J2EE

(Q). What is J2EE ?

- **J2EE(java 2 Enterprise Edition) is one of the three Java platform from sun micro system.**

Other two's are : (1) J2SE(Java 2 Standard Edition)

(2) J2ME(Java 2 Mobile Edition)

- **J2EE is a collection of so many Java based technologies.**
- **J2EE technologies broadly divided into 2 catagories**
  - **Component technologies**
  - **Service technologies**

Component technologies are :

- **Servlets**
- **Jsp**
- **EJB(Enterprise java beans)**

- Servlets and jsp are known as web technologies
- EJB is known as distributed technologies
- A servlet and jsp are web components developed by web component developers
- EJB's are develooped by business component developers .EJB's are knows as business components.

Service technologies are :

- **JMS (Java Messaging Service)**
- **JTS (Java Transaction Service)**
- **JAAS (Java Authentication and autherisation Service)**
- **JNDI (Java Naming and directory Interface)**
- **Java Mail**

(Q). What is the purpose of J2EE ?

J2EE is meant for distributed,transactional,multi-tier and secured enterprise application development.

(Q). What is Tier ?

- **Physical seperations of components is nothing but a tier.**

(Q). What is Layer ?

- **Logical seperation of components is nothingbut a layer.**

(Q). What is Web-Client ?

- **Web resource shake request making software is known as web-client**
- **Web-client is nothing but browser software**
- **Web-client is nothing but Http client because it uses Hyper text transfer protocol to communicate with web-client**

(Q). What is Web-server ?

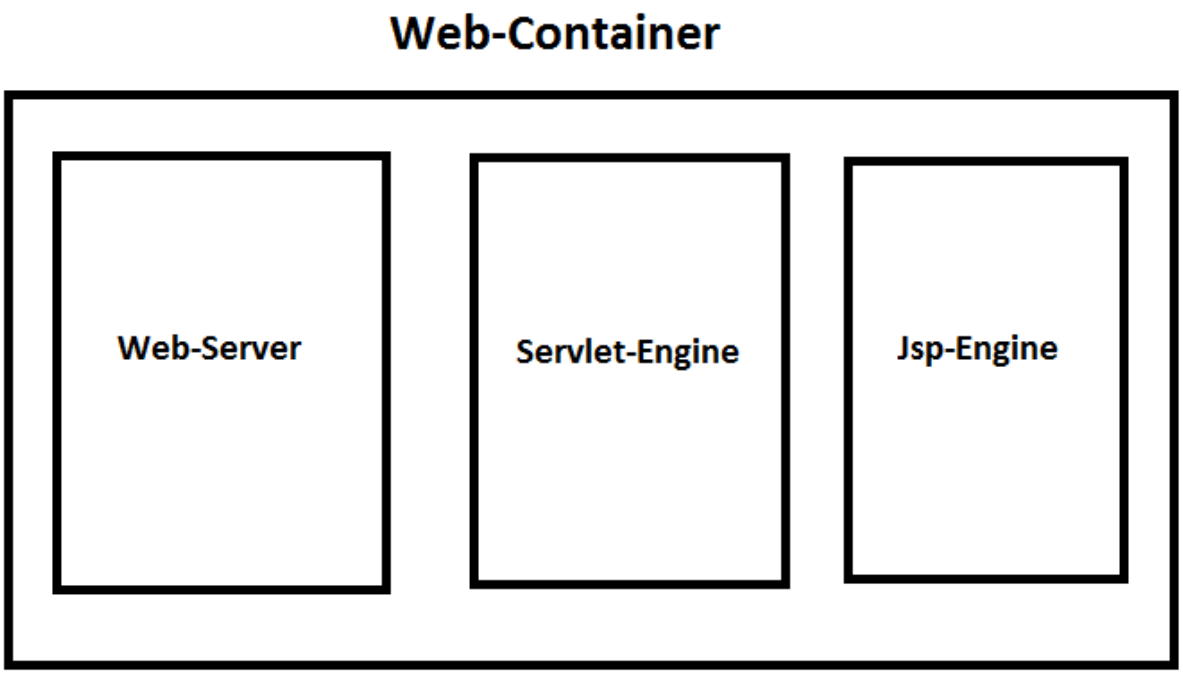
- **A web server is a server software that comprises 2 modules**
  1) **Networking module(communication)**
  2) **IO module**
- **Web server is a process not a software & hardware**
- **Web server is also known as http server forit's uses hiper text transfer protocol to communicate with browser**
- **Apache,IIS are 2 widely used web-servers**
- **Web-server process is running in which computer system,that is known as web-server machine**

Duties of web-server :

- **Providing Http socket connections to web-client**
- **Sending web-pages to the web-client**
- **Web-server can receive user inputs from the browser,but it cannot process data.it cannot be communicate to be database server.it cannot produce response pages to end-user**

(Q). What is Web-container ?

