Title Slide

HNDIT4232_ Enterprise Architecture

- **Title:** Web Application using MVC Architecture
- ❖ **Subtitle:** Login, Registration, User Management (CRUD)
- ❖ **Presented by:** [KUR/It/2022/P/39]
- ❖ **Repositories :**https://github.com/wasantha788/KUR-IT-2022-P-39

What is MVC Architecture?

- **Model – View – Controller** pattern separates logic into 3 parts:
  - **Model:** Handles data (e.g., User data, DB operations)
  - **View:** Handles UI (HTML, JSP)
  - **Controller:** Manages the flow between Model and View (Servlets or Controllers)
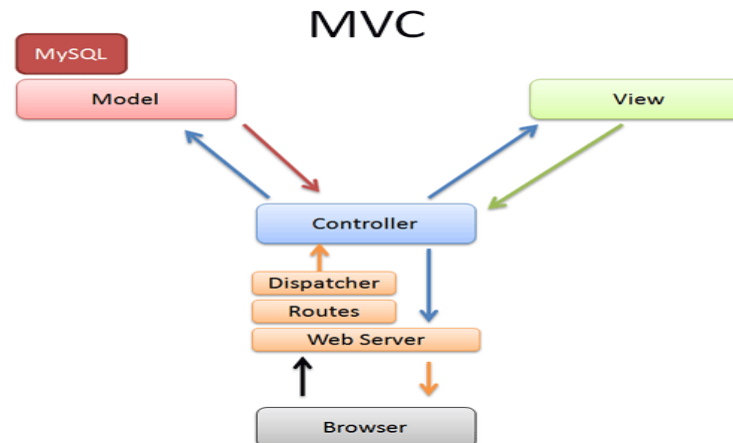
Model ,View, Controller

▶ The **Model** in a todo app might define what a "task" is and that a "list" is a collection of tasks.

▶ The **View** code will define what the todos and lists looks like, visually. The tasks could have large font, or be a certain color.

▶ Finally, the **Controller** could define how a user adds a task or marks another as complete. The Controller connects the View's add button to the Model, so that when you click "add task," the Model adds a new task.

System Overview

- A web app with:
  - Login & registration
  - User list display
  - Update & delete user
- Tools used:
  - **Language:** Java (JSP, Servlets)
  - **Database:** MySQL
  - **IDE:** Eclipse

User Registration Flow

📌 **Controller:** RegisterServlet.java

📌 **Model:**UserDAO.java

📌 **View:** register.jsp

📝 Process:

- User fills form → Servlet receives → DAO saves to DB

Login Functionality

- 📌 **Controller:** LoginServlet.java
- 📌 **Model:** Check email & password in DB
- 📌 **View:** login.jsp → success →Index.jsp
- ✅ If correct → session created
- ❌ If incorrect → error message shown

Displaying User List

- 📌 **Controller:** UserListServlet.java
- 📌 **Model:** UserDAO.getAllUsers()
- 📌 **View:** userlist.jsp
- 🔄 Shows all users from DB in a table format

Update Functionality

- **Edit Button → EditUserServlet?id=...**
- 📌 **Form pre-filled with user data**
- 📌 Submits to UpdateUserServlet
- 🔁 DAO updates the DB using SQL UPDATE

Insert Update and *Delete*

```java
package com.xadmin.usermanagement.dao;

import java.sql.Connection;

public class UserDao {

    private String jdbcURL = "jdbc:mysql://localhost:3306/userdb?useSSL=false";
    private String jdbcUsername = "root";
    private String jdbcPassword = "root";
    private String jdbcDriver = "com.mysql.jdbc.Driver";

    private static final String INSERT_USERS_SQL = "INSERT INTO users" + "  (name, email, country) VALUES "
            + " (?, ?, ?);";

    private static final String SELECT_USER_BY_ID = "select id,name,email,country from users where id =?";
    private static final String SELECT_ALL_USERS = "select * from users";
    private static final String DELETE_USERS_SQL = "delete from users where id = ?;";
    private static final String UPDATE_USERS_SQL = "update users set name = ?,email= ?, country =? where id = ?;";

    public UserDao() {
    }
    protected Connection getConnection() {

        Connection connection = null;
        try {
            Class.forName(jdbcDriver);
            connection = DriverManager.getConnection(jdbcURL, jdbcUsername, jdbcPassword);
        } catch (SQLException e) {
            // TODO Auto-generated catch block
            e.printStackTrace();
        } catch (ClassNotFoundException e) {
            // TODO Auto-generated catch block
            e.printStackTrace();
        }
        return connection;

    }
}
```

