**Types of Applications:**

There are three types Java based applications.

1. Standalone/Desktop application

2. Web Application (Client-Server)

3. Enterprise Application (Web + Distributed)

Web Appl/Enterprise appl's divided into 2-parts

1. Internal/Intranet-Accessed with in or internal to the organization and these Batch-Process appl's.

2. Global or public-Worldwide or Customer interfacing appl's

**Internal and Global Appl's:**

Public or Global names will be registered prior to the development but internal applications will not have globalized view to register bcz these know to the organization only but not outside.

For example gmail will be the public/global appl hence google will register with gmail as domain-name then they will start dev the gmail so that naming collision will not happen.

For example LIC or Banking Appl etc are must will have internal and public appl's and they will develop these appl's as 2-different appl's but not as single bcz of security breach bcz if it is public there may be a chance of one or other may damage/hack the application which leads to sever loss that is the reason they will not host both appl's as single appl.

If we observe the employees of the bank will not access the bank appl outside of the bank which is internal to that bank appl. So Bank clerk cash deposited or bank loan acceptance by the manager or loans (any type of loans) are the appl's which are run the containers but internal to the application.

For example banking login/personal login is differed from the internal appl employee login both are different appl's.

Public appl's will be hosted on the public n/w and internal appl's will hosted on the VPN (Virtual Private Network) n/w.

Generally the internal appl's are huge processing appl's that is batch processing appl's.

For example students organization system which is internal to the institute then they wanted to send the SMS to all the students which batch processing get/select (huge data) operation which is processing.

Similarly in a bank they wanted to send the latest loans to the all the customers then it is specific to the internal organization bcz these are operated by the bank people but not by the public.

The bank/lic/health-care employees need to generate the the reports that kind of appl's deals with batch processing then these internal appl's.

For public appl's we don't need batch operation bcz at a login is specific to that customer only.

For example Janson and Janson Company will have internal and public appl's.

For Janson and Janson company there will be employees global appl's as well but the will be highly secured not accessble by normal customers that means for these at initial stage itself login page will come to secure the appl's but these are rare use cases.

For Global Appl's there will time lines to develop the Style Guide document how the customer interface need to appear and how it should to align then UI-Developers starts to develop the appl.

**Purpose of Spring Jdbc when we have Hibernate:**

1. For batch-processing hibernate will not be suited bcz of huge performance issues so at this place we can use Spring Jdbc. Spring Jdbc with PL/SQL procedure will give higher performance for batch-processing.

2. If we use Hibernate data will be cached by default 1st level cache which kills the operation time at this time we can use Spring Jdbc and in addition to this in hibernate obj conversion will takes more time if we are dealing with batch processing.

3. Desktop appl's best preference is Spring Jdbc bcz Hibernate is over-killing solution bcz Hibernate based appl's takes more time to develop as compared to Spring Jdbc.

4. The organization specific appl's may develop in Spring Jdbc or Hibernate. We need to choose the Spring Jdbc if the intranet appl is dealing with more no.of data requirements (basically intranet appl are dealing with huge customers data but not the employees personal info) then we need to use Spring Jdbc for improve the performance. If the data requirements are less then we can use Hibernate for intranet appl's as well.

5. If we go for hibernate we will get DB-portability but if we don't want DB to be portal we can use Spring Jdbc. But if it is intranet but the client wants to be DB-portable then we must we need to go for Hibernate only.

6. If we have report generation like banking/lic/health-care domains internal appl's we can use Spring Jdbc bcz these will deals with report generation which is batch processing so then we can use Spring Jdbc. For internal appl's as well we can use Hibernate if data needs are moderate and if we want DB-portability.

**Note:**

**We should not decide the Hibernate for public/internet applications and for intranet applications Spring Jdbc like that rather it is the DB-Portable level decision and data needs or business requirements.**

**3. Problems with JDBC/Benefits of going for Spring JDBC/Purpose of Spring JBDC:**

1. Java JDBC is an API so it doesn’t provides the boiler plate logic, the most of the logic that is required to manage the persistency logic will be written by the developer itself due which the developer is going to write the more amount logic and managing is difficult due to which the chances of the bugs going to occur will be high instead working java JDBC if we go for Spring JDBC then the most of the boiler plate logic will be taken care by the spring JDBC by providing API classes itself. Just need to pass the SQL Query, DB details over which we need to perform the persistency operations only and internally it takes care of creating the connection by loading the driver creating the Statement, executing the query, creating the ResultSet and grapping ResultSet values and giving to the user all these activities will be taken care by the Spring JDBC. So that programmer no need to write the boiler plate logic managing and performing the persistence operations that speeds up the actual development of persistency layer and saves lot of development cost so it often better to go for Spring JDBC rather than Java JDBC.

2. Java JDBC not only enforces the developers to write the creating the resources like Connection, Statement, ResultSet it even enforces the developers to manage resources by closing one after another in an sequence order like ResultSet, Statement, Connection this makes the developer quite harder to managing the resources bcz we need end up in writing lot of try and catch blocks just to perform the data base operations. If we properly doesn’t close the resources then there will be chance of getting leakage resources issues this makes the developers to for Spring JDBC rather than Java JDBC. Bcz spring JDBC will creates the resources and closes itself by managing the resources so that we can get zero chances to get leackage resource issues.