- **Web-Container Container is a Server software that comprise of 3 modules**
  - **Web server/http server/default handler**
  - **Servlet-Engine/servlet-container**
  - **Jsp-Engine/Jsp-container**
- **A web application is developed into the web container**
- **Installation/loading a web application into the web container.so that it's services are available to the web-client is known as deployment.**



(Q). What is an Application Server ?

- **Application server is a Server Software comprises of web container,EJB Container and other enterprise services. Via.JNDI naming Services JMS,JTS etc.,**

Examples of some of Application Servers :

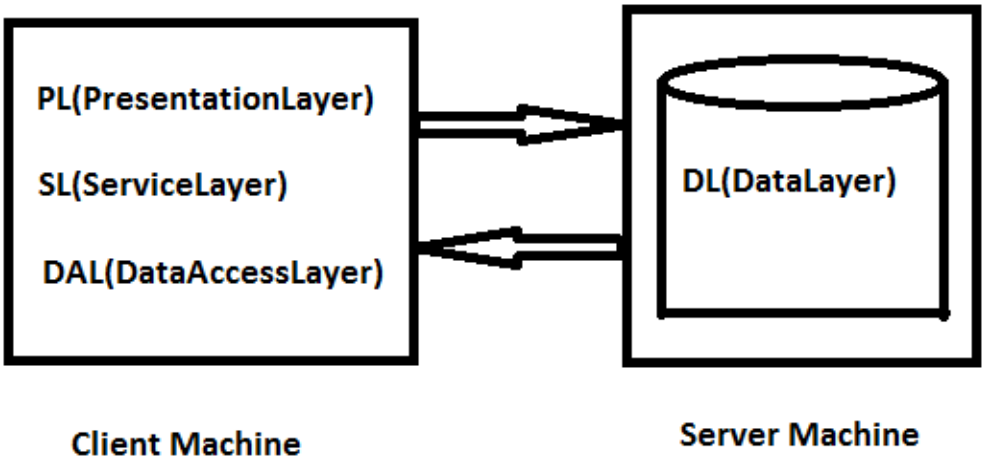
- **Weblogic8.1 / weblogic 10**
- **JBoss**
- **Sun Server**
- **WebSphere(WAS from IBM)**
- **GlassFish**
- **Apache Tomcat**

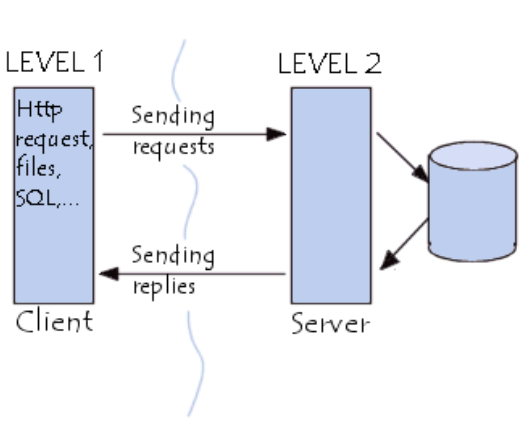
Different types of tiered Architecture are :

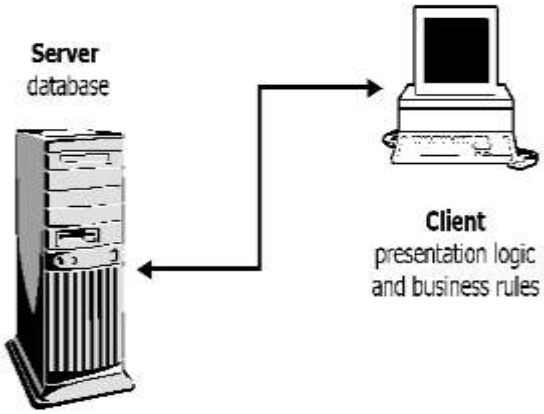
- **2-tier(Client-Server) Architecture**
- **3-tier architecture**
- **N-tier Architecture**
- **Distributed Architecture**

