# Day 1: Web Application Architecture and Fundamentals

## Comprehensive Training with Practical Examples and Hands-on Exercises

Security Training Team

Web Application Security Department

November 6, 2025

# Training Objectives

**Learning Outcomes:**

- Understand web application architecture components
- Identify security implications of different architectures
- Analyze component interactions and data flow
- Apply security architecture principles

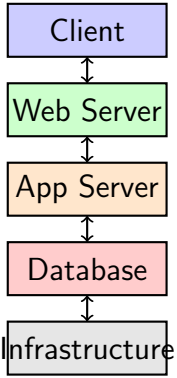
**Practical Skills:**

- Architecture analysis techniques
- Security assessment methodologies
- Security implementation strategies
- Hands-on lab exercises

# Web Application Architecture Overview

**Core Architecture Components:**

1. **Client-Side Layer**
   - Web browsers and mobile clients
   - Frontend frameworks and libraries
   - User interface components
2. **Server-Side Layer**
   - Web servers (Apache, Nginx, IIS)
   - Application servers (Tomcat, WildFly)
   - API gateways and load balancers
3. **Data Layer**
   - Databases (SQL, NoSQL)
   - Caching systems (Redis, Memcached)
   - File storage and object storage
4. **Infrastructure Layer**



# Summary and Key Takeaways

**Architecture Fundamentals:**

- Understanding web app layers
- Component interactions
- Data flow mapping
- Technology selection impact

**Security Considerations:**

- Defense in depth
- Least privilege principle
- Fail secure approach
- Zero trust architecture

**Practical Implementation:**

- Secure coding practices
- Security tool integration
- Regular security assessments
- Documentation and policies

**Next Steps:**

- → Apply concepts to real projects
- → Conduct security audits
- → Implement security controls
- → Continuous improvement

## Questions?