**1.** Write a HTML program to create a Registration form, which contains Name, User Name, Password, Date of Birth, Gender, Mail-id, Contact number, Address and submit button**.(done)**

**2.** Create a Web Page using HTML which contains a Heading, 2 hyperlinks. Each hyperlink opens a new page in the same web browser. New page contains hyperlink to open the page in different browser and “Go Back” link that takes you to the main page.**(done)**

**3.** Write a JavaScript program to change the shape and color of a block after clicking “change” button.**(done)**

**4.** Write a JavaScript program to validate the registration page against below conditions using regular expression

a. Username length must be between 8 and 16 (including) and must contain alphabets and numbers and should start with alphabet only.

b. Password length must be between 8 and 16 (including) and must contain alphabets, atleast 1 number and only 1 special character.

c. Date of Birth must be in the pattern dd-mm-yyyy.

d. Contact number must be numbers only.

e. Mail-Id must end with @xxx.com (xxx can be gmail/hotmail/rediffmail**).(done)**

**5.** Write a program to create and Build a star rating system using JQuery.

**6**. Write a program to create a basic calculator to perform arithmetic operations using ReactJS.

**7** Develop a ReactJS application to increment/decrement counter and when submitted show the counter value.

**8**. Write a program to create a simple voting application system using ReactJS.

**9**. Create a web application in SERVLETS to show a login page, validate username and password against the servlet initialization parameters and redirect the user to a welcome page. In Welcome page, display the message "Welcome <username>", show the start time at right corner of the page and a logout button. On clicking logout button, it should show a logout page with Thank You <username> message with the duration of usage.

**10**. Write a JSP program to find a factorial of the given number using bean.

**11**. Create a user validation web application using JSP, where the user submits the login name and password to the server. The name and password are checked against the data already available in database and if the data matches, a successful login page is returned. Otherwise show a failure message to the user.

**12**. Create a web application in spring MVC which contains login page and welcome page. Login page takes only username from user and welcome page should show the message Welcome username and a 'View Employees' link when clicked Enployees details should be displayed on the page retrieving from the database.

**1,**

*<!DOCTYPE html>*

*<html lang="en">*

*<head>*

*<meta charset="UTF-8">*

*<meta name="viewport" content="width=device-width, initial-scale=1.0">*

*<title>Registration Form</title>*

*<style>*

*body {*

*font-family: Arial, sans-serif;*

*background-color: #f4f4f9;*

*margin: 0;*

*padding: 20px;*

*}*

*h1 {*

*text-align: center;*

*color: #333;*

*}*

*form {*

*max-width: 500px;*

*margin: 0 auto;*

*background-color: #fff;*

*padding: 20px;*

*border: 1px solid #ccc;*

*border-radius: 10px;*

*box-shadow: 0 0 10px rgba(0, 0, 0, 0.1);*

*}*

*label {*

*display: block;*

*margin-bottom: 5px;*

*font-weight: bold;*

*}*

*input, textarea, select {*

*width: 100%;*

*padding: 10px;*

*margin-bottom: 15px;*

*box-sizing: border-box;*

*border: 1px solid #ccc;*

*border-radius: 5px;*

*font-size: 1em;*

*}*

*button {*

*background-color: #4CAF50;*

*color: white;*

*padding: 10px;*

*border: none;*

*border-radius: 5px;*

*cursor: pointer;*

*font-size: 1em;*

*width: 100%;*

*}*

*button:hover {*

*background-color: #45a049;*

*}*

*</style>*

*</head>*

*<body>*

*<h1>Registration Form</h1>*

*<form>*

*<label for="name">Name:</label>*

*<input type="text" id="name" name="name" placeholder="Enter your full name" required>*

*<label for="username">Username:</label>*

*<input type="text" id="username" name="username" placeholder="Choose a username" required>*

*<label for="password">Password:</label>*

*<input type="password" id="password" name="password" placeholder="Enter your password" required>*

*<label for="dob">Date of Birth:</label>*

*<input type="date" id="dob" name="dob" required>*

*<label for="gender">Gender:</label>*

*<select id="gender" name="gender" required>*

*<option value="" disabled selected>Select your gender</option>*

*<option value="male">Male</option>*

*<option value="female">Female</option>*

*<option value="other">Other</option>*

*</select>*

*<label for="email">Mail ID:</label>*

*<input type="email" id="email" name="email" placeholder="Enter your email" required>*

*<label for="contact">Contact Number:</label>*

*<input type="tel" id="contact" name="contact" placeholder="Enter your contact number" pattern="[0-9]{10}" required>*