2-Tier (Client-Server)Architecture:

- **2-tier architecture is also known as client-server architecture.**
- **In two tier architecture always server is the database server(data layer).**
- **In such physical and data access layer run in one machine which is nothing but client machine.**







2-tier architecture:

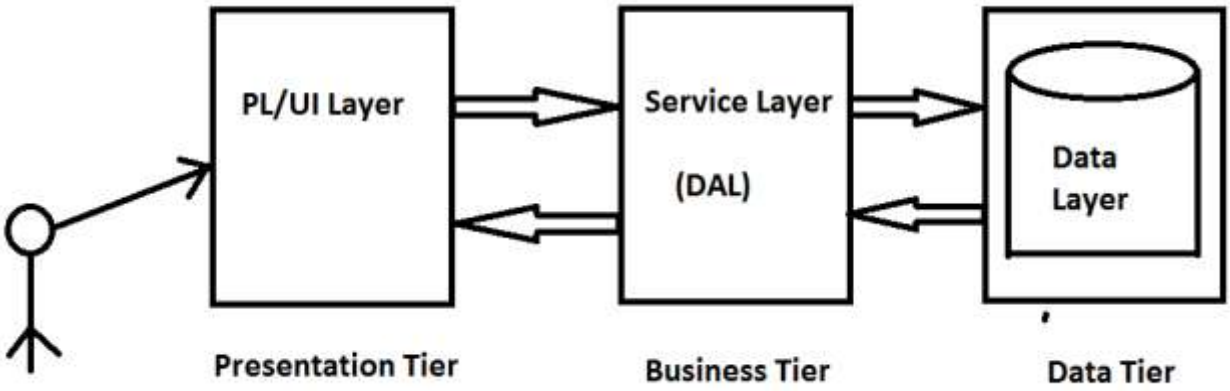
In a two-tier system, we have a *client* program and a *server* program. The main difference between the two is that the server responds to requests from many different clients, while the clients usually initiate the requests for information from a single server.

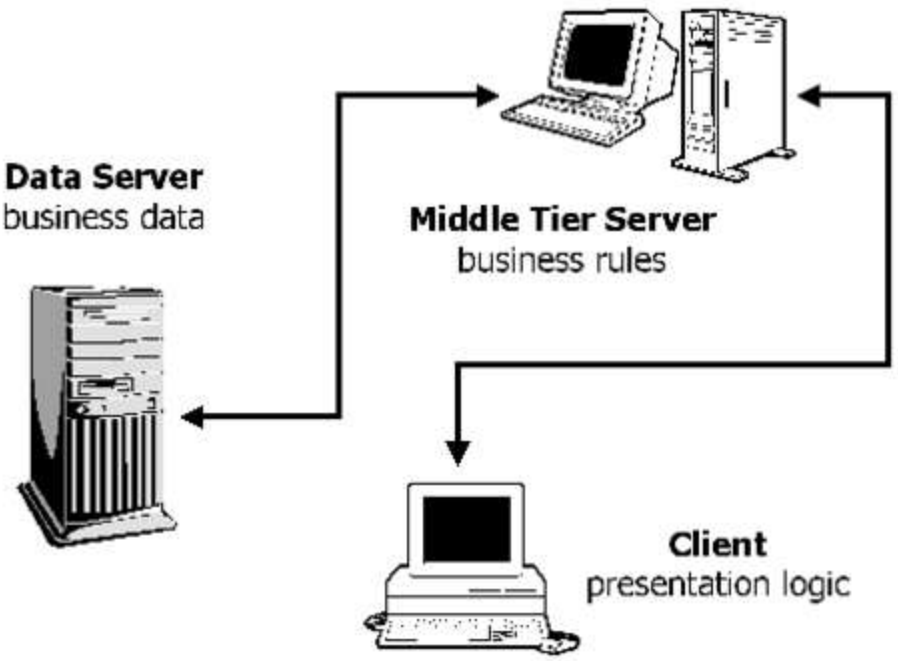
Dis-Advantage of 2-tier acrchitecture :

