

Internet Technology 2017

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Q1 = (a) What are implicit and explicit parameters? Give an example of each. [4 marks]

Ans = Implicit parameters are the parameters that are passed by specifying the parameter in the object variable before the name of a method.

Ex = public void tutorialsduniya(String website)
{
 String w = website;
}

In the above example, "website" is passed as an implicit parameter.

- Explicit parameters are the parameters that are passed by specifying the parameter in the parenthesis of a method call.

Ex = String x = "tutorialsduniya.com";
myClass.tutorialsduniya(x);

In the above example, "x" is passed as an explicit parameter.

(b) Write a Javascript code to implement dense arrays? [3 marks]

Ans= <script>

```
var TD = new Array ("https", "tutorials", "duniya");  
document.write ( TD[0] + "<br/>");  
document.write ( TD[1] + "<br/>");  
document.write ( TD[2] + "<br/>");
```

```
var str = TD.join();  
document.write ( str);
```

</script>

(c) Write the statement to include a JSTL library in a JSP page. Explain its components. [3 marks]

Ans= JSTL is a collection of jsp standard tags which provides the core functionalities to many JSP applications.

To create a JSTL application, we need to load the "jstl.jar" file.

JSTL has 5 components :-

(i) Core Tags: It provides some basic scripting tags.

Syntax to include core tags library in our jsp page is

<%@ taglib prefix="c" uri="http://java.sun.com/jsp/jstl/core"%>

(ii) Function Tags: It provides support for string manipulation.

Syntax: <%@ taglib prefix="fn" uri="http://java.sun.com/jsp/jstl/functions"%>

(iii) Formatting tags: It provides support to format text, date, number etc.

Syntax: <%@ taglib prefix="fmt" uri="http://java.sun.com/jsp/jstl/fmt"%>

(iv) XML tags: It provides support for XML processing.

Syntax: <%@ taglib prefix="x" uri="http://java.sun.com/jsp/jstl/xml"%>

(v) SQL tags: It provides support for SQL commands.

Syntax: <%@ taglib prefix="sql" uri="http://java.sun.com/jsp/jstl/sql"%>

For more details, visit our JSP tutorial.

<https://jsp.tutorialsduniya.com>

(d) What are the functions of "action" and "method" attributes in the <form> tag of HTML? [3 marks]

Ans= The action attribute specifies where to send the form data when a form is submitted.

Ex= <form action="https://www.tutorialsduniya.com">

The method attribute specifies how to send form data when a form is submitted.

The form data can be sent as URL variables (with method="GET") or as HTTP post transaction (using method="POST").

(e) How do you use JavaBean in a JSP page? What are the different ways of setting bean properties? Write the statements to set the bean properties in a JSP page in different ways. [5 marks]

Ans = JavaBean is a specially constructed java class that provides a default, no argument constructor, implements the serializable interface and has getter and setter methods for its properties.

Create a jsp page using <% %> scriplets. It can contain any number of java statements.

Use the <useBean> action tag to declare the JavaBean in the JSP page. Once it is declared, the bean becomes a scripting variable that can be accessed by both scripting elements and other custom tags used in the JSP page.

Use the <getProperty> action tag to get the methods and <setProperty> action tag to set the methods.

* There are 2 ways of setting bean properties.

① Using <setProperty> action tag

```
<jsp:useBean id="website" class="TutorialsDuniyaBean"/>
<jsp:setProperty name="website" property="name" value="Founder"/>
```

Name is : <jsp:getProperty name="website" property="name"/>

② using <c:set> tag.

<h1>For more details about JBoss Seam, visit our JSP tutorial.</h1>
<h2>

</h2>

<c:set var="website" value="TutorialsDuniya" scope="session"/>
<c:out value="\${'name'}" default="http://www.TutorialsDuniya.com"/>

(f) Explain the purpose of onMouseOver and onFocus events in JavaScript. [2 marks]

Ans= onMouseOver event occurs when the mouse pointer is moved onto an element or onto one of its child element.

Ex= <div onMouseOver="TutorialDuniya()"> </div>

onFocus event occurs when an element gets focus.

Ex= <input type="text" onFocus="TutorialDuniya()" />

(g) What is Bean Introspection? Explain the 2 methods of Bean Introspection. [3 marks]

Ans= The Bean Introspection is the process of analyzing a bean to determine its capabilities. This is an essential feature of JBoss Seam API because it allows another applications such as a design tool to obtain information about a component.