*<label for="address">Address:</label>*

*<textarea id="address" name="address" rows="4" placeholder="Enter your address" required></textarea>*

*<button type="submit">Submit</button>*

*</form>*

*</body>*

*</html>*

**3,** *<!DOCTYPE html>*

*<html lang="en">*

*<head>*

*<meta charset="UTF-8">*

*<meta name="viewport" content="width=device-width, initial-scale=1.0">*

*<title>Change Shape and Color</title>*

*<style>*

*body {*

*font-family: Arial, sans-serif;*

*text-align: center;*

*background-color: #f4f4f9;*

*margin: 0;*

*padding: 20px;*

*}*

*#block {*

*width: 150px;*

*height: 150px;*

*background-color: #3498db;*

*margin: 50px auto;*

*transition: all 0.5s ease;*

*}*

*button {*

*padding: 10px 20px;*

*font-size: 1em;*

*color: #fff;*

*background-color: #4CAF50;*

*border: none;*

*border-radius: 5px;*

*cursor: pointer;*

*transition: background-color 0.3s;*

*}*

*button:hover {*

*background-color: #45a049;*

*}*

*</style>*

*</head>*

*<body>*

*<h1>Change Shape and Color</h1>*

*<div id="block"></div>*

*<button onclick="changeBlock()">Change</button>*

*<script>*

*function changeBlock() {*

*const block = document.getElementById("block");*

*const randomColor = '#' + Math.floor(Math.random() \* 16777215).toString(16);*

*if (block.style.borderRadius === "50%") {*

*block.style.borderRadius = "0%";*

*} else {*

*block.style.borderRadius = "50%";*

*}*

*block.style.backgroundColor = randomColor;*

*}*

*</script>*

*</body>*

*</html>*

**4,**

***4.html***

*<!DOCTYPE html>*

*<html lang="en">*

*<head>*

*<meta charset="UTF-8">*

*<meta name="viewport" content="width=device-width, initial-scale=1.0">*

*<title>Registration Form Validation</title>*

*<style>*

*body {*

*font-family: Arial, sans-serif;*

*margin: 20px;*

*padding: 0;*

*}*

*.container {*

*max-width: 400px;*

*margin: 0 auto;*

*padding: 20px;*

*border: 1px solid #ccc;*

*border-radius: 10px;*

*background-color: #f9f9f9;*

*}*

*h2 {*

*text-align: center;*

*margin-bottom: 20px;*

*}*

*input[type="text"], input[type="email"], input[type="password"], input[type="tel"] {*

*width: 100%;*

*padding: 10px;*

*margin: 10px 0;*

*border: 1px solid #ccc;*

*border-radius: 5px;*

*box-sizing: border-box;*

*}*

*.error {*

*color: red;*

*font-size: 0.9em;*

*margin-top: -10px;*

*}*

*button {*

*background-color: #4CAF50;*

*color: white;*

*padding: 15px 20px;*

*border: none;*

*border-radius: 5px;*

*cursor: pointer;*

*width: 100%;*

*margin-top: 20px;*

*}*

*button:hover {*

*background-color: #45a049;*

*}*

*</style>*

*</head>*

*<body>*

*<div class="container">*

*<h2>Registration Form</h2>*

*<form action="success.html" onsubmit="return validateForm()">*

*<label for="username">Username:</label>*

*<input type="text" id="username" name="username" required>*

*<label for="password">Password:</label>*

*<input type="password" id="password" name="password" required>*

*<label for="dob">Date of Birth (dd-mm-yyyy):</label>*

*<input type="text" id="dob" name="dob" placeholder="dd-mm-yyyy" required>*

*<label for="contactNumber">Contact Number:</label>*

*<input type="text" id="contactNumber" name="contactNumber" required>*

*<label for="email">Email:</label>*

*<input type="email" id="email" name="email" required>*

*<button type="button" onclick="validateForm()">Register</button>*

*<div id="errorMessages" class="error"></div>*

*</form>*

*</div>*

*<script src="4.js">*

*</script>*

*</body>*

*</html>*

***4.js***

*function validateForm() {*

*const username = document.getElementById("username").value;*

*const password = document.getElementById("password").value;*

*const dob = document.getElementById("dob").value;*

*const contactNumber = document.getElementById("contactNumber").value;*

*const email = document.getElementById("email").value;*

*const errorMessages = document.getElementById("errorMessages");*

*// Clear previous errors*

*errorMessages.innerHTML = "";*

*// Regular Expressions*

*const usernameRegex = /^[A-Za-z][A-Za-z0-9]{7,15}$/; // Username: Starts with alphabet, alphanumeric, 8-16 chars*

