

Java JSP – L1: Trend.Nxt Hands-on Assignments

Estimated Efforts: 2 PDs

For detailed ToC and other Details: <https://wipro365.sharepoint.com/sites/ku-practice-4043/CCX-Competency/TREND.NxT/Pages/JSP-L1.aspx>

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ToC :

Topic No	Topic Name	Sub Topics	Min No of Assignments to be Done
1	JSP - Overview & Environment	1. What is Java Server Pages, Why use JSP, Advantages of JSP 2. Setting up JDK, Setting up Tomcat, Setting up CLASSPATH	1
2	JSP – Architecture & JSP - Life Cycle	1. JSP Architecture, JSP Processing 2. JSP Compilation, JSP Initialization, JSP Execution, JSP Cleanup	1
3	JSP - Syntax , Scriptlet, Directives , Actions & Implicit Objects	1. Scriptlet, JSP Declarations, JSP Expression, JSP Comments 2. JSP Directives, JSP Actions, JSP Implicit Objects 3. JSP Actions, Common Attributes 4. Control-Flow Statements, Decision-Making Statements, Loop Statements, JSP Operators, JSP Literals	3
4	JSP - Client Request , JSP - Server Response& JSP - HTTP Status Codes	1. HTTP Headers, HttpServletRequest Object, HTTP Header Request example 2. Server Response, HttpServletResponse Object, Http Header Response example 3. Http Status Codes, Methods to set HTTP Status code, HTTP Status Code example	1

5	JSP - Exceptions	1. Exception Handling, Using Exception Object, Using JSTL tags for Error Page, Using Try...Catch block	1
6	JSP - Form Data	1. GET method, POST method, Reading Form Data using JSP, GET method using URL, GET method using Form, POST method using Form 2. Passing - Reading Checkbox data, Reading Form parameters	1
7	JSP - Cookies & Session Tracking , Page Redirect	1. Handling Anatomy of a Cookie, Servlet Cookies Methods, Setting - Reading Cookies with JSP, Delete Cookies with JSP 2. Cookies, Hidden Form Fields, URL Rewriting, The session object, Session Tracking example, Deleting Session Data 3. Page redirection	2
Total Min No of Assignments to be Done			10

Topic 1: JSP - Overview & Environment

Assignment 1:

Write a JSP program which when invoked will print today's date and time.

Assignment 2:

Student Management system main focuses on the student marks sheet. Write a JSP program to check the marks of the subjects and calculate the total, average and grade based on condition given below.

- Average is greater than or equal to 80.0 then Grade set as 'A'
- Average is greater than or equal to 70.0 and less than 80.0 then Grade set as 'B'
- Average is greater than or equal to 60.0 and less than 70.0 then Grade set as 'C'
- Average is greater than or equal to 50.0 and less than 60.0 then Grade set as 'D'
- Average is less than 50.0 then Grade set as 'F'

Topic 2: JSP – Architecture & JSP - Life Cycle

Assignment 1:

A small company needs an interactive program to figure its weekly payroll. The input data and each employee's wages should be save in a database, and the total wages for the week should be displayed on the screen so that that they payroll clerk can transfer the appropriate amount into the payroll account. The data for each employee includes an employee identification number, name, address, employee's hourly pay rate, and the hours worked that week.

Wages equal the employee's pay rate times the number of hours worked, up to 40 hours. If an employee worked more than 40 hours wages equal the employee's pay rate times 40 hours, plus 11/2(one and half) times the employee's regular pay rate times the number of hours worked above 40.

- 1) Employee hourly rate will be calculated based on number of years' experience.
- 2) if experience is less than 2.0 then hourly rate 20.0 dollars
- 3) if experience is greater than >2.0 and less than 5.0 then hourly rate 50.0 dollars
- 4) else if experience is greater than or equal to 5.0 then hourly rage 90.0 dollars

Wages will be calculated by using following formula

- a. if hours worked is greater tan 40.0 then
- b. $\text{wages} = (40.0 * \text{payrate}) + (\text{hours worked} - 40.0) * 1.5 * \text{pay rate}$
- c. otherwise $\text{wages} = \text{hours worked} * \text{pay rate}$

Develop a MVC architecture application that helps the Administrator to perform some basic operations like

1. Adding the Employee details to the database based on the calculation
2. Fetching the Employee details from the database based on Employee ID

Table: Employee(ID,name,address,yearsOfExperience, wages)

Assignment 2:

1. Create MVC architecture based Application for Income tax collection center for a particular country. The details of income tax paid by the citizen are supposed to be stored in a database table. The application should allow the user to add income details, search details a particular entry based on citizen id and display the details of the income tax paid by different citizen. The income tax of the individual citizens is calculated as per the income tax ranges in the table below.

