**----------------------------------------------J2EE NOTES------------------------------------------------**

**client side s/w**

1)sqlyog

2)eclipse for J2EE

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**server side s/w**

1)MYSQL 8 community server

2)Apache tomcat Server

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**Q)WHAT IS MAVEN?**

ANS=>1)MAVEN is project management tool.

2)MAVEN can be use to build project and dependency.

3)MAVEN is use to manage java project.

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**Q)WHY DO YOU NEED MAVEN?**

=>1)At a time of developing java application we required some additional file.

2)in order to develop project we have to download and import jar file every time.

3)If project is having multiple dependency then very difficult to import jar file every time.

4)To overcome this issues then required MAVEN.

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**Q)EXPLAIN THE STRUCTURE OF MAVEN PROJECT?**

=>1)MAVEN project comes with following folders

a)Source/main/java:-

Here we have to store all the java file(source file).

b)src/main/resources:-

Here we can add other resources required for project ex=.properties file,.xml file.

c)src/test/java:-

Here we have to store all the unit test cases for java file.

d)src/test/resources:-

Here we have to store all the test file for none java resources.

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**Q)WHAT IS THE USE POM.XML FILE?**

=>1)pom.xml file is main configuration file of MAVEN project.

2)Here we can add all dependency required to develop application.

3)After modification pom.xml file we have to update MAVEN project.

4)At the time of updating project MAVEN automatically fetch the Dependency from centralize repository.

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**Q)EXPLAIN THE PROCESS OF CREATING MAVEN PROJECT?**

=>1)In order to create MAVEN project we have to provide following details.

1)Group Id:-

a)Group Id always represent name of an organization.

under one Group Id we can create multiple artifact Id.

2)Artifact Id:-

a)Artifact Id represent the name of project.

3)Version:-

a)For every project we have to provide specific version no.

b)By default every new project will be having 0.0.1-SNAPSHOT version

4)Packaging:-

a)Her we have to select packaging tool for project deployment.

b)following are commonly use packaging tool

1)JAR (java archive)=we have to use Desktop application.

2)WAR (web archive)=we have to use Web application.

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**Q)WHAT IS THE USE OF JDBC?**

=>1)JDBC IS TECHNOLOGY extension of core java.

2)JDBC can be used to connect java application with the database s/w.

3)Database s/w is required in order to store the data for long time.

4)JDBC technology is collection of different JAR file which can be used to communicate the database.

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**Q)EXPLAIN THE WORKING OF JDBC APPLICATION?**

=>1)To develop jdbc application we required four interfaces

a)Driver:-

1)Driver act as a middleware between java and database application

2)Driver s/w is responsible to convert java instruction into sql instruction and sql

instruction into java.

b)Connection:-

1)it provide network between java and database application

c)Statement:-

1)It act as a input container.

2)It means we can store sql queries into stmt object.

d)ResultSet:-

1)act as output container.

2)it means after processing the query output will be store into ResultSet object.

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**#Steps to develop the Application :-**

1.load and resister the driver.

2 Established the connection.

3.Create statement platform.

4. prepare Sql Query.

5.process Result set.

6.close costly resources.

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**Q)WHAT IS PREPARED STMT?**

=>1)prepared stmt is an interface declerd inside java.sql pkg.

2)prepared stmt extends the properties of statement interface.

3)prepared stmt can be use perform same type of operations multiple times.

4)in case of prepared stmt sql query will be compile only once but executed multiple time.

5)prepared stmt we can pass dynamic values by using placeholder (?).

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**Q)WHAT IS THE USE OF CallableStmt?**

=>1)CallableStmt is an interface declared inside java.sql.

2)CallableStmt extends the properties PreapredStmt interface.

3)CallableStmt is mainly use to execute stored function and procedure.

4)to create a platform for CallableStmt we have to use prepareCall() method.

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**Q)WHAT IS STORED FUNCTION?**

=>1)Stored fun is imp component in PL/SQL Programming.

2)Stored fun can be use to develop business logic by using database server.

3)We can perform programming operations in SQL by creating stored function.

4)Every stored function always the returns the value after execution.

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**Q)WHAT IS STORED PROCEDURE?**

=>1)Stored procedure is imp component in PL/SQL program.