Database Design

	id	uname	uemail	upwd	umobile
▶	4	sankam	KUMARA@GMAIL.COM	678	0763457345
	8	sandun	sandun@gmail.com	876	0756754437
	9	wasantha	wasanthajayasinghe95@gma...	123	0765789467
	13	saman	saman@gmail.com	123	0767895643
*	NULL	NULL	NULL	NULL	NULL

DDL for youtube.users

```
1   CREATE TABLE `users` (
2     `id` int NOT NULL AUTO_INCREMENT,
3     `uname` varchar(45) DEFAULT NULL,
4     `uemail` varchar(45) DEFAULT NULL,
5     `upwd` varchar(45) DEFAULT NULL,
6     `umobile` varchar(45) DEFAULT NULL,
7     PRIMARY KEY (`id`)
8   ) ENGINE=InnoDB AUTO_INCREMENT=15 DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci
```

Model

```java
package com.xadmin.usermanagement.bean;

public class User {

    protected int id;
    protected String name;
    protected String email;
    protected String country;

    public User(String name, String email, String country) {
        super();
        this.name = name;
        this.email = email;
        this.country = country;
    }
    public User(int id, String name, String email, String country) {
        super();
        this.id = id;
        this.name = name;
        this.email = email;
        this.country = country;
    }
    public int getId() {
        return id;
    }
    public void setId(int id) {
        this.id = id;
    }
    public String getName() {
        return name;
    }
    public void setName(String name) {
        this.name = name;
    }
    public String getEmail() {
        return email;
    }
    public void setEmail(String email) {
```

Controller

```java
import java.io.IOException;

@WebServlet("/register")
public class RegistrationServlet extends HttpServlet {
    private static final long serialVersionUID = 1L;

    protected void doPost(HttpServletRequest request, HttpServletResponse response)
            throws ServletException, IOException {

        String uname = request.getParameter("name");
        String uemail = request.getParameter("email");
        String upwd = request.getParameter("pass");
        String umobile = request.getParameter("contact");

        Connection con = null;
        RequestDispatcher dispatcher = null;

        try {
            Class.forName("com.mysql.cj.jdbc.Driver");
            con = DriverManager.getConnection(
                    "jdbc:mysql://localhost:3306/youtube?useSSL=false", "root", "root");

            PreparedStatement pst = con.prepareStatement(
                    "INSERT INTO users (uname, upwd, uemail, umobile) VALUES (?, ?, ?, ?)");
            pst.setString(1, uname);
            pst.setString(2, upwd);
            pst.setString(3, uemail);
            pst.setString(4, umobile);

            int rowCount = pst.executeUpdate();
            dispatcher = request.getRequestDispatcher("registration.jsp");

            if (rowCount > 0) {
                request.setAttribute("status", "success");
            } else {
                request.setAttribute("status", "failed");
            }
            dispatcher.forward(request, response); // ! Don't forget this line!
```