*const passwordRegex = /^(?=.\*[A-Za-z])(?=.\*\d)(?=.\*[^\w\s]).{8,16}$/; // Password: 8-16 chars, 1 special char, 1 number*

*const dobRegex = /^(0[1-9]|[12][0-9]|3[01])-(0[1-9]|1[0-2])-\d{4}$/; // Date: dd-mm-yyyy*

*const contactNumberRegex = /^\d+$/; // Only digits*

*const emailRegex = /^[A-Za-z0-9.\_%+-]+@(gmail|hotmail|rediffmail)\.com$/; // Ends with @gmail.com, @hotmail.com, or @rediffmail.com*

*let errors = [];*

*// Validation checks*

*if (!usernameRegex.test(username)) {*

*errors.push("Username must start with an alphabet, be 8-16 characters, and contain only alphabets and numbers.");*

*}*

*if (!passwordRegex.test(password)) {*

*errors.push("Password must be 8-16 characters long, include alphabets, at least 1 number, and exactly 1 special character.");*

*}*

*if (!dobRegex.test(dob)) {*

*errors.push("Date of Birth must be in the format DD-MM-YYYY.");*

*}*

*if (!contactNumberRegex.test(contactNumber)) {*

*errors.push("Contact Number must contain numbers only.");*

*}*

*if (!emailRegex.test(email)) {*

*errors.push("Email must end with @gmail.com, @hotmail.com, or @rediffmail.com.");*

