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Developing Multitier Enterprise Applications *(E-Commerce and Other Web Based Application)*

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Abstract

The software Developer build the large scale Application using these component. J2EE plateform consist of set of Service Programming Interface(API and Protocals) that provide the functionality for developing multitiered web based application. JSP are used to create and genrated the dynamicaly Web Pages which based on SOAP,XML,HTML etc .The Web Based Application Architecture is Different type such as One Tier, Two Tier , Three Tier etc. The three Tier Architecure Application is based on Three layer based which is Presentation layer, Bussiness Layer , Data Layer.These layer are Independent to each others .

Kewords J2EE, JSP ,API's, JAR ,XML, LDAP, HTTP , server, Client, EJB , Layers, JNDI, JAAS

Introduction of J2EE

It is used for E-Commerce and other web based Enterprise Application. An Enterprise means- A Business organization and application are those that facilitate various activity or Enterprise application those that let an Enterprise means Business activity via internet. These application are made up some of component such as EJB, Servlet,JSP module etc. The software Developer build the large scale Application using these component. We install the java Enterprise edition(J2EE) onto the Application Server by deploying the java Enterprise edition(J2EE) JAR File(Java Archive) onto one or more server instance.

Characterstics of J2EE

There is some charcters of J2EE:-

(1) **Plateform Independent:-** it is plateform independent .So programming model also reduces the difficulties encountered from integrating any of technologies that grow up specific to cetain plateforms and application.

(2) **Potable:-** J2EE components and applications are portable across J2EE-compliant servers, we can deploy our application with the help of XMLwithout source code modification .

(3) **Reusability:-** When we develop the component then we can reuse in another applicaion .Also deploy it on the different server accoriding requirement.

(4) **Managed Objects:-** By being Managed . Java 2 Enterprise Edition for provides a managed environment for components and Application are container centric .J2EE Component utilize the infrastructure provided by J2EE Servers without the programmer being knowledge of it.

(5) Modularity:- when we deploy a complete server side application program can get enlarge and complex.So it is always best method to break down the Application into small modules. so that each module can work specific task.

Example:-

servlet, JSP, EJB etc provide the modularity application . These application break down in the different tiers architecure.

(6) Security:- Java 2 Enterprise Edition provides is powerful security features. The Security information for J2EE components is defined in their deployment descriptors.

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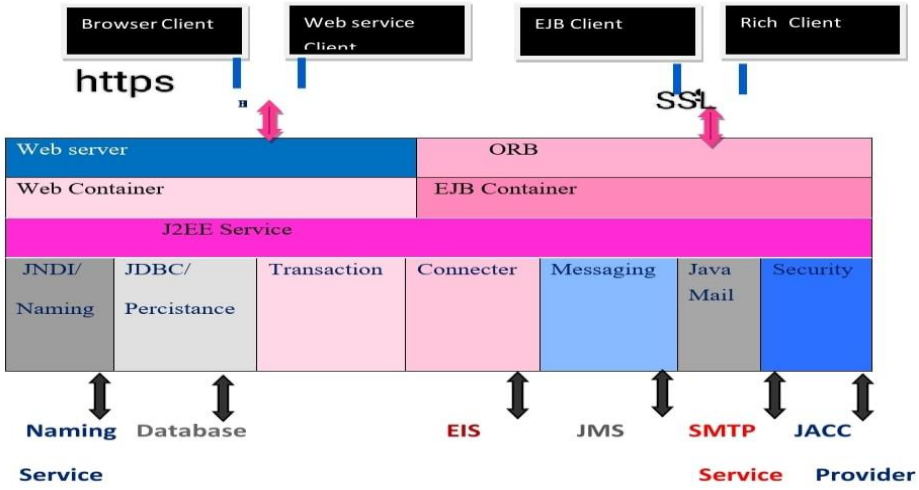
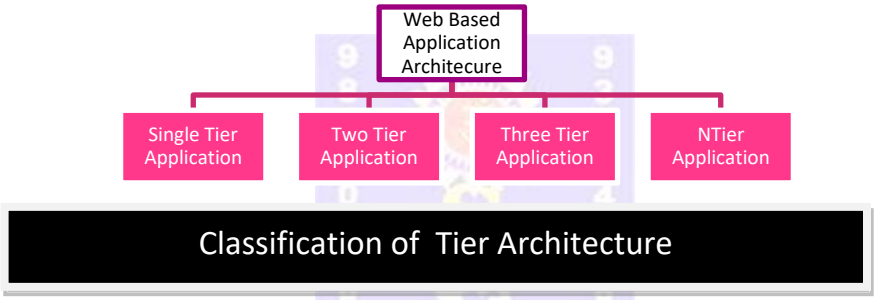


Mutlitier web based Application:-

J2EE plateform consist of set of Service Programming Interface(API and Protocals) that provide the functionality for developing multitiered web based application.