View

```
login.jsp ✕
629⊖                    <a href="registration.jsp" class="signup-image-link">Create an
630                        account</a>
631                    </div>
632
633⊖                <div class="signin-form">
634                    <h2 class="form-title">Sign in</h2>
635⊖                    <form method="post" action="login" class="register-form"
636                        id="login-form">
637⊖                        <div class="form-group">
638⊖                            <label for="username"><i
639                                class="zmdi zmdi-account material-icons-name"></i></label> <input
640                                type="text" name="username" id="username"
641                                placeholder="youremail" />
642                        </div>
643⊖                        <div class="form-group">
644                            <label for="password"><i class="zmdi zmdi-lock"></i></label> <input
645                                type="password" name="password" id="password"
646                                placeholder="Password" />
647                        </div>
648⊖                        <div class="form-group">
649                            <input type="checkbox" name="remember-me" id="remember-me"
650⊖                                class="agree-term" /> <label for="remember-me"
651                                class="label-agree-term"><span><span></span></span>Remember
652                                me</label>
653                        </div>
654⊖                        <div class="form-group form-button">
655                            <input type="submit" name="signin" id="signin"
656                                class="form-submit" value="Login" />
657                        </div>
658                    </form>
659⊖                    <div class="social-login">
660                        <span class="social-label">Or login with</span>
661⊖                        <ul class="socials">
662⊖                            <li><a href="#"><i
663                                class="display-flex-center zmdi zmdi-facebook"></i></a></li>
664
665⊖                            <li><a href="#"><i
666                                class="display-flex-center zmdi zmdi-twitter"></i></a></li>
```

Sing in interface

Login.jsp

```
                    <img src="https://vandemataramfoundation.co.in/wp-content/uploads/2021/04/Illustrated-Vegetables-World-Heal
                </figure>
                <a href="registration.jsp" class="signup-image-link">Create an
                    account</a>
            </div>

            <div class="signin-form">
                <h2 class="form-title">Sign in</h2>
                <form method="post" action="login" class="register-form"
                    id="login-form">
                    <div class="form-group">
                        <label for="username"><i
                            class="zmdi zmdi-account material-icons-name"></i></label> <input
                            type="text" name="username" id="username"
                            placeholder="youremail" />
                    </div>
                    <div class="form-group">
                        <label for="password"><i class="zmdi zmdi-lock"></i></label> <input
                            type="password" name="password" id="password"
                            placeholder="Password" />
                    </div>
                    <div class="form-group">
                        <input type="checkbox" name="remember-me" id="remember-me"
                            class="agree-term" /> <label for="remember-me"
                            class="label-agree-term"><span><span></span></span>Remember
                            me</label>
                    </div>
                    <div class="form-group form-button">
                        <input type="submit" name="signin" id="signin"
                            class="form-submit" value="Login" />
                    </div>
                </form>
                <div class="social-login">
                    <span class="social-label">Or login with</span>
                    <ul class="socials">
                        <li><a href="#"><i
                                class="display-flex-center zmdi zmdi-facebook"></i></a></li>
```
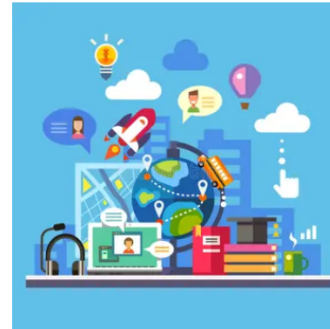
Sign up interface