*}*

*// Display errors or success message*

*if (errors.length > 0) {*

*errorMessages.innerHTML = errors.join("<br>");*

*} else {*

*alert("Registration Successful! All inputs are valid.");*

*}*

*}*

**5,** *<!DOCTYPE html>*

*<html lang="en">*

*<head>*

*<meta charset="UTF-8">*

*<meta name="viewport" content="width=device-width, initial-scale=1.0">*

*<title>Star Rating System</title>*

*<script src="https://code.jquery.com/jquery-3.6.0.min.js"></script>*

*<style>*

*body {*

*font-family: Arial, sans-serif;*

*text-align: center;*

*margin: 50px;*

*background-color: #f4f4f9;*

*}*

*h1 {*

*color: #333;*

*}*

*.star-rating {*

*display: inline-block;*

*}*

*.star {*

*font-size: 2em;*

*color: #ccc;*

*cursor: pointer;*

*transition: color 0.2s ease-in-out;*

*}*

*.star.selected,.star.hovered {*

*color: #FFD700;*

*}*

*#rating-value {*

*margin-top: 20px;*

*font-size: 1.2em;*

*font-weight: bold;*

*color: #555;*

*}*

*</style>*

*</head>*

*<body>*

*<h1>Star Rating System</h1>*

*<div class="star-rating">*

*<span class="star" data-value="1">&#9733;</span>*

*<span class="star" data-value="2">&#9733;</span>*

*<span class="star" data-value="3">&#9733;</span>*

*<span class="star" data-value="4">&#9733;</span>*

*<span class="star" data-value="5">&#9733;</span>*

*</div>*

*<div id="rating-value">Your Rating: 0</div>*

*<script>*

*$(document).ready(function () {*

*let selectedRating = 0;*

*$(".star").hover(*

*function () {*

*const hoverValue = $(this).data("value");*

*highlightStars(hoverValue);*

*},*

*function () {*

*highlightStars(selectedRating);*

*}*

*);*

*$(".star").click(function () {*

*selectedRating = $(this).data("value");*

*highlightStars(selectedRating);*

*$("#rating-value").text("Your Rating: " + selectedRating);*

*});*

*function highlightStars(value) {*

*$(".star").each(function () {*

*if ($(this).data("value") <= value) {*

*$(this).addClass("selected");*

*} else {*

*$(this).removeClass("selected");*

*}*

*});*

*}*

*});*

*</script>*

*</body>*

*</html>*

**6**, ***cal.js***

*import React, { useState } from 'react';*

*import './cal1.css';*

*function Counter1() {*

*const [input, setInput] = useState('');*

*const handleInput = (e) => {*

*setInput(e.target.value);*

*};*

*const handleCalculate = () => {*

*try {*

*const result = eval(input);*

*setInput(result.toString());*

*}*

*catch (error) {*

*setInput('Error');*

*}*

*};*

*const handleClear = () => {*

*setInput('');*

*};*

*const handleBackspace = () => {*

*setInput(input.slice(0, -1));*

*};*

*return (*

*<div className="App">*

*<h1>Calculator</h1>*

*<div className="calculator">*

*<input type="text" value={input} onChange={handleInput} placeholder="0"/>*

*<div className="buttons first-row">*

*<button onClick={handleClear}>Clear</button><br/><br/>*

*<button onClick={handleBackspace}>Backspace</button>*

*</div>*

*<div className="buttons">*

*<button onClick={() => setInput(input + '1')}>1</button>*

*<button onClick={() => setInput(input + '2')}>2</button>*

*<button onClick={() => setInput(input + '3')}>3</button>*

*<button onClick={() => setInput(input + '+')}>+</button>*

*<button onClick={() => setInput(input + '4')}>4</button>*

*<button onClick={() => setInput(input + '5')}>5</button>*

*<button onClick={() => setInput(input + '6')}>6</button>*

*<button onClick={() => setInput(input + '-')}>-</button>*

*<button onClick={() => setInput(input + '7')}>7</button>*

*<button onClick={() => setInput(input + '8')}>8</button>*

*<button onClick={() => setInput(input + '9')}>9</button>*

*<button onClick={() => setInput(input + '\*')}>\*</button>*

*<button onClick={() => setInput(input + '0')}>0</button>*

*<button onClick={() => setInput(input + '%')}>%</button>*

*<button onClick={handleCalculate}>=</button>*

*<button onClick={() => setInput(input + '/')}>/</button>*

*</div>*

*</div>*

*</div>*

*);*

*}*

*export default Counter1;*

***cal.css***

*.App {*

*text-align: center;*

*margin-top: 50px;*

*}*

*.calculator {*

*display: inline-block;*

*padding: 20px;*

*border: 2px solid #000;*

*border-radius: 8px;*

*}*

*input {*

*width: 220px;*

*font-size: 22px;*

*text-align: right;*

*margin-bottom: 10px;*

*padding: 5px;*

*}*

*.first-row {*

*display: flex;*

*justify-content: space-between;*

*margin-bottom: 15px;*

*}*

*.first-row button {*

*width: 110px;*

*font-size: 16px;*

*padding: 10px;*

*}*

*.buttons {*

*display: grid;*

*grid-template-columns: repeat(4, 50px);*

*gap: 10px;*

*}*

*button {*

*font-size: 20px;*

*padding: 10px;*

*}*

**7, event.js**

*import React from "react";*

*import "./event.css";*

*class Counter2 extends React.Component {*

*constructor(props){*

*super(props);*

*this.state = {count : 0};*

*}*

*increment = () => {*

*this.setState({count : this.state.count + 1});*

*}*

*decrement = () => {*

*this.setState({count : this.state.count - 1});*

*}*

*clear = () => {*

*this.setState({count : 0});*

*}*

*render() {*

*return (*

*<div>*

*<h1>Simple Event Handling in React JS</h1>*

*<h3>Counter : {this.state.count}</h3>*

*<button onClick={this.increment}>Increment</button>*

*<button onClick={this.decrement}>Decrement</button>*

*<button onClick={this.clear}>Reset</button>*

*</div>*

*); } }*

*export default Counter2;*

***event.css***

*.App {*

*text-align: center; }*

**8,** *import React, { useState } from 'react';*

*const Count = () => {*

*const [count, setCount] = useState(0);*

*const [submittedCount, setSubmittedCount] = useState(null);*

*const handleIncrement = () => {*

*setCount(count + 1);*

*};*

*const handleDecrement = () => {*

*setCount(count - 1);*

*};*

*const handleSubmit = () => {*

*setSubmittedCount(count);*

*};*

*return (*

*<div style={{ padding: '20px' }}>*

*<h1>Voting System</h1>*

*<h3>DO YOU LIKE ICT:</h3>*

*<div>*

*<button onClick={handleIncrement}>Increment</button>*

*<button onClick={handleDecrement}>Decrement</button>*

*</div>*

*<h2>Current Count: {count}</h2>*

*<button onClick={handleSubmit}>Submit</button>*

*{submittedCount !== null && (*

*<h2>Total Votes Submitted: {submittedCount}</h2>*

*)}*

*</div>*

*);*

*};*

*export default Count;*

**10,**

***Index.html***

*<html>*

*<head>*

*<title>Factorial Calculator</title>*

*</head>*

*<body>*

*<h1>Factorial Calculator</h1>*

*<form action="factorial.jsp" method="get">*

*Enter a number:*

*<input type="number" name="num" required>*

*<br><br>*

*<input type="submit" value="Calculate">*

*</form>*

*</body>*

*</html>*

***Factorial.jsp***

*<!DOCTYPE html>*

*<html>*

*<head>*

*<title>Factorial Result</title>*

*</head>*

*<body>*

*<h1>Factorial Result</h1>*

*<% String nu=request.getParameter("num");%>*

*<jsp:useBean id="factorialBean" class="com.example.beans.FactorialBean" scope="request" />*