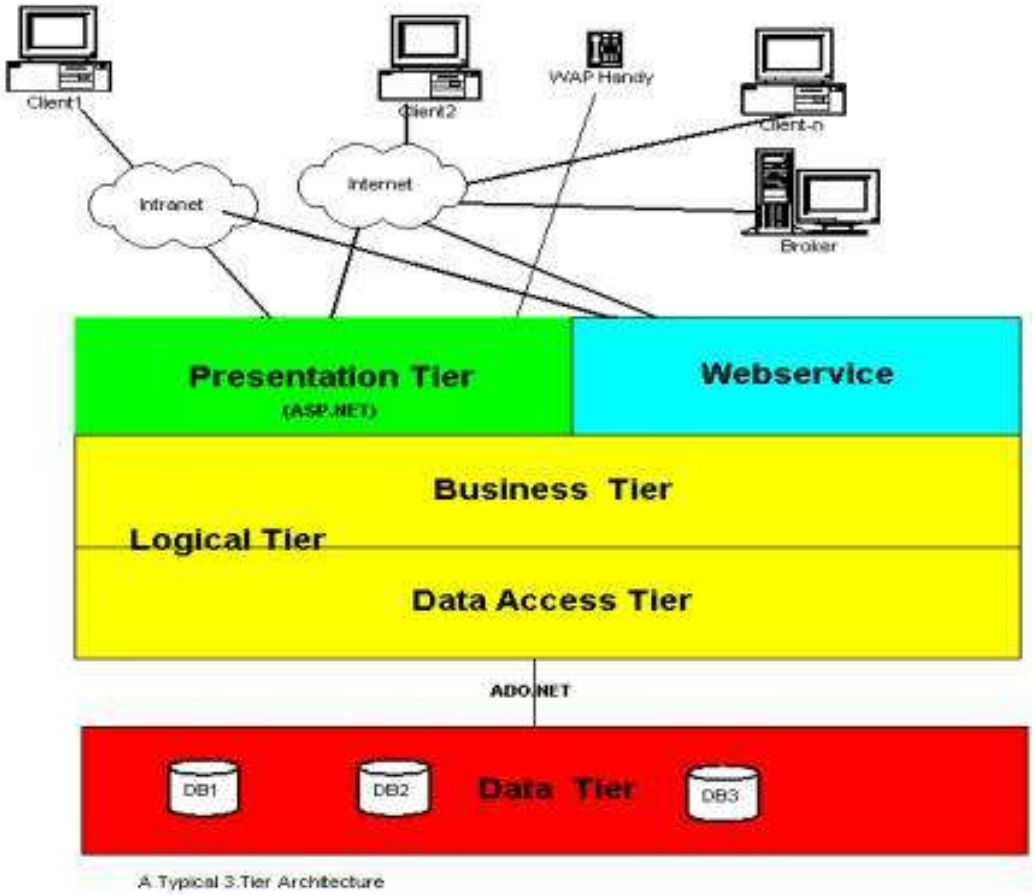
- **Client side perfomance is very bad causes Fat(thick) Client**

3-tier architecture :

- **Physical seperation of service layer(data access layer as well) from the presentation layer is nothing but 3-tier architecturre.**
- **One machine for one machine for service layer(and DAL also) and another machine for presentation layer is the actual physical seperation in this architecture.**
- **3-tier architecture eliminates client side maintainance.it also makes the clients thin**
- **3 tier architecture does not make the client 100% thin.**







