Lab 5

Basics of JavaBeans

1. Write a Java program to illustrate the concepts of JavaBeans in JSP. Make use of jsp:useBean, jsp:setProperty, jsp:getProperty

Person.java

```java
package BeanPackage;

import java.io.*;

public class Person  implements Serializable{

    public Person(){}

    private String id;

    private String name;

    private String address;

    public String getId() {

        return id;

    }

    public void setId(String id) {

        this.id = id;

    }

    public String getName() {

        return name;

    }

    public void setName(String name) {

        this.name = name;

    }

    public String getAddress() {

        return address;

    }

    public void setAddress(String address) {
```

```
        this.address = address;

    }


}
```

PersonBean.jsp

```jsp
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
  <head>
    <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
    <title>JSP Page</title>
  </head>
  <body>
    <h1>Person Details</h1>
    <jsp:useBean id="person" class="BeanPackage.Person">
      <jsp:setProperty name="person" property="id" value="10" />
      <jsp:setProperty name="person" property="name" value="cody"/>
      <jsp:setProperty name="person" property="address" value="ktm" />
    </jsp:useBean>

    <hr/>
    <h2>Student id:  <jsp:getProperty name="person" property="id" /> </h2>
    <h2>Student name:  <jsp:getProperty name="person" property="name" /> </h2>
    <h2>Student address:  <jsp:getProperty name="person" property="address" /> </h2>
  </body>
</html>
```

Output:

Person Details

Student id: 10

Student name: cody

Student address: ktm

2. Write a Java program illustrating the concept of Introspector, PropertyDescriptor, EvenetSetDescriptor and MethodDescriptor.

IntrospectionDemo.java

```java
import java.beans.BeanInfo;
import java.beans.Introspector;
import java.beans.PropertyDescriptor;
import java.beans.EventSetDescriptor;
import java.beans.MethodDescriptor;
import java.beans.IntrospectionException;
import java.lang.reflect.Method;

public class IntrospectionDemo {
    // getter,setter,method and eventlistener method
    //create object in main class and diaplay all methods properties and events
    public static void main(String[] args) {
        try {

            MyBean myBean = new MyBean();
            BeanInfo beanInfo = Introspector.getBeanInfo(MyBean.class);
            System.out.println("Properties:");
            PropertyDescriptor[] propertyDescriptors = beanInfo.getPropertyDescriptors();
            for (PropertyDescriptor pd : propertyDescriptors) {
```

```java
            System.out.println("Property Name: " + pd.getName());
            System.out.println("Read Method: " + pd.getReadMethod());
            System.out.println("Write Method: " + pd.getWriteMethod());
            System.out.println();
        }
        System.out.println("Events:");
        EventSetDescriptor[] eventSetDescriptors = beanInfo.getEventSetDescriptors();
        for (EventSetDescriptor esd : eventSetDescriptors) {
            System.out.println("Event Set Name: " + esd.getName());
            System.out.println("Event Listener Type: " + esd.getListenerType());
            Method[] listenerMethods = esd.getListenerMethods();
            for (Method method : listenerMethods) {
                System.out.println("Listener Method: " + method);
            }
            System.out.println();
        }
        System.out.println("Methods:");
        MethodDescriptor[] methodDescriptors = beanInfo.getMethodDescriptors();
        for (MethodDescriptor md : methodDescriptors) {
            System.out.println("Method Name: " + md.getName());
            System.out.println("Method: " + md.getMethod());
            System.out.println();
        }

    } catch (IntrospectionException e) {
        e.printStackTrace();
    }
  }
}
class MyBean {
    private String name;
    private int age;
    public String getName() {
        return name;
     public void setName(String name) {
        this.name = name;
    }
    public int getAge() {
        return age;
    }
```

```java
    public void setAge(int age) {
        this.age = age;
    }
    public void doSomething() {
        System.out.println("Doing something...");
    }
    public void addMyBeanListener(MyBeanListener listener) {
    }
    public void removeMyBeanListener(MyBeanListener listener) {
    }
}
interface MyBeanListener {
    void onEvent();
}
```

Discussion and Conclusion:

In this lab, we learn and discussed about javaBeans with JSP. We learn about different method of java beans like Introspector, PropertyDescriptor, EvenetSetDescriptor and MethodDescriptor.In first question we learn and discussed about jsp:useBean, to set property we use jsp:setProperty and to get data we use jsp:getProperty.