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Life Cycle of Web Application :

The life cycle of web application passes through a set phases that controls and co-ordinates the functionality of the application. These phases are :

1. Loading : In this phase the particular application is uploaded / hosted on a local or remote web server. The application may be a packed file such as .jar file containing a set of files or directly all those files constituting the application.
   For example if we have a local server with **tomcat apache :**
   Upload the files to HOME OFTOMCAT/webapps/ROOT or
   HOME OFTOMCAT/webapps/ROOT/<your app.folder>
   Once upload is complete then the application is available to be accessed.
2. Instantiation : In this phase instance / object of the application is created as and when the application is accessed by a user. This object is allocated to the particular user. This work is carried out by the web server.

3. Initialisation : In this phase the particular instance allocated to the user is initialized by some parameters of the user to make the user unique over the network. This work is carried out implicitly by the web server or explicitly by the developer by overriding some methods like init( ).
4. Service : In this phase the application gives service to the user. It is carried out explicitly by the developer by overriding some service methods such as:
   1. service(ServletRequest, ServletResponse)
   2. doGet(HttpServletRequest , HttpServletResponse) GET
   3. doPost(HttpServletRequest, HttpServletResponse) POST or some other
5. Destroy : In this phase the resources allocated to the instance of the particular user are released and thereby the instance is destroyed and goes to the **free pool**. This operation

is carried out by the webserver implicitly of by the developer explicitly by overiding the method such as **destroy();**

6. Unavailable : In this state the particular instance becomes unavailable to the user after it is destroyed.

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Platform of Java EE (J2EE):-

The platform of Java EE defines the following two components :-

i> A runtime environment specification

ii> A set of API for the web application

The first component of the platform of Java EE specifies the roll and infrastructure on to which a web application can be loaded and executed.

The second component specifies a set of APIs using which the web application can be built. These APIs are represented in the form of classes and interfaces, that can be organized in to the following components.

i> Advance JDBC (Java Data Base Connectivity)

ii> Servlets

iii> JSP (Java Server Pages)

iv> RMI (Remote Method Invocation)

v> EJB (Enterprise JAVA Beans)

vi> JNDI (Java Naming Directory Interface)

vii> JMS (Java Message Service)

viii> JAVA mail

ix> JTA (Java Transaction APIs)

Transaction :

A001 - transfer amt 1000 to A002

A002 – receive amt 1000 from A001

Query-1; Update tblAccount set balance = balance – 1000 where acno=A001

Query-2: Update tblAccount set balance = balance +1000 where acno=A002

Architecture of Java EE:-

The architecture of Java EE is based on a set of **containers** or otherwise known as **web containers**. A web container is the component on web server that provides a run time environment for the execution of web component such as Servlets, JSPs, EJBs and others. A web container is also responsible for the management of such components.

The architecture of Java EE which is based on such container works according to the role and responsibility of these containers.

The web container on which Java EE architecture is based can be divided into two types :-

i> Web Container

ii> EJB Container

A web container is the container type on to which components like servlet and JSP are deployed.

EJB container is the container type on to which EJB components are deployed .

A container is to carry out the following responsibilities.

i> Component Contract

ii> Container Service APIs

iii> Declarative Services

iv> Miscellaneous Services

Technology of Java EE:-

The technology of Java EE is implemented by a set of technologies to create and manage applications based on enterprise architecture in an efficient manner. These technologies can be divided in to the following groups :-

i> Component technology

ii> Service technology

iii> Communication technology

The component technology specifies the approach to create and manage web components in the form of servlets, JSP, EJB and many other components.

Service technology represents a set of technology which are used by the components to make the components fully functional.

These technology of service can be JDBC, JMS and Java mail.

The communication technology represents a set of technologies implemented by the component and services to carry out communications.

Development of Web Application:

The development of web application is carried out in following steps:

1. Component Development
2. Composition of components in to modules (.jar)
3. Composition of modules into application (.war)
4. Deployment of application.