2)we can create stored procedure to execute multiple sql stmts at a same time.

3)It is possible to execute different sql stmt by creating a single procedure.

4)procedure never return the value.

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-------------------------------------DAO/DTO Design Pattern---------------------------------------------

**Q)WHAT IS DAO CLASS?**

1)DAO class(data access object)

2)DAO class is use develop persistence logic.

3)DAO layer directly communicate with database.

**Q)WHAT IS DTO CLASS?**

1)DTO class(data transfer object)

2)DTO class is a simple java bean class and contain private data member and public getter() setter() method.

3)DTO class is used to transfer the data from one layer to another layer.

* **DTO AND DAO DESIGN PATTERN:-**

PRESENTATION LAYER

(Utilization)

IMPLEMENTATION LAYER

(DAO CLASS)

**DATABASE**

DTO

OBJECT

***----------------------------TRANSACTION MANAGEMENT IN JDBC---------------------------------------------***

**Q)HOW TO MANAGE TRANSACTION IN JDBC?**

=>1)java application send the request to the database application

and database application provide the response to the java application

this process is known as transactions.

2)JDBC manage the transaction implicitly as well as explicitly.

3)By default every jdbc transaction is autocommited which can be rollback.

4)In order to disable autocommit option we have to use path setAutoCommit(false).

5)If setAutoCommit() is false then programmer can manage the transaction explicitly

by using commit() and rollback() method.

6)We have to call all the methods by using the reference of connection.

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**----------------------------------JDBC interview questions---------------------------------------------**

**JDBC interview questions:-**

1)what is jdbc?

2)explain imp component of jdbc?

3)what is jdbc API?

4)explain the steps to develop jdbc application?

5)what is the use of Driver s/w?

6)explain the difference between stmt preparedstmt and callablestmt?

7)explain the difference between executeUpdate, executeQuery and execute() method?

8)What is difference between stored procedure and stored function?

9)explain the working of DAO and DTO design pattern?

10)explain transaction management in JDBC?

**--------------------------------------WEB TRANSACTION--------------------------------------------------3/1/23**

**Q)WHAT IS WEB TRANSACTION?**

=>1)Web browser send the http request to server application & server provides http response to

browser this process is known as web transaction.

2)when request comes to the server application then server will check whether request static or

dynamic, if it is a static then response will delivered to client application.

3)if request is dynamic then server application will forward the request to backend technology.

4)backend technology communicate with database in order to provide response to server application.

5)every programming language is having specific technology communicate with server.

ex. Java programming language uses server side technology communicate with server software.

**BROWSER SERVER BACKEND MySql Server**

Database

HTML,CSS,JS

httpreq req req

servlet

httpres resp resp

JDBC

**Client**

**----------------------------------------------------SERVLET-------------------------------------------------------------**

**Q)WHAT IS SERVER?**

=>1)server is collection of different web resources. ex. images, document,audio,video etc.

2)Server application is responsible to conduct transaction between browser and backend technology.

following are different type of server:-

**1)WEB SERVER:-**

a)web server is available in form of h/w as well as s/w.

b)the main functionality of web server is accept request from browser and provide appropriate response.

c)web server can be used to deploy simple web application.

ex. apache tomcat server

**2)APPLICATION SERVER:-**

a)application server available in form of s/w.

b)The main functionality of application server is transfer the business logic from one layer

to another layer.

c)we can deploy web as well as enterprise application by using application sever

ex. glassfish

**3)DATABASE SERVER:-**

a)database server is available in form of h/w as well as s/w.

b)The main functionality of database server is perform CRUD operations.

ex.mysql,oracle,mongodb

**Q)WHAT IS MIME TYPE?**

1)multipurpose internet mail extension.

2)MIME type is also known as resource type.

3)web server is a collection of different web resources and every resource is having specific type,

which is known as MIME type.

4)MIME type play imp role to identify specific type of resources from server application.

5)every resource will be having unique resource type

ex.1)text/html 2)text/css 3)application/pdf 4)img/.jpg 5)audio/.mp3

6)It is possible to upload multiple resources in a single server application.

7)the process of uploading the resources to the server side is known as deployment.

8)The process of creating a business logic is known as development.

**Q)WHAT IS URL?**

**1)URL stands from (uniform resource locator)**

2)URL is used identify every web resource in unique format.