- There are 2 ways/methods of bean Introspection,

- 1.) Naming properties/ design patterns
- 2.) BeanInfo interface

1) Naming properties

These properties allows the introspection mechanism to infer information about a bean.

(a) Simple properties: It has a single value only and can be defined as public void getX() {} or string setX() {}.

(b) Index properties: It has multiple values and can be defined as public void getN(int N) {}.

(c) Bound properties: A bean that has a bound property generates an event when we will try to change its property.

2) BeanInfo Interface

This enables us to explicitly control what information is available in a Bean.

(a) PropertyDescriptor: It describes one property that a Java bean exports via a pair of accessor methods.

(b) EventSetDescriptor: It describes a group of events that a given java bean fires.

(c) MethodDescriptor: It describes a particular method that a Java Bean supports for external access from other components.

Note: To use the above BeanInfo properties, "BeanInfo" should be appended to class name and package "java.beans.SimpleBeanInfo" should be imported.

(h) Write the steps for Java Database Connectivity. [5 marks]

Ans = There are 5 steps to connect any java application with the JDBC. These steps are as follows:-

1.) Register the driver class

The `forName()` method of 'Class' class is used to register the driver class. This method is used to dynamically load the driver class.

```
Class.forName("oracle.jdbc.driver.OracleDriver");
```

2.) Create the connection object

The `getconnection()` method of `DriverManager` class is used to establish connection with the database.

```
Connection con = DriverManager.getConnection(
```

```
"jdbc:oracle:thin:@localhost:1521:xe", "tutorialsduniya", "web");
```

3.) Create the statement object

The `createStatement()` method of `Connection` interface is used to create statement.

```
Statement stmt = con.createStatement();
```

4.) Execute the query

The `executeQuery()` method of `Statement` interface is used to execute queries to database.

```
ResultSet rs = stmt.executeQuery("select * from TutorialsDuniya");
```

5.) Close the connection object

The close() method of Connection interface is used to close the connection.

con.close();

(i) What is NaN in JavaScript? Explain. [2 marks]

Ans= The NaN property represents "Not-a-Number" value. This property indicates that a value is not a legal number.

We use the isNaN() global function to check if a value is a NaN value. This function returns true if the value equates to NaN, otherwise it returns false.

Ex= isNaN(123); // false
isNaN("TutorialDuniya"); // true

(j) What is the difference between Array and ArrayList in Java? [3 marks]

Array

① Array is a fixed length data structure whose length cannot be modified once array object is created.

② It uses assignment operator to insert elements.

ArrayList

ArrayList is dynamic in nature which means it can resize itself to grow when required.

It uses the add() method to insert elements.

③ Array can contain primitives as well as objects of some or different data type.

ArrayList can only contain object types, primitives are not allowed.

④ Array can be single or multidimensional.

ArrayList is only single dimensional.

⑤ Length variable is used to determine the length of the Array.

Size() method is used to determine the size of the ArrayList.

⑥ Array takes less memory and iterates faster than ArrayList.

ArrayList takes more memory and iterates slower than Array.

Section-B

Q2-(a) Write a JSP program to capture Employee HTML form parameters using HTML request parameters. Display the values using JSTL actions. The form contains fields like Employee Name, Employee ID, Department, Designation and year of experience.

Ans= <html>

<head>

<title><https://www.tutorialsduniya.com></title>

</head>

<body>

<form method="GET" action="tutorialsduniya.jsp">

Name : <input type="text" name="Ename"/>

ID : <input type="text" name="Eid"/>


```
Dept : <input type="text" name="Edept" /> <br>
Designation : <input type="text" name="Edesig" /> <br>
Years of Exp: <input type="text" name="Eyse" /> <br>
<input type="submit" value="Submit Details" />
</form>
</body>
</html>
```

Tutorialsduniya.jsp

```
<%@ taglib prefix="c" uri="http://java.sun.com/jstl/core"%>
```

```
<html>
  <body>
    <c:set var="name" value="${Enome}" />
    <c:out value="${name}" />
    <c:set var="id" value="${Eid}" />
    <c:out value="${id}" />
    <c:set var="dept" value="${Edept}" />
    <c:out value="${dept}" />
    <c:set var="desig" value="${Edesig}" />
    <c:out value="${desig}" />
    <c:set var="ye" value="${Eyse}" />
    <c:out value="${ye}" />
  </body>
</html>
```

Q2-(b) Explain the anatomy of a JSP page using a suitable example. [5 marks]

Ans= A JSP page is simply a regular web page with JSP elements for generating parts that differ for each request.