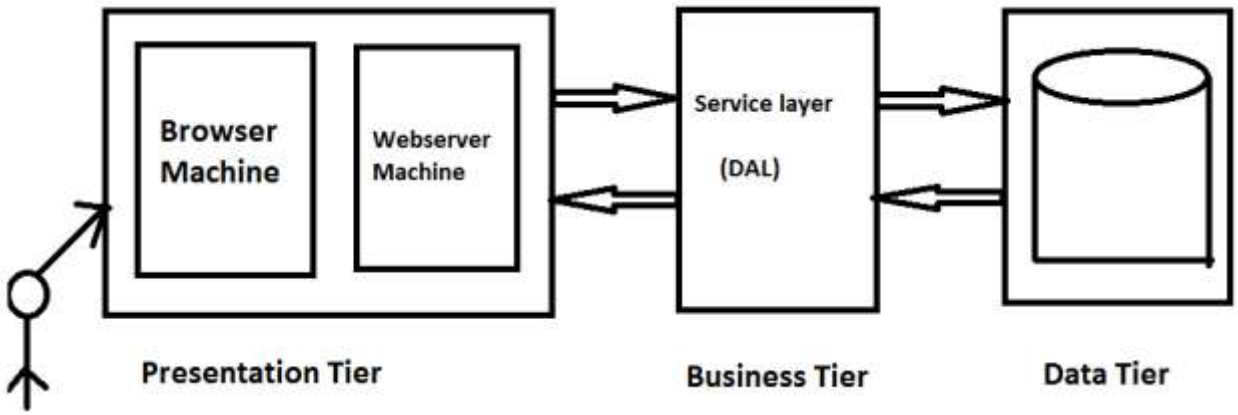
A Typical 3-Tier Architecture

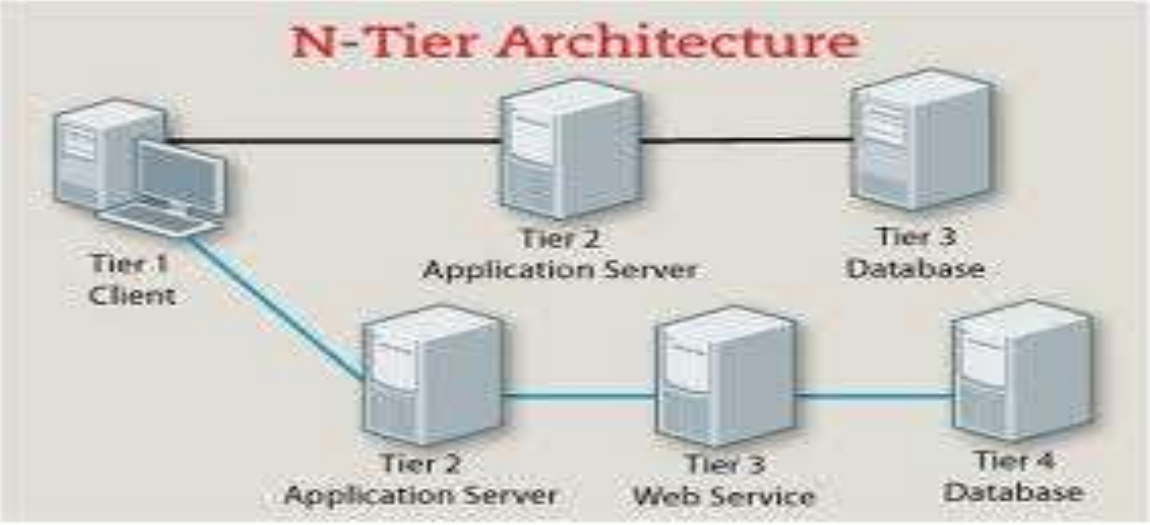
3-tier architecture:

A three-tier application we have a client, a server and a database, in which the server stores its data. The flow of information is still essentially linear: a request comes from the client to the server; the server requests or stores data in the database; the database returns information to the server; the server returns information back to the client

N-tier Architecture :