3)Every resource must and should have unique URL.

4)URL is combination of following factors:

1)Protocol

2)Domain name and IP address

3)resource name

4)data

5)data field is optional in URL.

6)resource name and data must be separated by (?) symbol.

7)following is the **Syntax** of URL:-

**https:// www.google.com/ search ? q=java**

protocol domain name resource name data

**Q)WHAT IS HTTP?**

=>1)Http stand for hypertext transfer protocol.

2)http is a stateless protocol it means after one transaction server not remember what was the request And what was the response.

3)HTTP protocol is used conducted transaction between client and server.

**Q)EXPLAIN HTTP REQUEST?**

=>1)If user sends the request server application then following think will be included into that particular request

**1)URL 2)COOKIES 3)DATA**

2)cookies and data are optional field but URL is mandatory

3)Following are different type of request:-

1)GET 2)POST 3)PUT 4)DELETE 5)HEAD

**1)GET REQUEST**:-We can be used fetch the data from server

2)**POST REQUEST**=>We can be used submit the data at server.

3)**PUT REQUEST**=:which can be used update a data at server

4)**DELETE REQUEST**=>we can be used delete the data from server.

5)**HEAD REQUEST**=> we can be used fetch the header information from html page.

**Q)WHAT IS DIFFERENCE BETWEEN GET AND POST REQUEST?**

=>1)GET request mainly used to retrieve the data from server.

1)POST request mainly used to store the data server

2)in case of GET request data will be expose through URL.

2)in case of POST request data will be transfer to request body.

3)GET req is a not secure request

3)POST request is secure request.

4)we can send maximum 256 character using POST request

4)we can submit huge amount of data by using POST request.

5)we can bookmark GET request.

5)we can’t bookmark POST request.

Resource line **GET REQUEST POST REQUEST** Resource line

Resource line

Client :chrome

Version:67.0.12.16

Cookies:

Key=value & key=value

Resource path ? data

Client :chrome

Version:67.0.12.16

Cookies:

Request header Request header Request body

**Q)EXPLAIN HTTP RESPONSE?**

=>1)HTTP response includes:

**1)Actual data**=> Actual data means data requested by browser.

**2)Status code and message**

**3)Cookies**

Following are imp status code:

1)404=Page not found

2)405=get post mismatch

3)200=success

4)505=internal server error(Logical error)

**Q)WHAT IS APACHE TOMCAT SERVER?**

=>1)It is an open source web server we can be used deployed simple web application.

2)It has been developed by apache s/w foundation.

3)tomcat server mainly applicable for web application develop by using java platform

4)following are version apache tomcat server:ex. Tomcat 10,9,8,7 etc.

**Q)WHAT IS SERVLET?**

ANS=>1)Servlet is server side technology design for java programming language.

2)Servlet can be used to develop dynamic web application.

3)It is also possible to develop different type of logic by using servlet.

a)business logic

b)controller logic

c)presentation logic

d)persistence logic

4)In order to develop web application by using servlet we have to add servlet API to our project.

**5)Servlet API act as a container for different packages**:-

**1)javax.servlet pkg**

**2)javax.servlet.http pkg**

6)Every package is a collection of different classes and interfaces.

**Q)EXPLAIN THE IMP CLASSESS AND INTERFACES OF SERVLET API?**

ANS=>**1)Servlet**:-

1)it is an interface declared inside the javax.servlet pkg.

2)Servlet interface contains three abstract method:-

**a)init() b)service() c)destroyed**

**a)init():**

1)this method can be used to initialize

2)it is a replacement of constructor because we can’t declared constructor inside init() method.

**b)service()**

1)this method is responsible to accept the request from client application and provide appropriate response.

2)we can add business logic inside the service() method.

**c)destroy():-**

1)this method can be used delete the object of servlet after providing http response.

**2)GenericServlet**:-

1)it is an abstract class declared inside the javax.servlet pkg.

2)GenericServlet implement the properties of Servlet interface and provide implementation for all they abstract method except service() method.

3)GenericServlet is capable to handle all type of request.ex:http,ftp,smtp.

**3)HttpServlet:-**

1)HttpServlet extends the properties of GenericServlet.

