To-Do List Manager

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Abstract - The To-Do List Manager is a simple yet effective web-based application designed to help users organize and manage their daily tasks efficiently. Built using HTML, CSS, PHP, and MySQL on the XAMPP platform, the system allows users to register, log in, and create personalized task lists.The core functionalities include adding new tasks with a title, description, due date, and priority level. Users can edit or delete tasks and mark them as completed. The interface is user-friendly and responsive, ensuring a smooth experience on both desktop and mobile browsers.This project emphasizes basic CRUD operations (Create, Read, Update, Delete) integrated with a MySQL database, offering a practical understanding of full-stack web development. It serves as an ideal foundation for students to explore user authentication, database interaction, and front-end/backend connectivity.

*Key Words***:** Xampp , jdk(java development kit) , Appache tomcat , My Sql , Html/css/js , jsp/servlets , Eclipse IDE

1.INTRODUCTION

The *To-Do List Manager* is a web-based application designed to help users efficiently organize and manage their daily tasks. Developed using eclipse, and MySQL and run on the XAMPP platform, this system allows users to register, log in, and create a personalized task list. Each task can include a title, description, due date, and priority level, providing users with complete control over their schedule. The application features a clean and user-friendly interface, enabling users to easily add, edit, delete, and mark tasks as completed. It also demonstrates essential web development concepts such as CRUD (Create, Read, Update, Delete) operations and server-database interaction. The project offers practical experience in full-stack development and helps users improve their time management and productivity. Designed with simplicity and usability in mind, the To-Do List Manager serves as an ideal productivity tool for students, professionals, and anyone in need of a basic task management solution.

With features like task scheduling, reminders, categorization, and cross-platform syncing, to-do list apps simplify your workflow and keep you on top of your commitments. From students and professionals to entrepreneurs and families, everyone can benefit from the clarity and structure that a well-designed task manager provides.

2. Body of Paper

The to-do list manager is developed using a Java-based web architecture. The system employs XAMPP as the backend server environment, Eclipse IDE for development, **JDK** as the Java compiler, and Servlets to handle server-side logic. The application follows a simple MVC (Model-View-Controller) structure to ensure maintainability and scalability.

- **XAMPP**: Provides the Apache server and MySQL database integration.
- **Eclipse**: An integrated development environment used for writing and managing Java code.
- **JDK (Java Development Kit)**: Enables the compilation and execution of Java servlets.
- **Java Servlets**: Handle HTTP requests and implement backend logic.

System Architecture

The application follows a client-server model:

- **Client (Frontend)**: Users interact via a simple HTML/CSS-based interface. Optionally, JavaScript can enhance interactivity.
- **Server (Backend)**: Java Servlets manage request routing, task processing, and database communication.
- **Database**: MySQL (via XAMPP) stores user data, task lists, statuses, deadlines, and metadata.

Key Functional Modules

a. **User Registration and Login**

- Secure login using username and password.
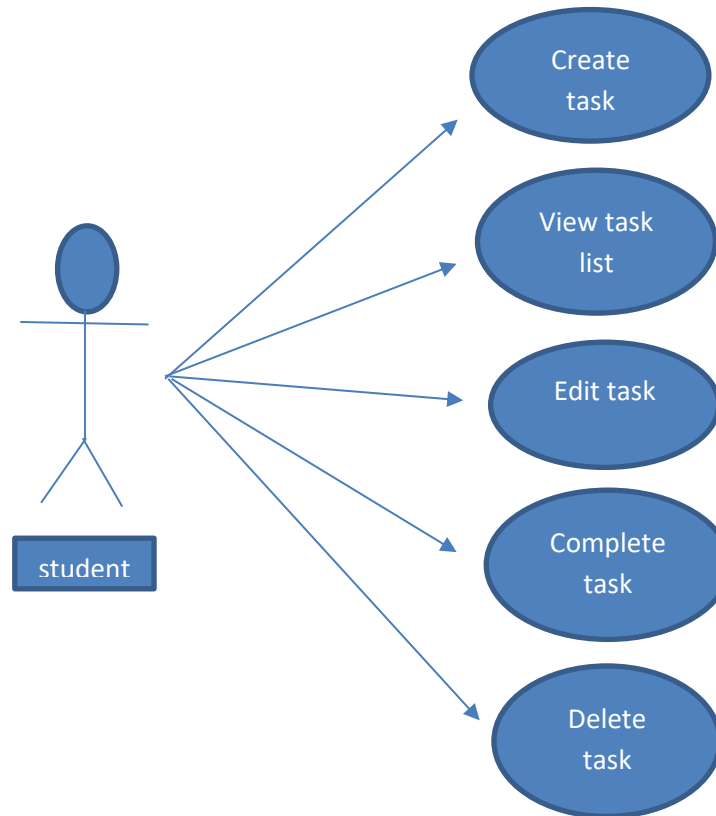- Session tracking to maintain user state.

b. **Task Creation and Management**

- Add new tasks with title, description, deadline, and priority.
- Mark tasks as completed or edit/delete existing ones.
- Categorize tasks (e.g., work, personal, urgent).

