

Enterprise development

Intro

Enterprise application software

*Enterprise application software is application software that performs business functions such as order processing, procurement, production scheduling, customer information management, energy management, and accounting. It is typically hosted on servers and provides simultaneous services to a large number of users, typically over a computer network. This is in contrast to a single-user application that is executed on a user's personal computer and serves only one user at a time.**

EAS project management

- Planning
- Requirement analysis
- Design
- Implementation
- Testing
- Deployment
- Maintenance

Software Engineering techniques


- Build automation
- Project modularization
- Test driven development
- Source code quality checks
- Deployment automation

Continuous integration

Team Collaboration

- Distributed development
- Source code management
 - Revision control (Version control) systems
 - Remote repositories
- Environment integration
 - issue management
 - mailing lists
 - wikis

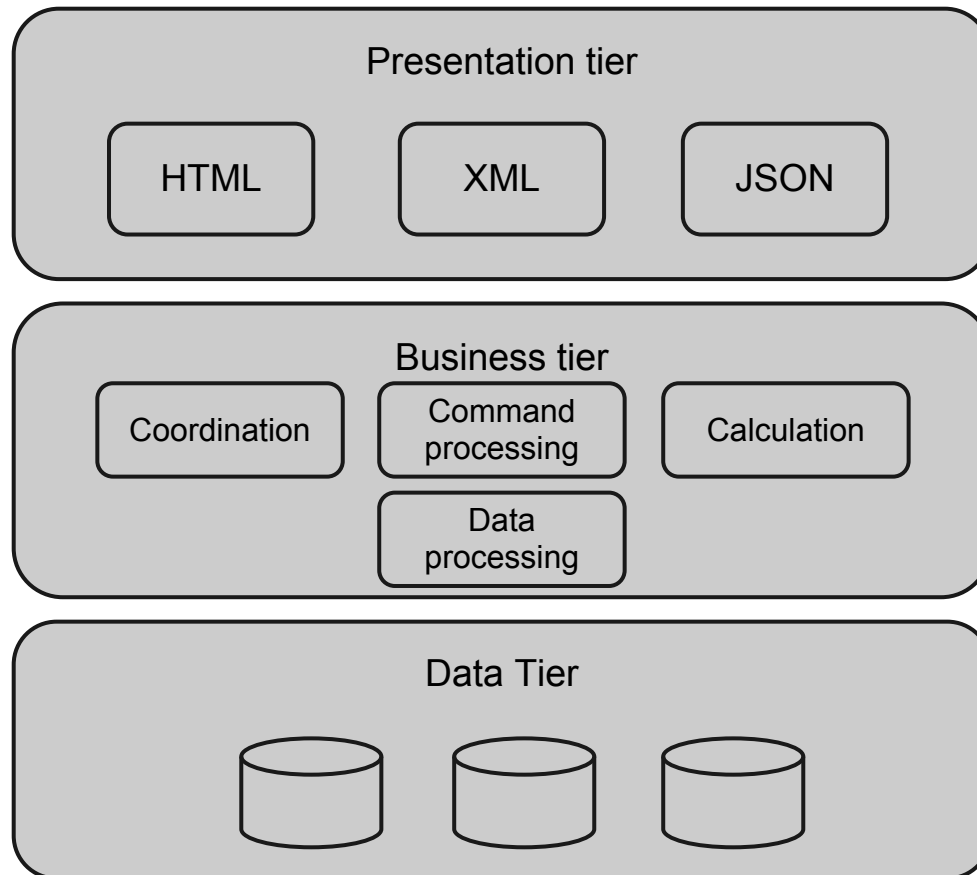
Enterprise application architecture



Multitier architecture

- client-server architecture
- logically separated
 - presentation
 - application processing (business logic)
 - data management

Three-tier web application architecture



Java ecosystem

Overview of basic concepts

Java Platform, Enterprise Edition, Java EE

- Oracle's enterprise computing platform
- Provides API and runtime environment for developing and running enterprise software
- APIs:
 - JDBC, RMI, e-mail, JMS, web services, XML...
 - Enterprise JavaBeans, Connectors, Servlets, JavaServer Pages
- Runtime environment
 - Java EE application server

Java Beans

- Reusable software components for Java
- Classes conforming to a particular convention
 - public zero-arg constructor
 - access to properties using getter and setter methods
 - serializable
- Provide support for:
 - easy beans instantiation
 - easy automated inspection and updating of bean state
 - save and restore bean state

Enterprise Java Beans (EJB)

- Managed server-side component
- Modular construction of enterprise applications
- Support for enterprise services
 - persistence, transactional integrity, security, messaging, job scheduling, remoting...
- EJB specification
 - EJB 1.0, 1.1, 2.0, 2.1, 3.0, 3.1

Java EE Application Server

- runtime environment for EJBs
- includes EJB container
- Certified Application Servers
 - GlassFish OSE, Oracle GlassFish, Oracle WebLogic, JBoss AS, JBoss EAP, IBM WebSphere, Apache Geronimo...

Java servlet

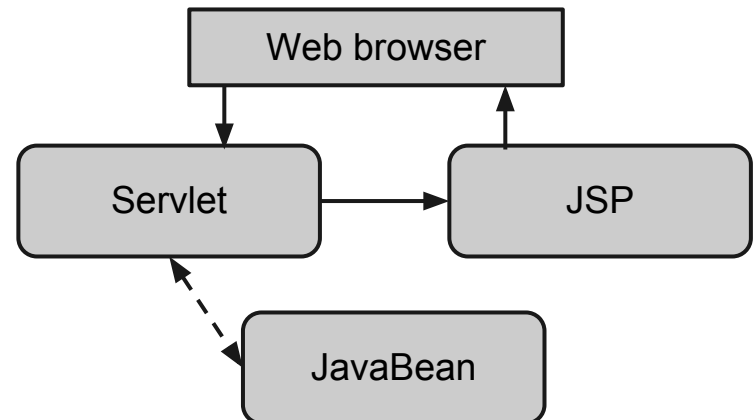
- Java-based server-side technology
- Request-response programming model
- Java class in Java EE that conforms to **Java Servlet API**
- Most often used with HTTP protocol
 - but not tied to any specific protocol
- Used to add dynamic content to a web server
 - HTML, XML, JSON,
 - PDF, XLSX, DOCX.....

Java servlet & JSP

- Java Server Pages
 - extension of Java servlets
 - translated into servlets in runtime
 - servlets are cached and reused until the original JSP is modified

JSP usage

- independently
 - Java code interleaved with static web markup content
- as the view component of a server side MVC (Model-View-Controller) design
 - JavaBeans as model
 - Servlet as controller



Web (Servlet) container

- Component of a web server that interacts with Java servlets
- Functionalities:
 - managing the lifecycle of servlets
 - mapping URLs to particular servlet
 - that the URL requester has the correct access rights
- Apache Tomcat, Jetty, Apache Geronimo, GlassFish, JBoss Application Server...

Dev environment

Java, IDE, SCM, Build tool...

Environment setup

- Java SE 7 (6)
- Eclipse
- Mercurial (SVN, Git)
- Maven
- Database
 - MySQL, PostgreSQL, HyperSQL
- Web container
 - Tomcat 7, Jetty