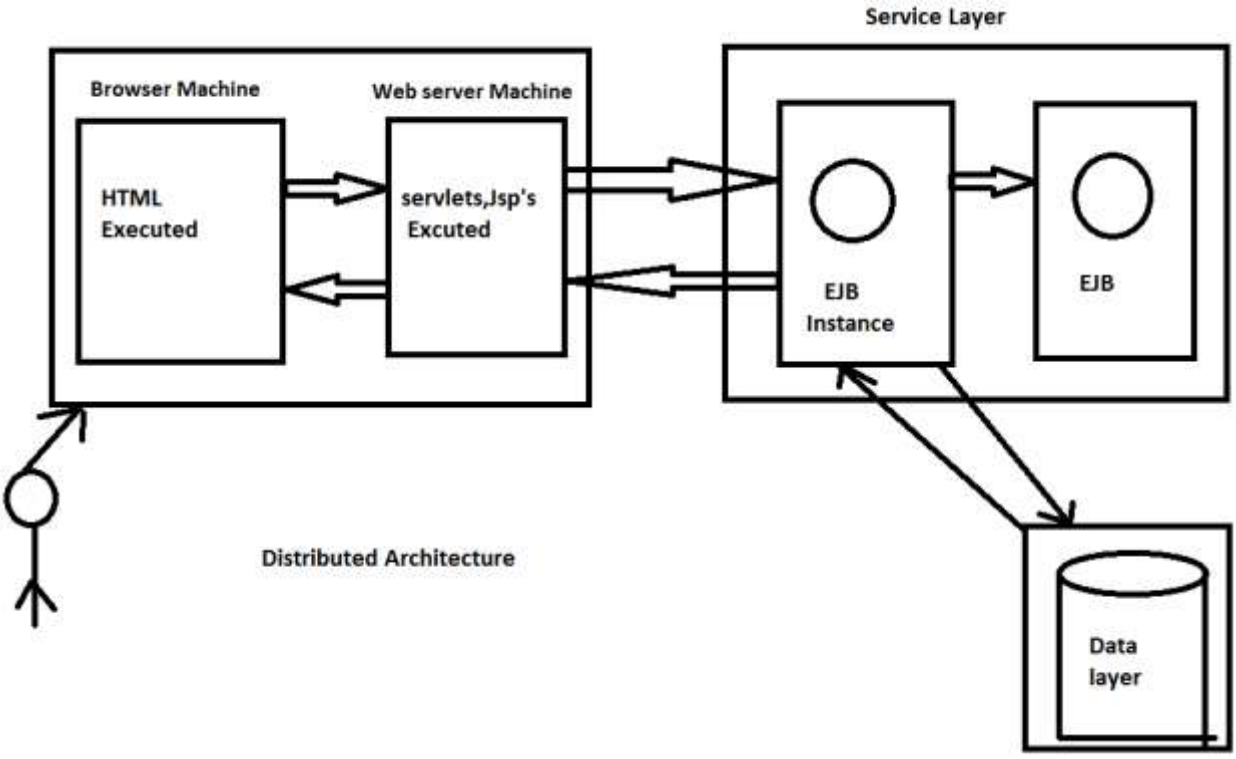
- **An extension of 3-tier architecture is nothing but n-tier architecture**
- **Service layer is one machine ;data layer in one machine; presentation layer is in morethan one machine.i.e. windows based enterprise application can be 3-tier architecture cannot be 'n' tier as presentation layer runs in only one machine as one process.**
- **Web-enabling a 3-tier architectural enterprise application is nothing but making it n-tiered.**





Distributed Architecture :

- **If business objects of a service layer are geographycally dispresed in the network and still communicating with one another such enterprise application is said to be distributed appliaction and is said to have distributed tier architecture**



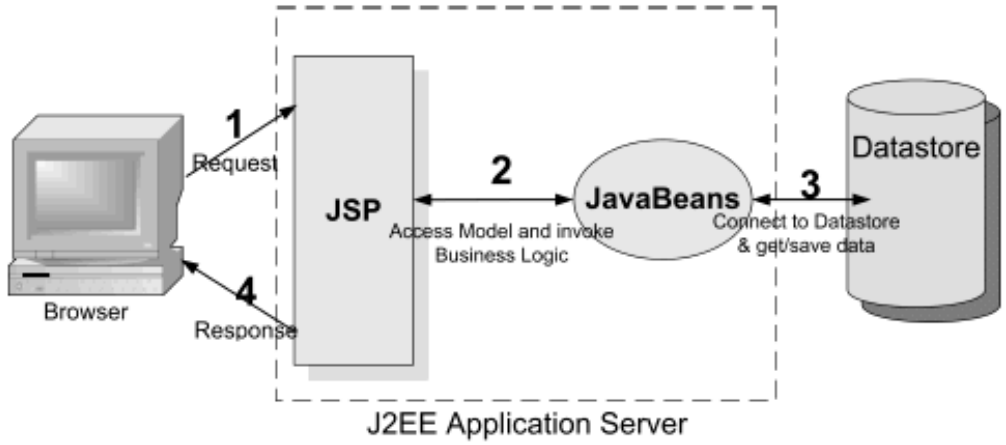
(Q). What are the different programming logics of the web application..?