Table -1:

Year	Study/Project	Summary
2021	Sharma et al. – Task Management Using Android App	Introduced a basic mobile to-do list with reminders and priority levels; focused on offline usability.
2022	Ramesh & Gupta – Web-Based Task Scheduler Using PHP and MySQL	Developed a web-based scheduler with user login
2023	Lee et al. – AI-Powered To-Do Systems with Natural Language Input	Explored intelligent task parsing and deadline suggestions using NLP in to-do list applications

Existing Block Diagram

Proposed Block Diagram
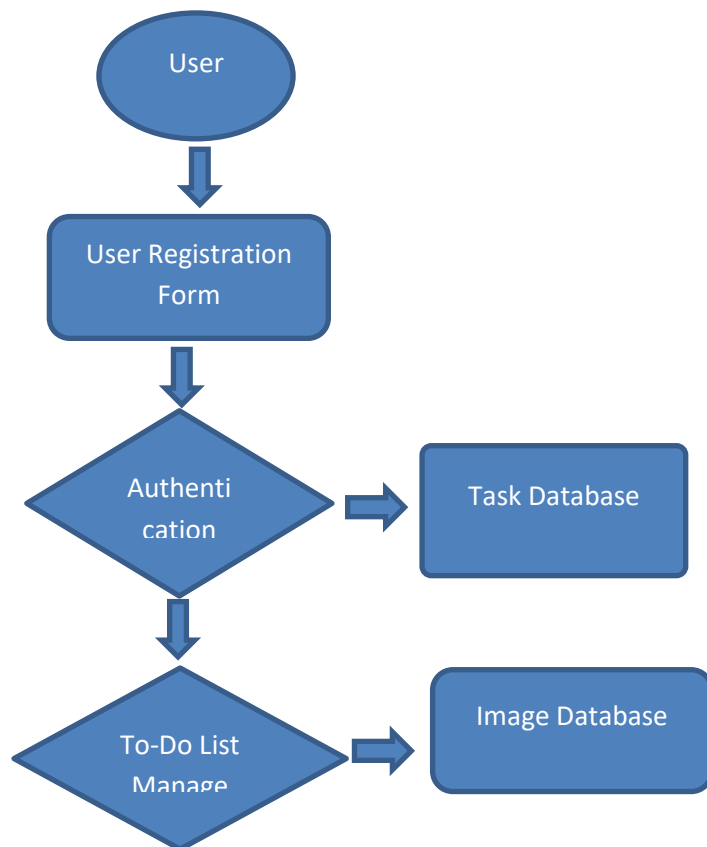
Fig -1: Figure

A Theoretical Perspective

The development of a To-Do List Manager is grounded in theories of human-computer interaction (HCI), task management, and software architecture. The system supports cognitive task management processes, allowing users to offload memory-dependent tasks into a structured digital environment. According to **Cognitive Load Theory**, reducing mental effort through external tools like to-do lists enhances focus and productivity.

From a software engineering standpoint, the application follows the Model-View-Controller (MVC) design pattern. This architectural model promotes separation of concerns—where Servlets handle control logic, JSP/HTML represents the view, and MySQL serves as the data model. This aligns with the Separation of Concerns principle in software design, enhancing maintainability and scalability.

1. Cognitive and Productivity Theory

The core purpose of a to-do list manager aligns with Cognitive Load Theory, which suggests that humans can increase efficiency by offloading tasks from short-term memory to external systems. Digital task managers help users reduce stress, manage time, and improve productivity by organizing information in a structured format.

2. Human-Computer Interaction (HCI)

The application design follows **HCI principles**, focusing on user-centered design and ease of use. Simple interfaces, clear task categories, and visual feedback ensure the system supports intuitive interaction, minimizing learning curves and user errors.

3. Software Architecture and MVC Pattern

The project adopts the **Model-View-Controller (MVC)** architecture:

- **Model**: Represents the MySQL database where tasks and user data are stored.
- **View**: Comprises the frontend (HTML/CSS) that presents information to users.
- **Controller**: Implemented using Java Servlets that manage the logic and data flow between the model and view.

This separation of concerns improves scalability, maintainability, and parallel development.

4. Client-Server Model and Distributed Computing

The use of **Java Servlets in a web server environment (via XAMPP)** reflects the **client-server architecture** of distributed computing. The client (browser) sends requests to the server, which processes them and interacts with the database before sending back the result. This structure allows centralized processing, which is efficient and easier to manage in multi-user environments.

3. SYSTEM ARCHITECTURE

1. Eclipse IDE

 Used to write, compile, and manage Java code.

 Supports project structure and integration with Tomcat for servlet deployment.

2.Xampp

- Provides the Apache web server and MySQL database environment.
- Used primarily for MySQL and phpMyAdmin interfaces in this setup.

3. JDK (Java Development Kit)

- Provides Java compiler and runtime environment.
- Enables servlet creation and execution within the server.

4. Apache Tomcat

- A servlet container that runs web applications.
- Hosts and executes servlets and JSP files.
- Handles HTTP requests and responses.

5. MySQL Database

- Stores persistent data: user credentials, task details, status, deadlines, etc.
- Connected to Java via JDBC (Java Database Connectivity).

Request-Response Flow

1. **Client** (user) interacts with the web interface.
2. **Servlet** (in Apache Tomcat) receives the HTTP request.
3. **Servlet** processes data, communicates with **MySQL** using JDBC.
4. Processed data is returned to the servlet.
5. Servlet sends the response (HTML/JSP) back to the browser.

Result

Output 1

Registration Form

Output 2

Login Form

Output 3

Task add form

Output 4

Task completed form

4. CONCLUSION

The development of a web-based To-Do List Manager using Java Servlets, MySQL, and Apache Tomcat provides an efficient, scalable, and user-friendly solution for task management. By leveraging Eclipse for development, JDK for compilation, and XAMPP for database and server integration, the system demonstrates a practical implementation of the Model-View-Controller (MVC) architecture. The application supports core functionalities such as user authentication, task creation, status updates, and deadline tracking, all managed through a centralized server. This project not only highlights the integration of key web technologies but also reinforces principles of software engineering, database design, and client-server communication. Overall, the system serves as a robust foundation for further enhancement, such as mobile compatibility, restful APIs, or intelligent task prioritization, making it a valuable tool for improving productivity and time management.

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