(1) Single Tier Application:-There is no concept of Server.Entire Application resides on the Client Machine.Data are stored in the local machine .

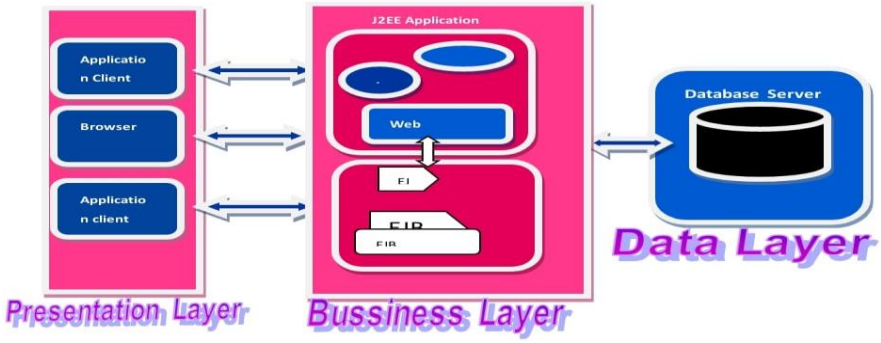
(2) Two Tier Application:-It is also called Client-Server Architecture.The Client send the Request to the server using HTTP and server get the information into database and send the Response to Client Machine using HTTP .when client send request then server act as a traffic controller between application and data so Performance are suffer due to limited resource on client machine .

(3) Three Tier Application:-Application broken into three layer.these layer are seprated to each other.

(a)Presantaion Layer
(b) Bussiness Layer
(c) Data Layer

(a) **Presantaion Layer:-**This layer consist of a graphical interface of some kind and communicate to the application Layer.Client interact with Application layer. The user send the Request to Serrver using web Browser ,Desktop Application or GUI Interface .web application are develop using HTML, PHP, ASP,Java Script etc and window based application are developed using the different languages such as .Net, VB, Java etc.

(b) **Bussines Layer:-**This is Middle tier. It consist application where Information processed which are collected information in the presantation layer.we can delete the data and also we can modify the data in this Bussines layer.



(c)

(c) Data Layer:-In this layer data can consist of any source of information,enterprise database such as Oracle, SQl , XML documents or adirectory service such as LDAP. It is also called database tier because the database work on back-end side. Database are maneged by database language such as Oracle, Sql, Sysbase, MS-Access etc. This layer are communicate with Application Layer so that data can send and receive each other Layer.

N-Tier Architecture:- This also called Multitier Architecture.the application are divided into three different tier**.**

(a) Presentaion tier
(b) Logic Tier
(c) Data Tier

(a) Presentation Tier:- The application interaction with user interface .The user interface display the Request and how handeled it.

for example:-user interact with web browser running through a firewall or desktop application.

The main purpose is that translate the task so that user understand it.

(b) Logic Tier:- This layer is makes the logical decision and profrmed the operation to evaluated the result. In this layer send the request to data layer and also Access the data from the data Layer.The logic tier knows what is possible and what is allowed and disallowed.

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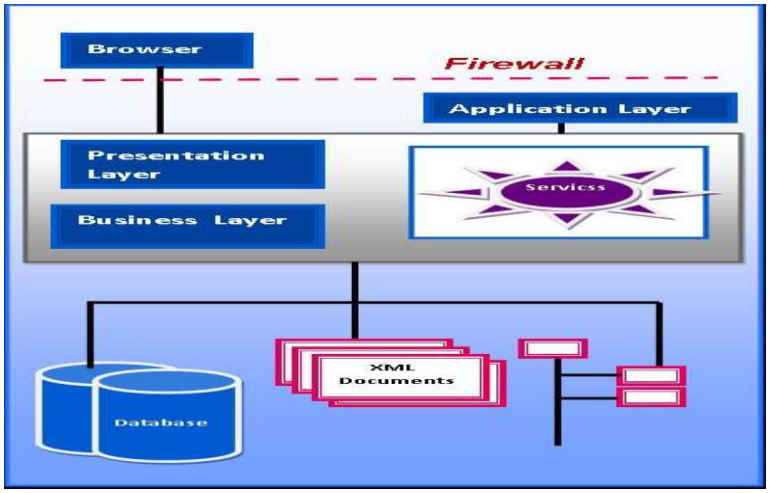
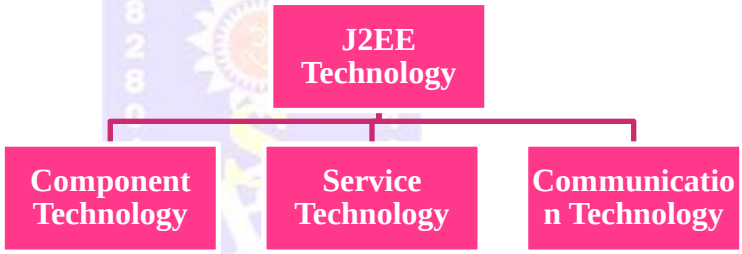
(c) Data Tier:- we can stored the data and also access the data from the file system server or Database and also search the data through the large scale data. Data are also send to the logic tier.