*<jsp:setProperty name="factorialBean" property="number" param="num" />*

*<div class="result-container">*

*<p>The factorial of <%= nu %> is:<jsp:getProperty name="factorialBean" property="factorial"/>*

*</div>*

*<br>*

*<a href="index.html">Calculate another factorial</a>*

*</body>*

*</html>*

***FactorialBean.java***

*package com.example.beans;*

*public class FactorialBean {*

*private int number;*

*private long factorial;*

*public int getNumber() {*

*return number;*

*}*

*public void setNumber(int number) {*

*this.number = number;*

*calculateFactorial(); // Recalculate factorial when the number is set*

*}*

*public long getFactorial() {*

*return factorial;*

*}*

*private void calculateFactorial() {*

*factorial = 1;*

*for (int i = 1; i <= number; i++) {*

*factorial \*= i;*

*}*

*}*

*}*

**11,**

***Login.jsp***

*<%@page contentType="text/html" pageEncoding="UTF-8"%>*

*<!DOCTYPE html>*

*<html>*

*<head>*

*<meta http-equiv="Content-Type" content="text/html; charset=UTF-8">*

*<title>login Page</title>*

*</head>*

*<body>*

*<h2>Login form</h2>*

*<center>*

*<form action="hello.htm">*

*Username: <input name="username"/><br><br>*

*Password: <input type="password" name="password"/><br><br>*

*<input type="submit" value="Login"/>*

*</form>*

*</center>*

*</body>*

*</html>*

***Validate.jsp***

*<%@page import="java.sql.\* " %>*

*<html>*

*<head>*

*<title>validate page</title>*

*</head>*

*<body>*

*<div>*

*<%*

*String uname=request.getParameter(“username”);*

*String pwd=request.getParameter(“password”);*

*String dbURL=”jdbc:mysql://localhost:3306%sample;*

*String dname= “root”;*

*String dpwd= “Kavya”;*

*Try{*

*ClassforName(“com.mysql.jdbc.Driver”);*

*Connector con=DriverManager.getConnection(dburl,dname,dpwd);*

*String sql=select \* from student where user=”+uname+” and password =”+pwd+”);*

*Statement s=con.createStatement();*

*ResultSet rs=s.createQuery(sql);*

*If(rs.next())*

*Out.println(“<h1>Login Success”+uname+”</h1>”);*

*Else*

*Out.println(“<h1>Invalid Login </h1>”);*

*Con.close();*

*}*

*catch(Exception e)*

*Out.println(“<h1>Error: ”+e.getMessage()+”</h1>”);*

*%>*

*</div>*

*</body>*

*</html>*

***12,***

***login.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>*

*<center>*

*<form action="hello.htm">*

*Enter Username: <input name="username"/><br><br>*

*Enter Password: <input type="password" name="password"/><br><br>*

*<input type="submit" value="Login"/>*

*</form>*

*</center>*

*</body>*

*</html>*

***redirect.jsp***

*<% response.sendRedirect("login.htm"); %>*

***dispatcher-servlet.jsp***

*<bean class="Controllers.HelloController"/>*

*<bean class="Controllers.LoginController"/>*

***LoginController.java***

*package Controllers;*

*import javax.servlet.http.HttpServletRequest;*

*import javax.servlet.http.HttpServletResponse;*

*import org.springframework.web.servlet.ModelAndView;*

*import org.springframework.web.servlet.mvc.AbstractController;*

*public class LoginController extends AbstractController {*

*public LoginController() {*

*}*

*protected ModelAndView handleRequestInternal(*

*HttpServletRequest request,*

*HttpServletResponse response) throws Exception {*

*ModelAndView mav=new ModelAndView();*

*mav.setViewName("login");*

*return mav;*

*}*

*}*

***hello.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>Hello ${name}</h1>*

*</body>*

*</html>*

***HelloController.java***

*package Controllers;*

*import javax.servlet.http.HttpServletRequest;*

*import javax.servlet.http.HttpServletResponse;*

*import org.springframework.web.servlet.ModelAndView;*

*import org.springframework.web.servlet.mvc.AbstractController;*

*public class HelloController extends AbstractController {*

*public HelloController() {*

*}*

*protected ModelAndView handleRequestInternal(*

*HttpServletRequest request,*

*HttpServletResponse response) throws Exception {*

*ModelAndView mav=new ModelAndView();*

*mav.addObject("name", request.getParameter("username"));*

*mav.setViewName("hello");*

*return mav;*

*}*

*}*