Tutorialsduniya.jsp

```
JSP element [ <%@ page language="java" contentType="text/html" %>
template   [ <html>
text       [ <body bgcolor="white">
JSP         [ <jsp:useBean id="userInfs" class="com.tutorialsduniya.UserBean">
element      [ <jsp:setProperty name="userInfs" property="*" />
              [ </jsp:useBean>
                [ <h2> Following information was saved </h2>
template   [ <p> User name : 
text       [ <jsp:getProperty name="userInfo" property="userName" />
JSP         [ </p>
element      [ </body>
template   [ </html>
```

Everything in the page that isn't a JSP element is called template text. A template text can be any text: HTML, XML or even plain text.

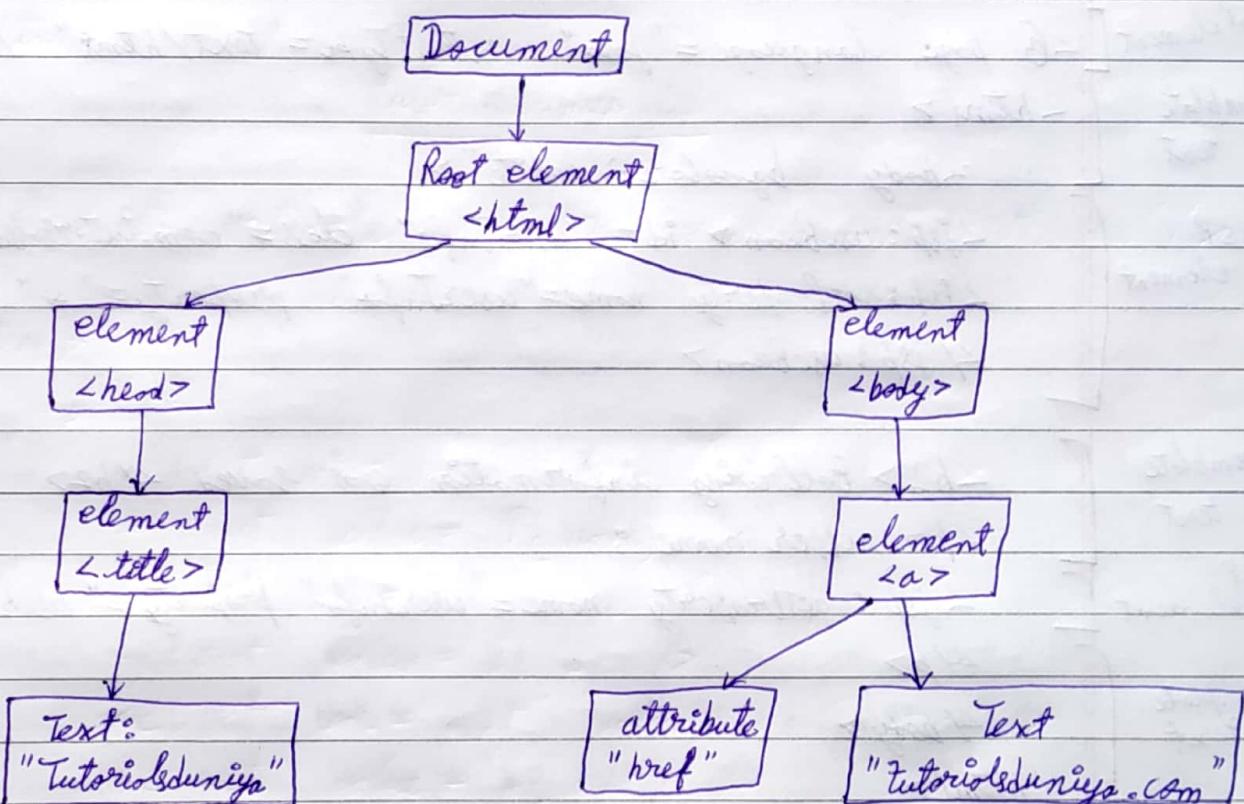
JSP has no dependency on HTML, it can be used with any markup language.

When a JSP page is processed, the template text and dynamic content generated by JSP element are merged and the result is sent as the response to the browser.

Q3=(a) What is DOM model in JavaScript ? [5 marks]

Ans= When a webpage is loaded, the browser creates a Document Object Model of the page.