2)HttpServlet is a abstract class declared inside javax.servlet.Http pkg.

3)By using HttpServlet we can handle only http request.

4)following are imp methods of HttpServlet class:-

**A)doGet B)doPost() C)doDelete() D)doPut() E)doHead()**

**Q)HOW TO DEVELOP SERVLET APPLICATION?**

ANS=>1)to develop server application we have to create special purpose java class.

2)following is a syntax to create special purpose java class:-

**Syntax**: class classname extend GenericServlet

{

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}

Class classname extends HttpServlet

{

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}

**Q)WHAT IS SERVLET CHAINING? (DATE:12/01/2023)**

ANS=>1)The process of providing communication link between two servlet is known as servlet chaining.

2)in other words servlet chaining means calling one servlet from another servlet .

3)Servlet chaining can be done by using two ways:-

1)RequestDispatcher

2)sendRedirect().

**Q)EXPLAIN THE WORKING OF RequestDispatcher Interface?**

ANS=>1) RequestDispatcher interface is declared inside the javax.servlet.

2)This interface can be used dispatched the request one servlet to another servlet.

3)to get the reference of RequestDispathcer interface we have to call getRequestDispatcher() method.

**3)This interface contains two imp methods:-**

1)include();

2)forward()

**Q)EXPLAIN THE DIFFERENCE BETWEEN INCLUDE AND FORWARD METHOD?**

ANS=>**1)include():-**

1)include() method can be used merge the response from multiple servlet

2)In case of include() method client application will get the response from multiple servlet

3)it is possible to call include () method multiple time inside the single servlet

4)In case of include() method response delivery time is more

**2)forward():-**

1)forward() method directly forward the request from one servlet two another servlet

2)in case of forward() method client application will get the response only from one servlet

3)It’s not possible two call multiple forward() method inside the single servlet

4)In case of forward() method response will be delivered faster than include() method.

**Q)WHAT IS REDIRECTION? (DATE:-16/01/2023)**

ANS=>1)redirection is a part of servlet chaining.

2)The process in which one application communicate with another application is called as redirection.

3)Redirection can be done by using sendRedirect() method.

4)sendRedirect() method is declared inside the HttpServlet class.

5)By using sendRedirect() method we can do inter application communication as well as intra application communication.

6)it is possible to call sendRedirect() method only one time inside the specific servlet.

**Q)Explain the difference between Redirection and Dispatcher?**

**ANS=>1) Redirection**

1)redirection can be done by using sendRedirect() method.

2)Redirection can be done at client side .

3)sendRedirect() method can work inside the server as well as outside the server.

4)in case of redirection response will be delivered with different url.

5)Redirection is slower than Dispatching .

**2) Dispatcher**

1)Dispatching can be done by using RequestDispatcher interface.

2)Dispatching must be done at server side.

3)RequestDispatcher work only inside the server.

4)in case of dispatching response will be delivered with the same url.

5)Dispatching is faster as compare to redirection.

**Q)WHAT IS SESSION? Date-17/01/023**

ANS=>1)Session is the interactive time between client and server.

2)In other words session is the time duration between login and logout activity.

3)The time duration between connection establishment and connection closing is also known as session.

**Q)WHAT IS SESSION TRACKING?**

1)It is also known as session handling.

2)The process of tracing the client information from login till logout is known as session tracking.

3)Session tracking is required because we are using HttpProtocol from a web transaction which is stateless in nature.

4)If we are not handling a session server will consider every request is new request.

**Q)EXPLIAN THE INTERNAL WORKING OF SESSION?**

**server**

**Gmail**

**Login**

req

sessionId

HTTP resp+sessionId

**Logout**

**Profile**

Req+id

HTTP resp+sessionId

Req+id

resp

1)If user send the request server application then server application is provide HTTP response.

2)When request comes to the server application then it will be verified by the server and based on the verification new session ID generated.

3)Server application provides the http response along with sessionID.

4)SessionID will be active till logout request it means after receiving the logout request sessionID will be automatically terminated by the server.

5)If sessionID is not present then user has to send Login request which will be considered as new session.

6)Session handling can be done by using two ways:

**1)HttpSession**

**2)Cookies**

**Q)EXPLIAN THE USE OF HttpSession?**

**ANS=>**1)It is an interface declerd inside javax.servlet.Http pkg.

2)This interface mainly used for the tracking of client info and server side info.