J2EE Application provide collection of technology for building large distribution Application. There are Three types of J2EE Technology.



(1)**Component Technology:-**Technology:-When we want to create Distributed application then we use these component technology.this is used to hold the important part of application .This technology is further divided into two Component.

(a) Web Component

(b)EJB Component

(a) **Web Component :-** In this Technology client send the Request from client side using HTTP and get the Response from server side .These compnonet are-Servlet and JSP;

- **Servlet:-** This is Server side programs which is embedded in the Hypertext Transfer Protocol processing.The sender send the request to the server and server give the response to sender using HTTP. Servlet provide the dynamic content in XML,HTML and other programming languages.
- **Java Server Page:-** JSP are used to create and genrated the dynamicaly Web Pages which based on SOAP,XML,HTML etc .we can also create dynamic contents. JSP is the text based documents.when developer make a request of a JSP page then web container compile this page into a servlet. The web container then call to the servlet and give the Response to developer and display the information on the web browser such as Google chrome, internet explorer etc .

(b) **EJB:-**It is a web container which is provide the Run Time Environment to created the web based software component.It is create the multiuser and scalable components.The

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enterprise beans allow sepration of application logic from system level services so it allows to the developer to concentrate on the bussines domain issues.The EJB objects are three types:- entity beans ,MDB,session beans .

2. Service Technologies:-This technologies are used for ApplicationComponent which are managed by the containe themselves.There is different type Technologies.

A. **JMS(Java Message service)**
B. **JDBC(Java Database connectivity)**
C. **Java Mail**
D. **Java Transaction ApI's**
E. **JASS(Java Authentication and Authorization)**
F. **JNDI(Java naming Directory Interface)**

(A) **JMS:-** When we need to some send the information then we use the Java Message Service. It has such functionality which can communicate to each other to sending and receiving the message through the message oriented middleware.

(B) **JDBC:-**we can connect with the RDBMS such as Oracle, SQL ,MS ACCESS etc .It provide the JDBC-ODBC Driver to connect with Servlet or any Programming languages.we can display the reords,Fetch the data, Delete Data, Update,insert etc. after connecting with the RDBMS and servlet or any web Programming language.

(C) **Java Mail:-**It provide the facilities to sending E-mail or receiveing the e-mail .There are some protocol such as SMTP, POP3, IMAP4 etc are used to sending and receiving mail.

(D) **Java transaction API's:-** when A transaction is accessed and updated the data among two or more Computer resources the it is called Distributed Transaction.There are various Resoures manager to responsible to take the decision such as Rollback and Commit. The rollback means the transaction undo or unsuccessfully Transaction and Commit means Transaction is complete Succesfully.

(E) **JAAS:-**It grant the permission to Authorized user's.He is determines that who is execode the code and also ensure to user's that have access the control right permission.

(F) **JNDI:-**It is an API's that provides naming and directory functionality to written an Application using java language.It provides operation to perform on a directory service resource LDAP.It has lookup interface used to create,EJBs,JDBC Connection.

3. Communication Technologies:-It provide to communicate with other distributed application.In this technologies we can exchange the data two or more distributed application.There are some protocol to communicate with remote to local or local to remote.

- **HTTP:-** It is light weight protocol and state and stateless .this protocol is used in client server model. When client send the request to server using http protocol . Server find the information then send the Response to client by using HTTP Protocol.
- **TCP/IP:-**Tcp means Transmission Control Protocol and IP stand for Internet Protcol.TCP is used to send packets over the internet and assures that data and message are successfully delivered over the network. IP is used to send the data one computer to another computer. Each computer has uniqly IP address.TCP/IP model has four Layer

(a) **Data Link Layer:-**In this layer how data is send and also responsibility to Transmitting the data between one computer to another.

(b) **Internet layer:-**This Layer has responsibility to send the packets.

(c) **Transport Layer:-**This Layer is Responsible to provide Connection between application or device on a network.

(d) **Application Layer:-**This Layer is Responsible to Communicate each other.

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RMI:-It is allows us to use the interface to define remote objects.for example Chating between two clients. When one client send message to another then RMI pass the stub object and established the connection and then deliver the information to pass the skeleton object another machine.Skeleton object act as gateway for the server side machine.

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