With the HTML DOM, JavaScript can access and change all the elements of an HTML document.



With the object model, JavaScript can :

- change all HTML elements in the page.
- change all the HTML attributes in the page.
- change all the CSS styles.
- remove existing HTML elements/attributes.
- Add new HTML elements/attributes.
- Create new HTML events in the page.

For more details, visit our [JavaScript tutorial](https://javascript.tutorialsduniya.com).

<https://javascript.tutorialsduniya.com>

Q3=(b) Define a user defined nested object "Cor" with properties Moke, Model, Year and Owner where Owner is a nested object with properties Name, Age and Gender. [5 marks]

Ans = <html>

<head>

<title>https://www.tutorialsduniya.com</title>

<script>

```
function Cor(Moke, Model, Year, Owner)
{
    this.Moke = Moke;
    this.Model = Model;
    this.Year = Year;
    this.Owner = Owner;
}

function Owner(Name, Age, Gender)
{
    this.Name = Name;
    this.Age = Age;
    this.Gender = Gender;
}
```

</script>

</head>

<body>

<script>

```
var Owner1 = new Owner("Abhishek", 20, M);
var myCor = new Cor(Moke, Model, Year, Owner1);
document.write(myCor.Moke + myCor.Model + myCor.Year +
    myCor.Owner1.Name + myCor.Owner1.Age +
    myCor.Owner1.Gender);
```

</script>

</body>

</html>

Q9(a) = What are local and global variables? How does the use of data types in context of variables differ in Java and JavaScript? [5 marks]

Ans= Local Variables are declared inside the function or some block of code. They are accessible only within that function or block of code.

Global Variables are declared outside the function or block of code. They are accessible from any function or block of code.

Within the body of a function, a local variable takes precedence over a global variable with the same name.

Ex=
 var a = 100;
 var b = 50;
 function TutorialsDuniya()
{
 var b = 200;
 document.write(a); // prints 100
 document.write(b); // prints 200
}

In Java, we need to specify the data type to specify the size and type of values that can be stored in a variable while in JavaScript, the web browser automatically defines the data type of a variable using the value of the variable.

In Java,

Ex= char c='T';
int a=1027;

In Javascript,

Ex= var c='T';
var a=1027;

Q 4(b)= Write a javascript code to prompt the user to enter N numbers and print the count of -ve numbers , +ve numbers and zeroes? [5 marks]

Ans= <!DOCTYPE html>

<html>

<head>

<title> TutorialsDuniya JavaScript Notes 4</title>

</head>

<body>

<button onclick="myFunction()">Enter Numbers </button>

<p id="demo"></p>

<script>

var p=0, n=0, z=0;

function myFunction() {

var Arr[];

var num=prompt("Enter numbers",0);

for(var i=0; i<num; i++)

{ Arr[i]=prompt("Number "+(i+1));

for(var j=0; j<num; j++)

{ if(Arr[j]>0)

p++;

else if(Arr[j]<0)

n++;

else z++;

}

}

```
document.onreadystatechange = function() {
    if (document.readyState === "complete") {
        document.getElementById("demo").innerHTML =
            "Positive nos " + p +
            "Negative nos " + n + " Zeros " + z;
    }
}
</script>
</body>
</html>
```

Q5(a) What is the difference b/w JSP and Servlet. Briefly explain. [5 marks]

Ans =

Servlet

JSP

- | Servlet | JSP |
|--|--|
| ① Servlet is java code. | JSP is HTML based code. |
| ② Writing code for servlet is harder than JSP as it is Java in HTML. | JSP is easy to code as it is Java in HTML. |
| ③ Servlet plays a controller role in MVC approach. | JSP is the view in MVC approach for showing output. |
| ④ Servlet is faster than JSP. | JSP is slower than servlet. |
| ⑤ Servlet can accept all protocol requests. | JSP can only accept HTTP request. |
| ⑥ In servlet, we can override the service() method. | In JSP, we can not override the service() service() method. |

- (7) In servlet, session management is not enabled by default, user has to enable it explicitly. In JSP, session management is automatically enabled.
- (8) In servlet, we have to implement everything like business logic & presentation logic in just one servlet file. In JSP, business logic is separated from presentation logic by using JSP beans.
- (9) Modification in Servlet is a time consuming task because it includes reloading, recompiling & restarting servers. JSP modification is fast as we just need to click the refresh button.
- (10) We can not build any custom tags in servlet. We can build custom tags using JSP API.