3)We can trace sensitive information by using HttpSession.

**Q)WHAT ARE THE COOKIES?**

ANS=>1)It is one of the session tracking technique.

2)Cookies are nothing but small piece of info.

3)Cookies can be used for the tracing of client info in the web browser. Which is also known as client side tracking.

4)In case of cookies data will be stored in the form of key value pair.

5)it is not recommended to use cookies for the tracing of sensitive info.ex.username,password etc.

6)We can trace non sensitive info and user activity with help of cookies.

7)In case of cookies data will be stored into specific web browser, it means cookies created by using one browser are not accessible for other browser.

**1)Create Cookie:**

Cookie c1=new Cookie(key,value);

Resp.addCookie(c1);

**2)Fetch Cookie:**

Cookie[] data=req.getCookies();

**Q)WHAT IS JSP? Date-18/01/2023**

ANS=>1)JSP stands for java server pages.

2)JSP is a java technology which can be used for data presentation.

3)JSP is an extension for servlet.

4)JSP can be used to create dynamic web pages.

**Q)WHAT ARE THE IMP FEATURES OF JSP?**

ANS=>1)By using JSP we can separate business logic and presentation logic.

2)In case of JSP we can add java stmts in HTML code.

3)JSP pages are lightweight as compare to servlet.

4)We can create JSP files to present the output of servlet.

**Q)WHAT ARE THE JSP SCRIPTING ELEMENTS? Date-19/01/2023**

ANS=>1)JSP Scripting element are use to develop presentation logic within a markup tag.

2)following are imp element of JSP:

1)<%@ %> Directive

2)<%-- --%> Comment

3)<% %> Scriptlet

4)<%= %> Expression

5)<%! %> Declaration

**1)Directive:**

This element is used import classes interfaces and other JSP files.

**2)Comment:**

By using this element we can add single line and multiline comments in JSP.

**3)Scriptlet:**

This element act as container for java stmt.

It is possible to add multiple scriptlets inside single JSP file.

**4)Expression:**

This element is used evaluate arithmetic and logical expression.

b)We can print value of variables by using expression element.

**5)Declaration:**

a)This element can be used to declared variable and abstract methods.

b)variable declared inside the declaration element will be considered as global variable so we can access this variable anywhere inside the JSP file.

***----------------------------------------------MVC DESIGN PATTERN-----------------------------------------------------***

**Model**

(JAVA)

**Views**

(JSP)

**Controller**

(SERVLET)

**WEB BROWSER**

(client application)

HTTP

req

HTTP

resp

**Q)WHAT IS MVC DESIGN PATTERN?**

ANS=>1)MVC stand for model view controller.

2)MVC design pattern is used to design web and enterprise application.

3)It is a collection of different layer such as implementation ,presentation and controller.

4)MVC pattern is used to separate application logic from user interface.

**Q)WHAT ARE THE FEATURES OR ADVANTAGES OF DESIGN PATTERN?**

ANS=>1)We can separate presentation layer from business layer.

2)It is possible to achieve loose coupling with help of MVC design pattern.

3)We can increase code modularity by using MVC pattern.

**Q)EXPLAIN DIFFERENT LAYER INVOLVED MVC DESIGN PATTERN?**

ANS=>

**A)MODEL LAYER:**

1)Model layer also known as data layer or business layer.

2)We can develop application logic with help of Model layer.

3)It is possible to develop persistence logic (JDBC code) in the model layer.

4)Model layer accepts the request from the controller and after processing the request provide appropriate response.

5)We can create two type of classes in a model layer:

A)DAO(persistence logic)

B)SERVICE(business logic)

**B)CONTROLLER LAYER:**

1)Controller act as middleware between model and view.

2)controller is responsible for managing the flow for entire application.

3)controller accept the request from client application and forward the same request to model layer.

4)After processing the request controller collect the response from layer and forward into the view layer.

**C)VIEW LAYER:**

1)View layer is also known as presentation layer.

2)We can develop presentation logic by using JSP file inside the view layer.

3)View layer is responsible for delivery HTTP response to the client application.

4)View layer is completely independent of the model layer because of loose coupling.