Servlets & JSP & JDBC

JDBC :- is a Java API that allows you to connect to a database, execute SQL queries, and retrieve results. It enables Java applications to interact with various databases like MySQL, Oracle, and others.

1. JDBC execution steps: --> There are 5 steps
2. Driver’s: --> 4 Drives, present using Thin Driver
3. Connection: -->it is interface, by using this we can connect with underline database from Java Application
4. Statement: --> it is a interface by using this we can Execute the Static Queries EX:- select \* from table name
5. Prepared Statement: -->it is a interface by using this we can Execute Dynamic Queries EX – update, delete, insert, select \* from where
6. Callable Statement:--> it is a interface by using this we can Execute Function & procedure’s
7. Result Set: --> it is an interface it is hold’s the result of Execute Queries
8. Row Set :--> it is also same result set , row set is wrapper of result set, it store the data tabular format , we can perform data read operations
9. Batch processing :--> Executing multiple Queries at a time by using ---> add Batch(); & execute Bath();
10. JDBC execution steps: -

There are 5 steps

* 1)Register the driver class 2) create the connection object 3) create statement object 4) Execute the queries 5) close the connection object

8) Row set :- the implementation class of the Row set interfaces are

* 1) JDBC Row set 2) Cached Row set 3) web Row set 4) Join Row set 5 ) Filtered Row set

**Servlet :-** is a Java program that runs on a server and handles requests from web clients (like browsers). It can generate dynamic content, process form data, and interact with databases to create dynamic web pages

1. Http Servlet Request & Http Servlet Response --> Request- it is a interface by using this we can retrieve the in coming Http Request from client Response- by using this we can send the Http response to client
2. Servlet Config --> servlet config object hold’s servlet related information, every servlet has one servlet config but only one servlet context
3. Servlet Context --> servlet context hold’s web-application information, entire web-application have only one servlet context
4. Request Dispatcher --> by using this we can transfer the request from one servlet to another servlet {By using forward () & include () } forward lo last servlet ye data return cheyali
5. Send Redirect --> Old TO New URL, client request will redirect to actual current address, send Redirect anedi res () lo vuntadi
6. Servlet Filter --> The pre-processing & post-processing validations of the request is called servlet Filter, there are 2 types of validations \* client-side server- side \* dinni vadithe ye servlet ye servlet tho coordinate avuthundo vatiki kuda theliyadu – **Filter API contain [ Filter, Filter Chain , Filter Config ]**
7. Session management /Tracking -- > 4 types {cookies, Http Session, Hidden from Fields, URL Rewriting}
8. do Get () & do Post () --> do Get- limited data, data visible in URL, server nuodi data get chese time lo vadatham--- do post-unlimited, no visible, client nuodi request ni pampetappudu use chesthamu
9. Servlet Scopes -->3 types – Request scope, session scope, Application Scope
10. Http status codes --> 1XX-Informational, 2XX-success, 3XX -Redirectional,4XX-Client error, 5XX-server error
11. Event & Listener --> changing the state of an object is Event & Listener used for Listing to the Events in web container
12. Welcome\_File\_List -->it is a tag in web.xml, if we declare means the HTML page will load first
13. Load\_On\_Startup --> edi eisthe web-container call chesinappudu servlet loni first 2 steps complete avvi servlet ready ga vuntadi, servlet load avvatam & Object creation e 2 steps jaruguthaei
14. Servlet Life cycle: - There are 5 steps

Web component --> web application lo process chese annitini kalipi web component antaru (servlet, jsp, jsf)

14 servlet life cycle :- defines the stages a servlet goes through from its creation to its destruction.

* 1)Servlet Loading 2) Servlet class Instantiated 3) Init () is invoked ->perform setup task 4) Service () is invoked -> handle client requests 5) destroy () is invoked -> clean up resources

JSP :- is a technology used to create dynamically generated web pages based on HTML, XML, or other document types. It allows embedding Java code directly into HTML using special tags, enabling developers to write content that can be dynamically modified by Java code on the server before sending it to the client's web browser.

1. Life Cycle of JSP -->Translation, compilation,Loading,Instantiation,Initialization,Service,Destroy
2. JSP Api --> java x.servlet.jsp.\* or java x.servlet.jsp.tagext.\*
3. JSP Scripting Elements --> by using this we can write java code in side HTML – 1) JSP Scriplet Tags <% source code %>, 2) JSP Expression tags<% print statement %>, 3) Declaration tags <%! Variables & methos %>
4. JSP Implicit objects --> 8 implicit objects [ Out, Request, Response, Config, Application, Session, Page Context, Page, Exception]
5. JSP Exception --> we can handle exception 2 types [ IS ErrorpageAttribute ,<error-page> tag in web.xml
6. JSP Scope -->4 types [ Request scope, Session scope, Application scope, Page scope]
7. JSTL --> java standard tag library, it contains a set of tags to simplifies JSP development [ Core tags, Function tags, formatting tags, Xml tags, SQL tags]
8. JSTL custom tags --> custom tags are nothing but user defined tags
9. JSP primitive Elements --> JSP primitive tags are basic building blocks used to create JSP pages

* Directives :-3 types[ page Directive , Include Directives, Taglib Directives]
* Action :- there are many action elements in JSP [Ex- Forward, Include, use Bean, Plugin, param, Fall back ]
* Expression Language:- The main purpose of EL is simplifying the accessibility of data stored in the java bean [ param values, Header, Cookies, Init Param , Page Context ]