Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

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2nd Internship Assignment

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Que 1-Describe J2EE components in detail.

Ans- J2EE applications are made up of components.These components enable software developers to build large-scale, distributed applications.The J2EE components are following

1-Enterprise JavaBeans (EJB)

The EJB (Enterprise Java Beans) helps the developer to create business objects in the middle tier. The business objects consists of fields and methods that implements business logic.EJBs are the building blocks of enterprise systems.EJBs are under control of the J2EE application server.

2-Java Servlets

This component technology presents a request-response programming model in the middle tier. Servlets let you define HTTP-specific servlet classes that accept data from clients and pass them on to business objects for processing. Servlets run under the control of the J2EE application server and often extend applications hosted by web servers.

3 JavaServer Pages (JSP)

A JSP page is a text-based document interspersed with Java code. A JSP engine translates JSP text into Java Servlet code. It is then dynamically compiled and executed. This component technology lets you create dynamic web pages in the middle tier. JSP pages contain static template data (HTML) and JSP elements that determine how a page

constructs dynamic content. The JSP API provides an efficient, thread-based mechanism to create dynamic page content.

4 Java Database Connectivity (JDBC)

Java Database Connectivity (JDBC) is an application programming interface (API) for the programming language Java, which defines how a client may access a database. It is a Java-based data access technology used for Java database connectivity. It is part of the Java Standard Edition platform, from Oracle Corporation.

5 JavaMail

The JavaMail API lets you send and receive e-mail in the presentation and middle tiers. JavaMail has a service provider interface and an application-level interface for application components to send mail. JavaMail is a valuable part of the J2EE platform because it allows J2EE components to send and receive e-_mails with different protocols.

6 Remote Method Invocation (RMI)

RMI lets Java programs find and use Java classes residing on remote machines across networks. RMI makes the use of distributed objects within Java programs transparent and easy to use. RMI provides support for the network calls used by Enterprise JavaBeans in the J2EE architecture.

Que 2-Explain Bootstrap.

Ans-Bootstrap is a free and open source front end development framework for the creation of websitesThe Bootstrap framework is built on HTML, CSS, and JavaScript (JS) to facilitate the development of responsive apps. The Bootstrap framework can be used in two ways firstly it can be download to your local system and set it according the project structure and secondly by using the CDN (Content Delivery Network) In this method the direct links are used.There are builtin classes in the bootstrap framework which can be used to create interactive UI(User Interface) The latest version of bootstrap framework is the Bootstrap 4.0.

The Advantages of Bootstrap Development are:

1-Fewer Cross browser bugs.
2-A consistent framework that supports major of all browsers and CSS compatibility fixes.
3-Lightweight and customizable.
4-Responsive structures and styles.
5-Several JavaScript plugins using the jQuery.
6-Good documentation and community support.

The Disadvantages of Bootstrap are:

1. **There will be requirement of lots of style overrides or rewriting files that can thus lead to a lot of time spent on designing and coding the website if the design tends to deviate from the customary design used in Bootstrap.**
2. **You would have to go the extra mile while creating a design otherwise all the websites will look the same if you don't do heavy customization.**
3. **Styles are verbose and can lead to lots of output in HTML which is not needed.**
4. **JavaScript is tied to jQuery and is one of the commonest library which thus leaves most of the plugins unused.**
5. **Non-compliant HTML.**

Que 3-Explain Object relation mapping & why it is need.

Ans- ORM stands for Object-Relational Mapping (ORM) is a programming technique for converting data between relational databases and object oriented programming languages such as Java, C#, etc The main function of Hibernate ORM is to map Java classes to database tables and Java data types to SQL data types. It is also used for writing data queries and retrieving result sets. Hibernate ORM solves the issue of the traditional **object** and relational impedance mismatch issue.ORMs provide **the** concept of Database Abstraction which makes switching databases easier and creates a consistent code base for your application. Some of the popular ORM frameworks are Hibernate,TopLink, ORMLite,iBATIS,JPOX.

Advantages of ORM

1-They write correct and optimized SQL queries, thereby eliminating the hassle for developers

2-They make the code easier to update, maintain, and reuse as the developer can think of, and manipulate data as objects

3-ORMs will shield your application from SQL injection attacks since the framework will filter the data for you!

4-ORMs provide the concept of Database Abstraction which makes switching databases easier and creates a consistent code base for your application.

Need for object Relational Mapping

As we know, java provides an API called Java Database Connectivity (JDBC) to access database. It provides ways to query a relational database. You write some native sql queries and and ask JDBC to execute those queries and underlying driver class returns you the resultset after executing it.

Que 4-What do you understand by n-tier architecture.

Ans- The n- tier architecture is also known as multi-tier architecture or multi-layered architecture.is a client–server architecture in which presentation, application processing and data management functions are physically separated.N-tier architecture is also called multi-tier architecture because the software is engineered to have the processing, data management, and presentation functions physically and logically separated. That means that these different functions are hosted on several machines or clusters, ensuring that services are provided without resources being shared and, as such, these services are delivered at top capacity.N-tier architecture is a client-server architecture concept in software engineering where the presentation, processing and data management functions are both logically and physically separated. These functions are each running on a separate machine or separate clusters so that each is able to provide the services at top capacity since there is no resource sharing. This separation makes managing each separately easier since doing work on one does not affect the others, isolating any problems that might occur The three main tiers in the n tier architecture are following-

1- **Presentation tie**r- The top most layer of the application is the user interface the main function of the interface is to translate tasks and results to something that the user can understand

2- **Logic tier-**This layer coordinates the application, processes commands makes logical decisions and evaluation and performs calculations. It also processes the data between two surrounding layers.

3- **Data tier-** At this layer the information is stored and retrived from database or file system the information is then passed to the logic tier for processing and then back to the user.

Benefits of N-Tier Architecture

1-Secure: You can secure each of the three tiers separately using different methods. 2-
Easy to manage: You can manage each tier separately, adding or modifying each tier without affecting the other tiers. 3-
Scalable: If you need to add more resources, you can do it per tier, without affecting the other tiers. 4-
Flexible: Apart from isolated scalability, you can also expand each tier in any manner that your requirements dictate

The Disadvantages of the N-Tier architecture are- More cost for hardware, network, maintenance and deployment because more hardware and better network bandwidth are needed