	Annual Income	Income Tax Rage
i.	Where the total income does not exceed Rs. 1,80,000	NIL
ii.	Where the total income exceeds Rs. 1,80,000 but does not exceed Rs. 5,00,000	10% of amount by which the total income exceeds Rs. 1,80,000/-
iii.	Where the total income exceeds Rs. 5,00,000 but does	Rs. 32,000/- +20% of the

- not exceed Rs. 8,00,000
- iv. Where the total income exceeds Rs. 8,00,000
- Table: Citizen(id,name,address,total_income, taxtoPay)
- amount by which the total income exceeds Rs. 5,00,000/-
Rs. 92,000/- + 30% of the amount by which the total income exceeds Rs. 8,00,000/-

Topic 3: JSP - Syntax , Scriptlet, Directives , Actions & Implicit Objects

Assignment 1:

Write a JSP program to display “Welcome To JSP world” on the console.[Hint: Use implicit object **out** with scriptlet here]

Assignment 2:

Write a JSP program that prints multiplication table of 9.[Hint: Use declaration tag to declare & Initialize a variable]

Assignment 3:

Create a JSP that forwards the request to one of three different HTML/JSP pages, depending on the value of the operation request parameter. Say if input is <10 then page 1 or greater than 10 and less than 99 then page 2 otherwise error page.(Hint: Use page directive to work with error page)

Assignment 4:

Create a bean that represents information needed to calculate an employee's salary. Has String (employee name) and int (employee ID) properties. Create an application to demonstrate automatically filling in bean properties from request parameters.[Hint : Use action tags]

Topic 4: JSP - Client Request, Server Response& HTTP Status Codes

Assignment 1:

Wipro Information Service Division maintains a library of Books, which are published by different Publishers. Develop a web based application that helps the librarian to perform some basic operations like

- a. Adding a book to the database
- b. Fetching the details of the book including the Author information

Assignment 2:

Develop a MVC architecture application that helps the Administrator to perform some basic operations like

1. Adding the student details to the database
2. Fetching the students details from the database based on student ID

Table: Student_Tbl(id,name,address,sub1,sub2,sub3,total,average,grade)

Topic 5: JSP - Exceptions

Assignment 1:

Write a JSP application to handle NullPointerException by using isErrroPage & errorPage attributes of page directive.

Assignment 2:

Write a JSP application to create a login page, Handle Username/Password errors by using isErrroPage & errorPage attributes of page directive.

Topic 6 : JSP - Form Data

Assignment 1:

Implement Login Application which will display a welcome username message and if the login fails, it will redirect to an error page using MVC architecture.

- a. Login.jsp this will input username and password
- b. Success.jsp : if login is successful this page should be displayed
- c. Error.jsp : if login fails
- d. LoginController.java: controller class(servlet) of the application which communicates with model
- e. Authenticator.java: Business logic for the authentication
- f. User.java : Stores username and password(Bean)

Assignment 2:

Write a JSP program to

- a. Create an emp table in the database with fields name, id and designation.
- b. Create a HTML file with fields name, id and designation. Make sure that the textfields have the same name as name, id and designation.
- c. Create a javabean with fields name, id and designation.

- d. On click of the submit button of the HTML, invoke a jsp page which will extract the values that were given by the HTML page and it invokes a servlet.
- e. The Servlet will make a connection to the database and store the value in the table.
- f. Connection to the database should have been established using a separate java class.
- g. You can enhance the program by including more features like deletion, updation and selecting all records.

Topic 7 : JSP - Cookies , Session Tracking & Page Redirect

Assignment 1:

Write a JSP program to do the following.

- a) Accept username & password from login.html file & set or create cookies for it.
- b) Retrieve these set of cookies to validate both the field from login table.

Assignment 2:

Create a JSP page that recognizes first time visitor to web application and responds by saying "Welcome to new user" otherwise "welcome back"

Assignment 3:

Create a JSP page that uses hidden form fields session tracking mechanism, to keep per-client access counts.

Assignment 4:

Write a JSP program to validate Login and store User information in Session. From the home page of the user click the link to get Employee Salary Details.[Use page redirect wherever applicable]
Assumption: Login Page, Home page, User table and salary table exists