A Web Application has 3 logics

a. **Presentation Logic**
b. **Business Logic**
c. **Application Logic**

- **Code that generates input screens and representing pages for the end-user is known as presentation logic**
- **Data processing logic according to the business rules of the oraganisation is nothing but business logic**
- **Flow control logic is know as application logic**

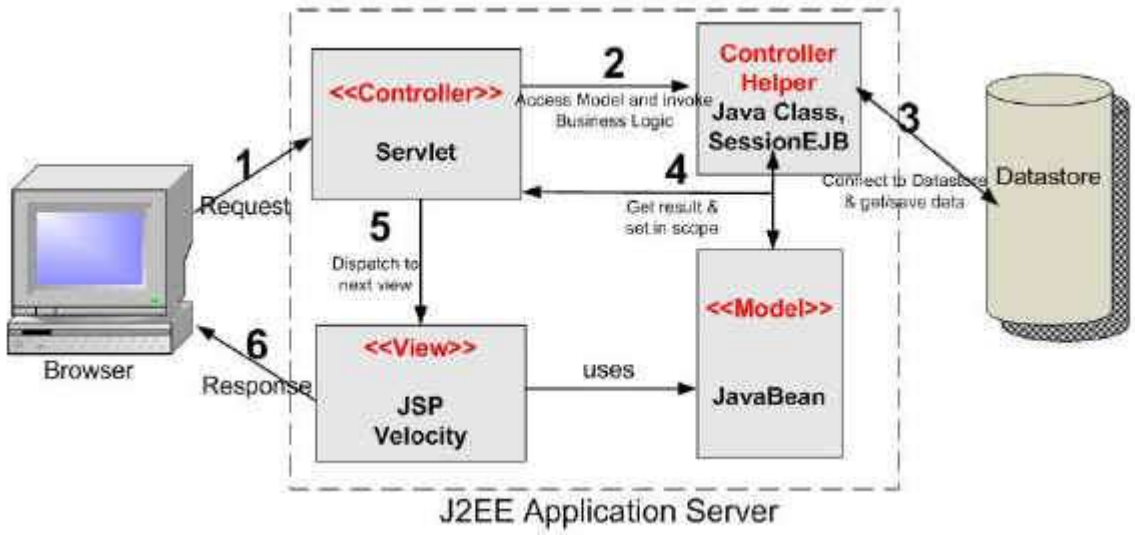
JSP –Model 1 Architecture :



Note : In this model, application logic and presentation logic is mixed in the jsp. Only business logic is separated into the Java bean.

This architecture model is sufficient only for small applications

JSP –Model 2(MVC) Architecture :



- **Here Presentation logic is in view, application logic in controller and business logic in model.**
- **Clear separation of 3 logics give lot of benefits in application development and maintenance.**

(Q). what is MVC (Model-view-controller)..?

➢ **The main aim of the MVC architecture is to separate the business logic and application data from the presentation data to the user.**

Model: EJB/Spring/Java Beans

View : Jsp's

Controller: Servlets /Struts

Layer's are 4 types:

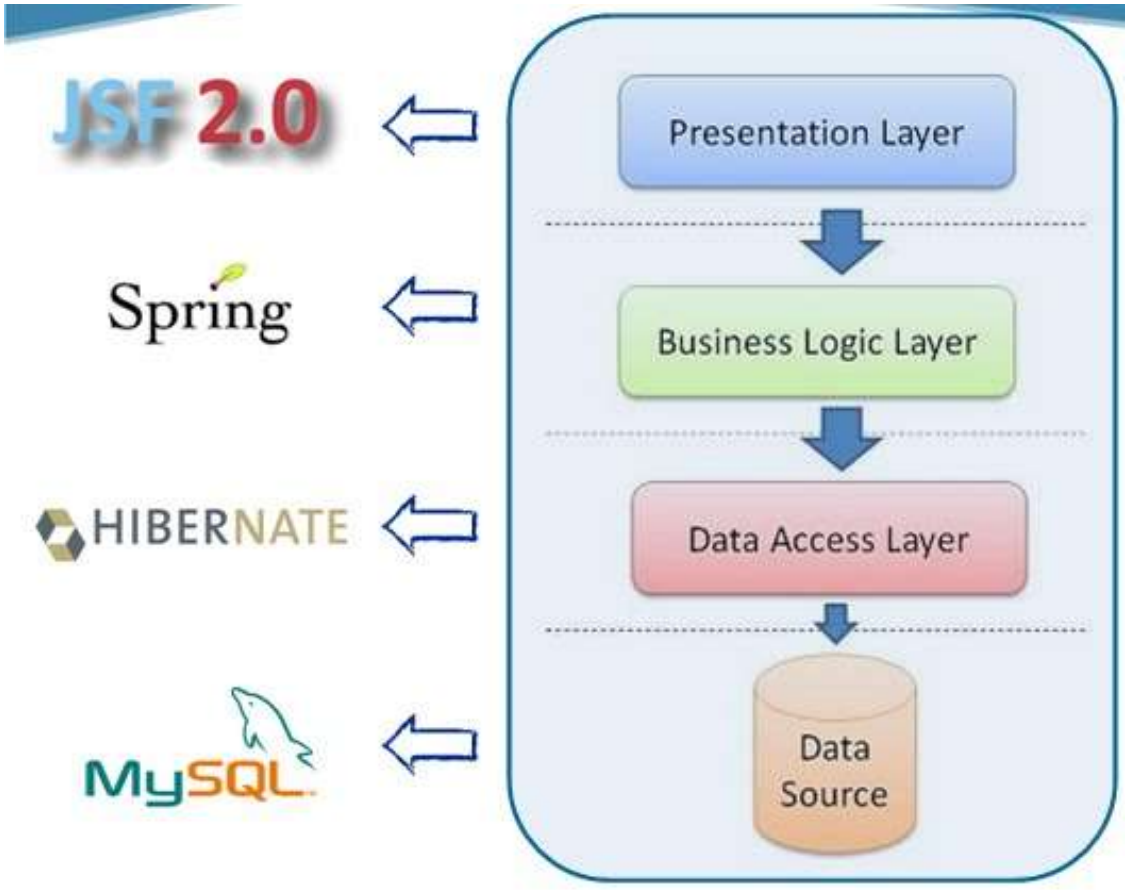
Presentation or UI (User Interface) Layer (Struts/Jsps/JSF etc.)