Q5(b)= What are custom tags? Write a java tag handler class to find the substring of a string. [5 marks]

Ans= A custom tag is a user defined JSP tag. When a JSP page containing a custom tag is translated into a servlet, the tag is converted to operations on an object called a tag handler. The web container then invokes those operations when the JSP page's servlet is executed.

Custom tags helps in separating the business logic from the presentation of the web page.

MyTagHandler.java

```
package com.tutorialsduniya;  
import javax.servlet.jsp.*;  
import java.io.*;  
import java.util.*;
```

```
public class MyTagHandler extends SimpleTagSupport
```

```
{
```

```
    String input;  
    int start, end;  
    public void setInput(String input)  
    {  
        this.input = input;  
    }  
    public void setStart(int start)  
    {  
        this.start = start;  
    }  
    public void setEnd(int end)  
    {  
        this.end = end;  
    }
```

```
    public void doTag() throws IOException  
{
```

```
        JspWriter out = getJspContext().getOut();  
        if (start >= 0 && end < input.length())  
        {  
            for (int i = start; i <= end; i++)  
                out.print(input.charAt(i));  
        }
```

```
    }  
    else
```

```
        out.println("Invalid start or end");  
    }
```

```
}
```

Q6(a) What are constrained and bound Bean properties? Briefly explain. [5 marks]

Ans= A bean that has a bound property generates an event when the property is changed. The event is of type PropertyChangeEvent and is sent to objects that previously registered an interest in receiving such notifications.

A class that handles this event must implement the PropertyChangeListener interface.

- A bean that has a constrained property generates an event when an attempt is made to change its value. It also generates an event of type PropertyChangeEvent. This too is sent to objects that previously registered an interest in receiving such notifications. However, those other objects have the ability to veto the proposed change by throwing a PropertyVetoException. This capability allows a bean to operate differently according to its runtime environment.

A class that handles this event must implement the VetoableChangeListener interface.

Q6 (b)= Write a JDBC program to call a stored procedure named PROC1 with an ~~out~~ OUT parameter to display the count of rows in a table. [5 marks]

Ans=

```
String url = "jdbc:odbc:CustomerInformation";
String userID = "tutorialsduniya";
String password = "Abhishek";
int number;
```

Connection db;

try {

Class.forName("Sun.jdbc.odbc. Idbcodbc : Driver");

db = DriverManager.getConnection(url, userID, password);

}

catch (Exception error) { }

String query = "{ CALL PROC1 (?) }";

CallableStatement cstmt = db.prepareCall(query);

cstmt.registerOutParameter(1, Types.VARCHAR);

cstmt.execute();

number = cstmt.getString(1);

cstmt.close();

} db.close();

Q7-(a) Write the difference between clone and arrayCopy() method of java with examples. [5 marks]

Ans =

arrayclone

arraycopy()

clone

① arraycopy() method copies an array from the specified position, to the specified position in the destination array.

clone() method returns a new array containing all elements copied from array on which clone method is called.

② This method does not return anything.

This method returns an array object.

③ This method adds elements to an already existing array.

This method adds elements to a new array.

④ This method can copy some or all the array elements.

This method can only copy all the array elements.

⑤ In this method, the array size should be large enough to fit both existing array elements and elements to be copied.

In this method, if the array size declared is smaller to fit in elements, array size will automatically grow based on no. of elements that are getting copied.

Ex= package com.tutorialsduniya;
import java.lang.*;

```
public class ArrayDemo  
{  
    public static void main(String[] args)  
    {  
        int arr1[] = {5, 10, 15, 20};  
        int arr2[] = {1, 2, 3, 4};
```

```
System.arraycopy(arr1, 0, arr2, 0, 4); //ArrayCopy method
```

```
int arr3[] = arr1.clone(); //clone method
```

}

}

Q7=(b) Write a javascript code to display current date & time in browser which should keep on updating itself every second. [5 marks]

Ans = <html>

<head>

<title><https://javascript.tutorialsduniya.com></title>

</head>

<body>

<h2> Current date & time </h2>

<p id= "todaysDate" > </p>

<script>

function doDate()

{ var str = " ";

var now = new Date();

str += now.getDate() + " " + now.getHours() + ":" +
now.getMinutes() + ":" + now.getSeconds();

document.getElementById("todaysDate").innerHTML = str;

}

setInterval(doDate, 1000);

</script>

</body>

</html>

If you found any error, contact us at

support@tutorialsduniya.com

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with solutions etc.