

# Web Systems and Technologies Lab Assignment 1:

## Comparative analysis of Web Servers

Name: Omkar Oak

MIS: 112103099

Div: 2

Batch: T1

---

### General Information regarding the Web Servers:

#### **1. Apache Tomcat:**

Apache Tomcat, developed by the Apache Software Foundation, is an open-source implementation of the Java Servlet, JavaServer Pages (JSP), and Java Expression Language (EL) technologies. Designed to be a lightweight and flexible application server, Tomcat is primarily used for deploying Java-based web applications. It provides support for servlets and JSP, allowing developers to build dynamic and scalable web solutions.

Tomcat's configuration is defined in files such as `server.xml` for global settings, `web.xml` for web application configurations, and `context.xml` for context-specific configurations. It excels in handling Java-based applications, offering features like clustering for scalability, security features, and connection pooling for efficient database connectivity.

#### **2. Caddy:**

Caddy is a modern, open-source web server that emphasizes ease of use, automatic HTTPS by default, and a simple configuration syntax. It is designed to be user-friendly while providing powerful features for web hosting. One of the unique aspects of Caddy is its automatic SSL certificate management, making it easy to secure websites with HTTPS without manual configuration. Caddy's configuration is written in a simple and human-readable format, making it accessible to users who may not be as familiar with complex server configurations.

It supports various plugins, allowing users to extend its functionality easily. Caddy is known for its efficient handling of HTTPS, automatic HTTP/2 support, and a range of features suitable for both small and large-scale deployments. The configuration is typically done in a single `Caddyfile`, simplifying the process of setting up and maintaining web servers.

## Comparative Analysis between the two Web Servers:

### **1. Primary Use:**

Apache Tomcat: Designed primarily for hosting Java Servlets and JavaServer Pages (JSP) in Java-based applications.

Caddy: A general-purpose web server suitable for various web applications and static site hosting, not limited to specific programming languages.

### **2. Automatic HTTPS:**

Apache Tomcat: Requires manual configuration for SSL/TLS certificates.

Caddy: Emphasizes automatic HTTPS by default, simplifying the process of securing websites with SSL/TLS certificates.

### **3. Configuration:**

Apache Tomcat: Configured through XML-based files such as `server.xml` and `web.xml`. Configuration is often distributed across multiple files for global, web application, and context-specific settings.

Caddy: Uses a single, user-friendly `Caddyfile` for configuration, written in a simple, human-readable format.

### **4. Clustering:**

Apache Tomcat: Supports clustering for scalability, allowing multiple Tomcat instances to work together.

Caddy: Does not have native support for clustering; often used as a standalone server or in conjunction with load balancers.

### **5. Connection Pooling:**

Apache Tomcat: Provides built-in connection pooling for efficient database connectivity.

Caddy: Connection pooling is typically handled by backend applications or databases; Caddy itself is not designed for direct database connections.

### **6. HTTP Protocol Support:**

Apache Tomcat: Supports traditional HTTP/1.1 protocol.

Caddy: Supports HTTP/2 out of the box for improved performance.

### **7. Plugin System:**

Apache Tomcat: Has an extensive ecosystem of extensions and connectors but lacks a formal plugin system.

Caddy: Features a plugin system that allows users to extend its functionality easily, adding features as needed.

### **8. Deployment Focus:**

Apache Tomcat: Primarily used for deploying Java-based applications.

Caddy: General-purpose and suitable for deploying a wide range of web applications, not limited to specific programming languages.

### **9. Enterprise vs Lightweight:**

Apache Tomcat: Often used in enterprise environments due to its focus on Java technologies.

Caddy: Known for its lightweight nature and simplicity, suitable for smaller projects or deployments.

### **10. Community and Ecosystem:**

Apache Tomcat: Has a large and mature community, with a wide range of resources and extensions available.

Caddy: Has a growing community, and while it may not be as extensive as Apache Tomcat's, it is known for its user-friendly approach and actively developed plugins.

\*\*\*