3. As all the Java JDBC Exceptions are designed to be Checked Exceptions so it enforces us to end up in writing try and catch blocks to catch the exceptions for doing nothing. If we go for Spring JDBC it manages, caught the JDBC exceptions and wraps all the Java JDBC Exceptions to be Un-Checked Spring specific Exceptions as DataAccessException and its classes hierarchy and will be reported to the application so we no need to write the try and catch blocks un-necessarily so that our application free from annoying (irritating) try and catch blocks and throw Spring specific unchecked exception.

DataAccessException is the root/base Exception in spring JDBC. That means internally Spring Jdbc will talks to Java Jdbc so that we will free form Java Jdbc checked exceptions, it is done bcz of internally spring will writes try-catch and converts Java Jdbc exceptions into spring specific exception which unchecked-exception.

4. Transaction is something that has to be managed by the developer and developer has to write the additional logic in ensuring the transactions are being managed properly in our application like closing or roll-backing. Unlike Java JDBC if we go for Spring JDBC it takes care of managing the transactions by easily integrating with spring transactions API, so that the developer free form transaction management.

5. When we write the application persistency logic with Java JDBC then we will be tightly coupled to Java JDBC and if we wanted to switch from one persistency access technology to another persistency tech it is quite harder for migrating. If go for Spring JDBC the spring JDBC Access layer of spring FW has followed one design pattern called as Template Method Design pattern where API looks alike (similar) across all the persistency API layer’s where when we are working with JDBC we will have JdbcTemplate, if we are working with Hibernate we will have HibernateTemplate, When we are working with JPA we will have JpaTemplate where all the API and methods are designed in alike (similar) manner so that programmer will never spent lot of time in different persistency access tech if we wanted to switch. That means we need to modify the code but switching/migrating is easy bcz it developed alike the all the persistency access tech.

🡪Repetition of all these codes from one to another database logic is a time consuming task. So Spring JDBC eliminates all the above mentioned problems of JDBC API. It provides you methods to write the queries directly, so it saves a lot of work and time.

**Note:**

🡪Spring will follows template-method design pattern due to which we can easily integrate with other persistency-tech so that we migration efforts easy.

🡪Did u got a chance to create a table using JDBC or Can u plz write the code to create the using JDBC?

We will never create a table using the Java JDBC rather table scripts will be created using the Data Base scripts which are decided during project design time and analysis and if any changes are necessary theses will modified by the DB-Admin we are not allowed to create or modify.

The Data Base table will gets created prior to the application development by the Data Base Admins. That means we develop the application after table scripts has been created. The Admin will not give the permissions to perform DQL, DDL, DCL, and TCL and in DML also they will not permission to delete directly rather they will give temporary delete. That means we are allowed to perform the operations through the application only on DML (Insert, update, delete), DQL only.

Except DML operations we will not perform the any operations using our java application remaining will be done by the Data Base Admins.

🡪Dou u handle the delete operation as part of your application?

Never the application logic is going to execute the delete query that means even delete operation also is going to be disable by the Admin that means there will be an logical delete only will be there. Bcz every table will have an additional flag called is deleted. That means by using the flag isDeleted = “true/false” then we will delete the data from the application point of view but data will still available in the Data Base with marked state as Deleted which is called as Logical delete and No application will have directly delete operation.

🡪How do u actually make changes in the Data base tables as part of your application and what kind of logic will you u write to change?

We have bunch tables that are created prior to the application development and if any changes need by the application in the Data Base tables then we should not write the alter scripts directly rather we need to intimate to the manager or Team lead or to the client stating that table modifications are need to be done for our application. If they feel change is necessary then they are going to talk to the Data Base Admin and by engaging the meetings on the requirements then Admin will changes the modifications and will gives the permissions bcz we are not allowed to alter the tables.

🡪If you got chance to modify the table how to modify the tables?

Actually we are the developers we not allowed to modify the Data Base tables even though we need some modifications rather the Admin will takes care of this bcz we don’t have privileges.

If they allowed us by giving the permissions by the Admin (actually we will not do this it will takes care by the Admin) then we should not directly modify the tables rather we need to write the script file with “.sql” and we need to mail to the manager and team lead we modified the table using this script file so that test environment also will modifies the table based on we provided script file so that data base miss-matches can be avoided during the test cycle for the tester.

“Modifications.sql”

ALTER TABLE STUDENT FIRST\_NAME AS F\_NAME; \

(After every query we need to append the \ so that manual intervention of executing the each query by pressing Enter will be avoided so that all the queries gets executed at single shot).

🡪Which Data Base you are using?

We can tell we are working with Oracle DB project and we need to tell multiple DB’s.

🡪Are u good at SQL and PL/SQL?

We can say in our project there is no requirement on the PL/SQL bcz most of the business requirement is done by getting the data form the DB so we didn’t used any PL/SQL in our project if PL/SQL requirement is not in our project.

If have an PL/SQL requirement in our project then we can I am good SQL and never got a chance to with can understand the PL/SQL but i don’t have an experience on working with PL/SQL but I know and I can understand the PL/SQL as well. Bcz in our project we have separate PL/SQL developers so I didn’t written PL/SQL function or procedure or trigger. If given a chance I can write the PL/SQL as well. This Answer is good.

**Note:**

Being an experience developer we should not say anything as no and they expected to be done or they expect I can work even I don’t know by exploring myself.

🡪How do configure the Data Sources and do u have an experience on configuring the Data Sources and Which application server are using and how do need to set the connection pooling settings?

We can say there in a project set-up document through which we are going to set-up the document based on the guide lines that are provided by the project set-up.