Registration.jsp

```html
<section class="signup">
    <div class="container">
        <div class="signup-content">
            <div class="signup-form">
                <h2 class="form-title">Sign up</h2>

                <form method="post" action="register" class="register-form" id="register-form">


                    <div class="form-group">
                        <label for="name"><i
                            class="zmdi zmdi-account material-icons-name"></i></label> <input
                            type="text" name="name" id="name" placeholder="Your Name" />
                    </div>
                    <div class="form-group">
                        <label for="email"><i class="zmdi zmdi-email"></i></label> <input
                            type="email" name="email" id="email" placeholder="Your Email" />
                    </div>
                    <div class="form-group">
                        <label for="pass"><i class="zmdi zmdi-lock"></i></label> <input
                            type="password" name="pass" id="pass" placeholder="Password" />
                    </div>
                    <div class="form-group">
                        <label for="re-pass"><i class="zmdi zmdi-lock-outline"></i></label>
                        <input type="password" name="re_pass" id="re_pass"
                            placeholder="Repeat your password" />
                    </div>
                    <div class="form-group">
                        <label for="contact"><i class="zmdi zmdi-lock-outline"></i></label>
                        <input type="text" name="contact" id="contact"
                            placeholder="Contact no" />
                    </div>
                    <div class="form-group">
                        <input type="checkbox" name="agree-term" id="agree-term"
                            class="agree-term" /> <label for="agree-term"
                            class="label-agree-term"><span><span></span></span>I
                        agree all statements in <a href="#" class="term-service">Terms
                            of service</a></label>
```
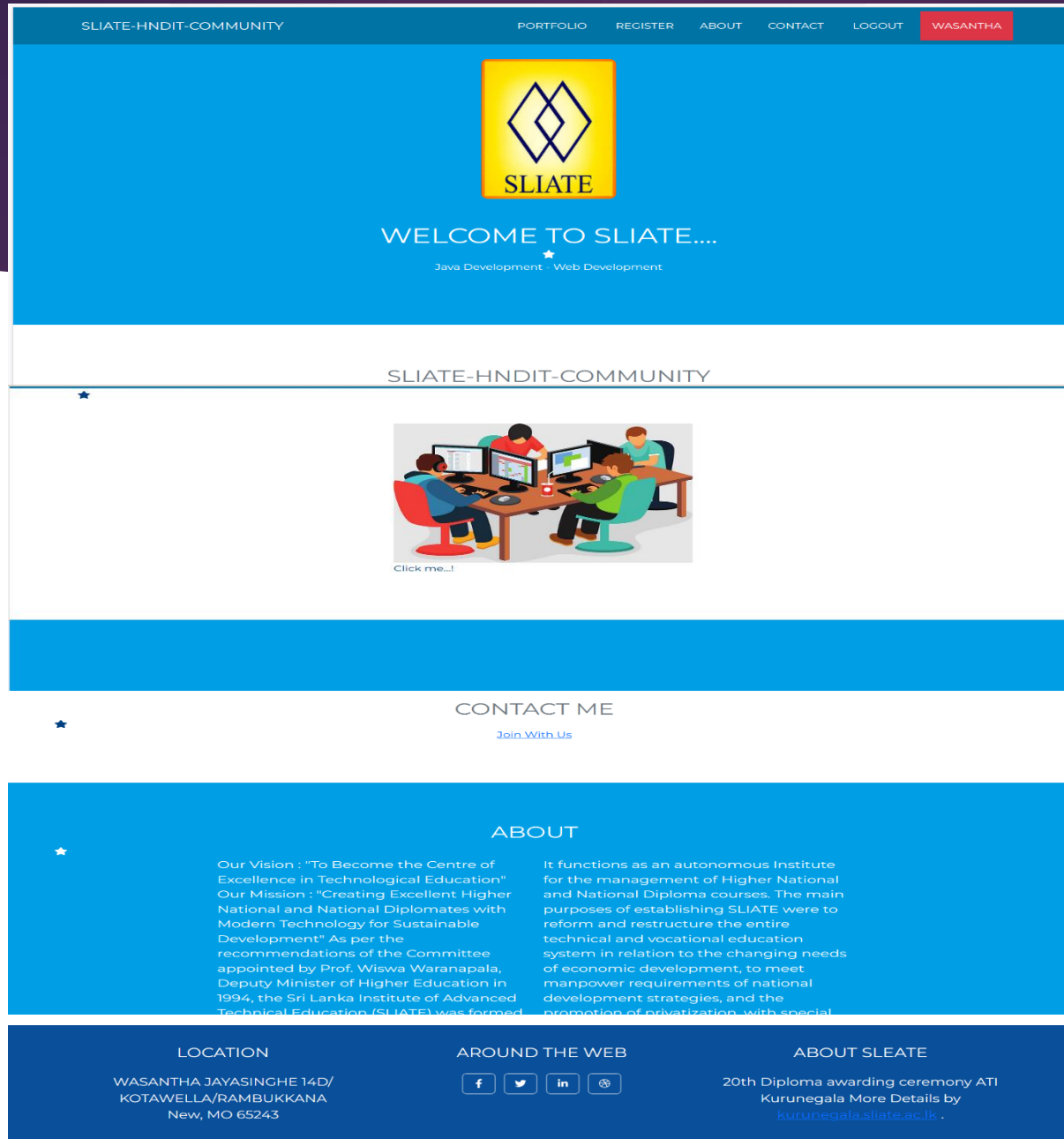
Join with us

