JSP technology, the event handler cannot accept `http` demands to a server's component directly nor can manage UI components as server objects

MVC of a Web application that only uses JSP



Software architecture of an application that uses JSF technology



The framework JSF II

Benefits

- JSF eases connections between UI “*widgets*” with data sources and event handlers on the server side
- It provides a standard API for software components development
- It allows reuse and extension of current UI-components standards
- It eases data transfer between UI components
- It manages the state of a UI-components that passes through several servers
- It helps to connect events (client-part) with the application code that must handle these events (server-part)

Advantages of using JSF technology

- With JSF technology we can connect events generated at the client tier with the Web application code at the server side
- To map *UI components* to server's-side objects

Advantages of using JSF technology-II

A JSP page can manage all the objects that take part in the Web application in which we are interested to:

- component's objects: label type
`< h : command_button... >`,
- action listeners of actions that start from *validator* and *converter* objects, which are normally included in component labels, such as: `<f:validate _longrange minimum="0" maximum="10"/>` ,
- Model's objects that contain the Web application data,
- the remainder of functionality of the application components

JSF software architecture

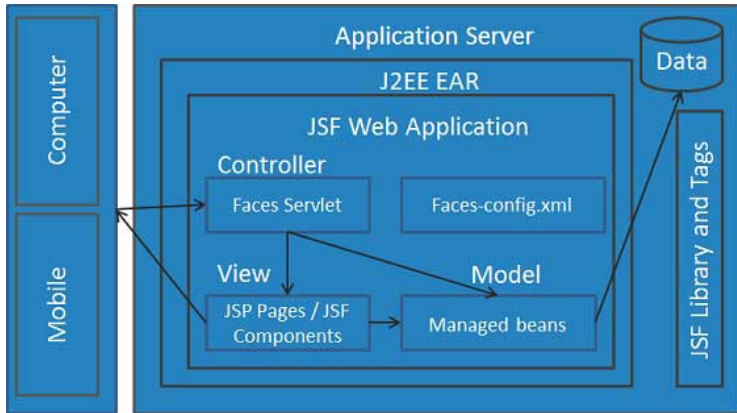


Figure: Architecture of JSF

“Controller”

Faces Servlet

- It is in charge of capturing all the client tier demands
- It initiates all the JSF framework components before the JSF page shows up
- Fundamental services to build the controller are imported from the library `javax.faces.webapp.FacesServlet`
- The controller must be programmed in the file `web.xml`: files ended by `.jsf` and `.xhtml` in the current scope are sought for building the views

Java Managed Beans

Fundamental concept:

A *bean* Java class but managed within JSF.

managed bean: elements

- *beans* are serializables,
- have `getter()` and `setter()` methods,
- have the business logic : all the information associated to a *bean* that is in HTML forms of the aplicación

“Model”

- It is a package included in `src/main/java`, which contains the classes: `.java` as *Managed Beans* (MB)
- Java “beans” can be managed by JSF by using a configuration file in XML or through **anotations**:
 - `@ManagedBean(name= , eager=)`
 - `@(Request|None|View|Session|Application|Custom) Scoped`
 - `@ManagedProperty`

“Model”—II

```
1 package prueba ;
2 import javax.faces.bean.ManagedBean ;
3 import javax.faces.bean.ManagedProperty ;
4 import javax.faces.bean.RequestScoped ;
5
6 @ManagedBean (name = "holaMundo", eager = true)
7 @RequestScoped
8 public class HolaMundo{
9     @ManagedProperty ( value = "#{mensaje}" )
10    //completar
11    public HolaMundo ( ){
12        System.out.println( "HolaMundo_ha_comenzado_!_" ) ;
13    }
14    public String getMensaje( ){
15        //completar
16    }
17    public void setBeanMensaje ( Mensaje m ) {
18        //completar
19    }
```

“Model”—III

```
1 package holamundoMIC;  
2 import java.io.Serializable;  
3 import javax.faces.bean.ManagedBean;  
4 import javax.faces.bean.ManagedProperty;  
5 import javax.faces.bean.RequestScoped;  
6 @ManagedBean(name="holaMUndo2", eager=true)  
7 @RequestScoped  
8 public class HolaMundo2 implements Serializable {  
9     @ManagedProperty(value="#{mensaje}")  
10     private MensajeBean mensajeBean;  
11     private String mensaje= "Nada_aun!";  
12     public HolaMundo2() {  
13         System.out.println("Hola_mundo_ha_comenzado!");  
14         System.out.println(mensaje);  
15     }  
16     public String getMensaje() {  
17         if(mensajeBean != null){  
18             mensaje= mensajeBean.getMensaje();  
19         }  
20         return mensaje;  
21     }  
22     public void setMensajeBean(MensajeBean m) {  
23         this.mensajeBean=m;  
24     }  
25 }
```

“Model”—IV

```
1 package holamundoMIC;  
2 import java.io.Serializable;  
3 import javax.faces.bean.ManagedBean;  
4 import javax.faces.bean.ManagedProperty;  
5 import javax.faces.bean.RequestScoped;  
6  
7 @ManagedBean(name="mensaje", eager=true)  
8 @RequestScoped  
9 public class MensajeBean implements Serializable {  
10     private String mensaje="Hola_todo_el_mundo_y_parte_del_extrajero  
11         !";  
12     public String getMensaje(){  
13         return mensaje;  
14     }  
15     public void setMensaje(String mensaje){  
16         this.mensaje=mensaje;  
17     }  
18 }
```

“View”

JSF page creation

It takes place by creating a `home.xhtml` page (in `src/main/webapp/`) that can be browsed by an XML compatible explorer

```
1 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML_1.0_Transitional//EN"  
2   "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">  
3 <html xmlns="http://www.w3.org/1999/xhtml">  
4 <head>  
5   <title>JSF Tutorial!</title>  
6 </head>  
7 <body>  
8   #{holaMundo.mensaje}  
9 </body>  
10 </html>
```


IDEs

Definition

Visual application for building software applications from components

Elements of an IDE

- Canvas or container
- Editors for configuring and specializing components
- Viewers and browsers
- Directories of components
- Tools for component-based development (compilers, debuggers, unit proofs, etc.)
- Project management and control access
- Support for CSCW

Current IDEs examples

Name	Builder
Visual Studio	Microsoft
Visual Age	IBM
Visual Cafe	Symantec
Eclipse	ESF
NetBeans	Oracle

Complemented with configuration languages: JavaScript, VBScript, etc.



References

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