JSF - MANAGED BEANS

- Managed Bean is a regular Java Bean class registered with JSF. In other words, Managed Beans is a java bean managed by JSF framework.
- The managed bean contains the getter and setter methods, business logic or even a backing bean *abeancontainsalltheHTMLformvalue*.
- Managed beans works as Model for UI component.
- Managed Bean can be accessed from JSF page.
- In JSF 1.2,a managed bean had to register it in JSF configuration file such as faces-config.xml.
- From JSF 2.0 onwards, Managed beans can be easily registered using annotations. This approach keeps beans and there registration at one place and it becomes easier to manage.

Using XML Configuration

```
<managed-bean>
  <managed-bean-name>helloWorld</managed-bean-name>
  <managed-bean-class>com.tutorialspoint.test.HelloWorld</managed-bean-class>
  <managed-bean-scope>request</managed-bean-scope>
</managed-bean>
<managed-bean>
  <managed-bean-name>message</managed-bean-name>
  <managed-bean-class>com.tutorialspoint.test.Message</managed-bean-class>
  <managed-bean-scope>request</managed-bean-scope>
</managed-bean>
```

Using Annotation

```
@ManagedBean(name = "helloWorld", eager = true)
@RequestScoped
public class HelloWorld {

   @ManagedProperty(value="#{message}")
   private Message message;
   ...
}
```

@ManagedBean Annotation

@ManagedBean marks a bean to be a managed bean with the name specified in **name** attribute. If the name attribute is not specified, then the managed bean name will default to class name portion of the fully qualified class name. In our case it would be helloWorld.

Another important attribute is **eager**. If eager="true" then managed bean is created before it is requested for the first time otherwise "lazy" initialization is used in which bean will be created only when it is requested.

Scope Annotations

Scope annotations set the scope into which the managed bean will be placed. If scope is not specified then bean will default to request scope. Each scope is briefly discussed below

Scope	Description
@RequestScoped	Bean lives as long as the HTTP request-response lives. It get created upon a HTTP request and get destroyed when the HTTP response associated with the HTTP request is finished.

@NoneScoped	Bean lives as long as a single EL evaluation. It get created upon an EL evaluation and get destroyed immediately after the EL evaluation.
@ViewScoped	Bean lives as long as user is interacting with the same JSF view in the browser window/tab. It get created upon a HTTP request and get destroyed once user postback to a different view.
@SessionScoped	Bean lives as long as the HTTP session lives. It get created upon the first HTTP request involving this bean in the session and get destroyed when the HTTP session is invalidated.
@ApplicationScoped	Bean lives as long as the web application lives. It get created upon the first HTTP request involving this bean in the application $orwhenthewebapplicationstartsupandtheeager = trueattributeissetin@ManagedBean$ and get destroyed when the web application shuts down.
@CustomScoped	Bean lives as long as the bean's entry in the custom Map which is created for this scope lives.

@ManagedProperty Annotation

JSF is a simple static Dependency InjectionDI framework.Using **@ManagedProperty** annotation a managed bean's property can be injected in another managed bean.

Example Application

Let us create a test JSF application to test the above annotations for managed beans.

Step	Description
1	Create a project with a name *helloworld* under a package *com.tutorialspoint.test* as explained in the *JSF - Create Application* chapter.
2	Modify *HelloWorld.java* as explained below. Keep rest of the files unchanged.
3	Create *Message.java* under a package *com.tutorialspoint.test* as explained below.
4	Compile and run the application to make sure business logic is working as per the requirements.
5	Finally, build the application in the form of war file and deploy it in Apache Tomcat Webserver.
6	Launch your web application using appropriate URL as explained below in the last step.

HelloWorld.java

```java
package com.tutorialspoint.test;

import javax.faces.bean.ManagedBean;
import javax.faces.bean.ManagedProperty;
import javax.faces.bean.RequestScoped;

@ManagedBean(name = "helloWorld", eager = true)
@RequestScoped
public class HelloWorld {

   @ManagedProperty(value="#{message}")
   private Message messageBean;

   private String message;

   public HelloWorld() {
        System.out.println("HelloWorld started!");
    }
    public String getMessage() {
        if(messageBean != null){
            message = messageBean.getMessage();
        }
        return message;
    }
    public void setMessageBean(Message message) {
        this.messageBean = message;
    }
}
```

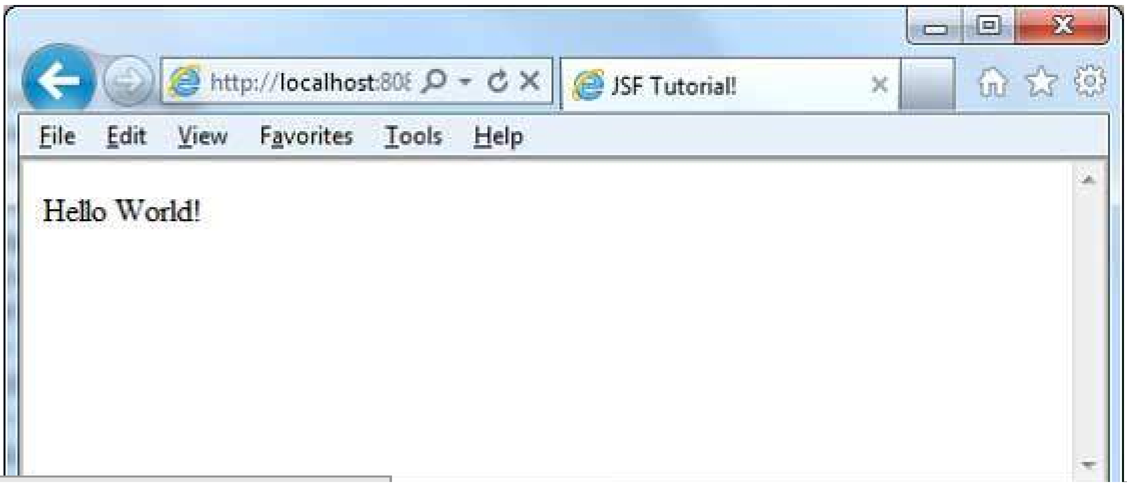
Message.java

```
package com.tutorialspoint.test;

import javax.faces.bean.ManagedBean;
import javax.faces.bean.RequestScoped;

@ManagedBean(name = "message", eager = true)
@RequestScoped
public class Message {

 private String message = "Hello World!";

 public String getMessage() {
        return message;
    }
    public void setMessage(String message) {
        this.message = message;
    }
}
```

home.xhtml

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
    "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
    <title>JSF Tutorial!</title>
</head>
<body>
    #{helloWorld.message}
</body>
</html>
```

Once you are ready with all the changes done, let us compile and run the application as we did in JSF - Create Application chapter. If everything is fine with your application, this will produce following result:



Hello World!

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