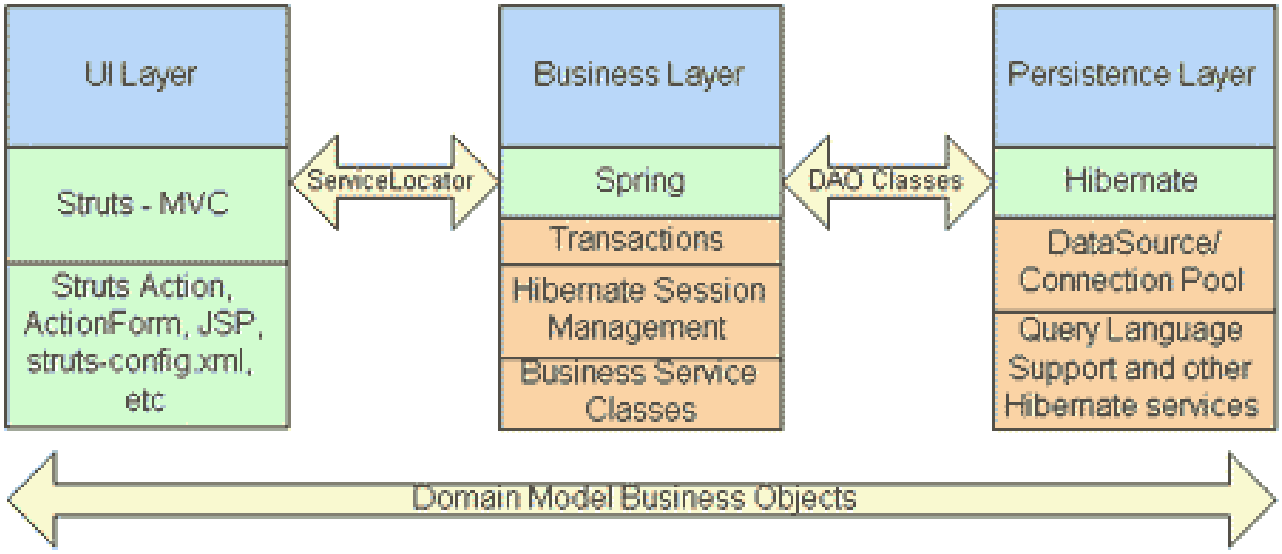
Bussiness or Service Layer (Servlets/EJB/Spring)

Data Access Layer (ORM's or JDBC)

Data Layer (Database)

Example for 4 layered architecture :




UI Layer
Struts - MVC
Struts Action, ActionForm, JSP, struts-config.xml, etc
ServiceLocator
Business Layer
Spring
Transactions
Hibernate Session Management
Business Service Classes
DAO Classes
Persistence Layer
Hibernate
DataSource/ Connection Pool
Query Language Support and other Hibernate services
Domain Model Business Objects