User Name

User Email

User Password

Contact

Save

user-form.jsp

```jsp
<div class="text-center mb-3">
    <img src="https://media.istockphoto.com/vectors/community-concept-illustration-vector-id610680558?k=6&m=610680558&s=612x612&w=0&h=95gWQ98oBCWDKnVj
        alt="signin-image" class="img-fluid signin-image">
</div>

<h2>
    <c:if test="${user != null}">Edit User</c:if>
    <c:if test="${user == null}">Join with us</c:if>
</h2>

<c:if test="${user != null}">
    <input type="hidden" name="id" value="<c:out value='${user.id}' />" />
</c:if>

<div class="mb-3">
    <label class="form-label">User Name</label>
    <input type="text" name="name" value="<c:out value='${user.uname}' />" class="form-control" required>
</div>

<div class="mb-3">
    <label class="form-label">User Email</label>
    <input type="email" name="email" value="<c:out value='${user.uemail}' />" class="form-control">
</div>

<div class="mb-4">
    <label class="form-label">User Password</label>
    <input type="text" name="password" value="<c:out value='${user.upwd}' />" class="form-control">
</div>

<div class="mb-4">
    <label class="form-label">Contact</label>
    <input type="text" name="contact" value="<c:out value='${user.umobile}' />" class="form-control">
</div>

<button type="submit" class="btn btn">Save</button>
</form>

                </div>
            </div>
        'div>
```

List of Users

+ Add New User

ID	Name	Email	Password	Contact	Actions
4	sankam	KUMARA@GMAIL.COM	678	0763457345	Update Delete
8	sandun	sandun@gmail.com	876	0756754437	Update Delete
9	wasantha	wasanthajayasinghe95@gmail.com	123	0765789467	Update Delete
13	saman	saman@gmail.com	123	0767895643	Update Delete

User-list.jsp

```jsp
<div class="container">
    <div class="card p-4">
        <div class="d-flex justify-content-between align-items-center mb-3">
            <h3 class="mb-0">List of Users</h3>
            <a href="<%=request.getContextPath()%>/new" class="btn btn">+ Add New User</a>
        </div>

        <table class="table table-hover table-bordered">
            <thead>
                <tr>
                    <th scope="col">ID</th>
                    <th scope="col">Name</th>
                    <th scope="col">Email</th>
                    <th scope="col">Password</th>
                    <th scope="col">Contact</th>
                    <th scope="col">Actions</th>
                </tr>
            </thead>
            <tbody>
                <c:forEach var="user" items="${listUser}">
                    <tr>
                        <td><c:out value="${user.id}" /></td>
                        <td><c:out value="${user.uname}" /></td>
                        <td><c:out value="${user.uemail}" /></td>
                        <td><c:out value="${user.upwd}" /></td>
                        <td><c:out value="${user.umobile}" /></td>
                        <td class="actions">
                            <a href="edit?id=<c:out value='${user.id}' />" class="text-primary">Update</a>
                            <a href="delete?id=<c:out value='${user.id}' />" class="text-danger">Delete</a>
                        </td>
                    </tr>
                </c:forEach>
            </tbody>
        </table>
    </div>
</div>

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.2/dist/js/bootstrap.bundle.min.js"></script>
```

Thank you