

SPPU-TE-COMP-CONTENT - KSKA Git

Q1. What is EJB? What are benefits of EJB.

Ans. • EJB stands for Enterprise JavaBean, which is a server-side component architecture within the Java EE platform designed for developing distributed, transactional, secure, and portable enterprise applications; its key benefit is that it allows developers to focus on business logic by offloading system-level services like transaction management, security, and persistence to the EJB container, simplifying complex application development.

→ Key benefits of EJBs:

1. Simplified development:

- Developers can concentrate on business logic without managing low-level details like database access, threading, and transaction handling, as the EJB container takes care of these tasks.

2. Transaction management:

- EJB provides declarative transaction management, allowing developers to define transaction boundaries with annotations or XML configurations, ensuring data integrity through automatic rollbacks in case of errors.

3. Scalability:

- EJB containers can manage bean instances efficiently, allowing applications to scale horizontally by creating new bean instances as needed.

4. Security:

- EJBs can leverage the security features provided.

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Q2. What are the types of Enterprise ~~Bean~~ Bean?

Ans. There are three types of EJB:

1. Session Bean:

- Session bean contains business logic that can be invoked by local, remote or webservice client.

- There are two types of session beans:

i) Stateful session bean:

- Stateful session bean performs business task with the help of a state.

- Stateful session bean can be used to access various method calls by storing the information in an instance variable.

ii) Stateless session bean:

- Stateless session bean implement business logic without having a persistent storage mechanism, such as a state or database and can use shared data.

2. Message Driven Bean:

- Like session bean, it contains the business logic but it is invoked by passing message.

3. Entity Bean:

- It summarizes the state that can be remained in the database.

- It is deprecated.

- Now, it is replaced with JPA (Java Persistent API).

- There are two types of entity bean:

1) Bean Managed Persistence:

2) Container Managed Persistence

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Q3. What is session bean?

Ans. A ~~session~~ session bean in Java Enterprise Edition (JEE) is a server-side component that encapsulates business logic and is used to execute specific tasks for a client application, essentially acting as a middle layer to handle complex business operations on behalf of the client without exposing the underlying complexities of the server; it is considered a key part of the EJB (Enterprise JavaBeans) architecture).

→ Key points about session beans:

① Purpose:

• They are designed to handle client requests, perform business logic operations like calculations, database updates, or complex work flows, and return the results back to the client.

→ Types of session beans:

1. Stateless session beans:-

• Does not contain conversational state between client invocations, meaning each request is treated independently.

2. Stateful session bean:

• Maintains conversational state across multiple client requests within a single session, allowing for tracking of ongoing interactions.

→ Benefits:-

1. Abstraction

2. Transaction management

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Q4 List the ACID properties of a transaction.

Ans. • ACID is an acronym that refers to the set of 4 key properties that define a transaction: Atomicity, Consistency, Isolation and Durability.

- If a database operation has these ACID properties, it can be called an ACID transaction, and data storage ~~store~~ systems that apply these operations are called transactional systems.
- ACID transactions guarantee that each read, write, or modification of a table has the following properties.

→ Atomicity:

- each statement in a transaction (to read, write, update or delete data) is treated as a single unit.
- Either the entire statement is executed, or none of it is executed.

→ Consistency:

- ensures that transactions only make changes to tables in predefined, predictable ways.
- Transactional ~~const~~ consistency ensures that corruption or errors on your data do not create unintended consequences.

→ Isolation:

- when multiple users are reading and writing from the same table all at once, isolation of their transactions ensures that the current transactions don't interfere with or affect one another.

→ Durability:

- Ensures that changes to your data by successfully executed transactions will be saved.

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what are the differences between stateful session bean and stateless session bean?

Ans.	Feature	Stateful Session Bean	Stateless Session Bean
1.	Client Interaction	Maintain state across multiple method calls for a specific client.	Does not maintain state; each method call is independent.
2.	State management	Stores conversational state related to a specific client session.	No state is stored; any instance can serve any client request.
3.	Instance sharing	Each client gets a dedicated instance.	Instances are shared among multiple clients to improve performance.
4.	Lifecycle	Longer lifecycle, tied to the client session.	Short-lived; created and destroyed per request or managed by a pool.
5.	Performance	Consumes more memory due to client-specific data.	More scalable and efficient due to instance reuse.
6.	Passivation	Can be passivated (serialized to disk) when inactive to save memory.	Not passivated; always active when needed.

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Q.6. How to create responsive web page using Bootstrap?

Ans. • To make a website responsive using Bootstrap, you can use its grid system, responsive utility classes, and mobile-first approach.

→ Steps!

1. Set up your project
2. Include Bootstrap in your project
3. Create a responsive navigation bar
4. Implement a responsive grid system
5. Use responsive images
6. Customize your styles
7. Test responsiveness

→ Tips!

- Adjust each breakpoint for responsive design.
- Verify and adjust each breakpoint view from mobile, tablet, or various desktop browsers.
- Decrease font size for smaller screens
- Use responsive utility classes to show or hide elements based on screen size.
- To make bootstrap tabs responsive, add a responsive class to the ul that is used to create the tabs.
- To make ~~Google~~ Google Maps responsive, add class, .w-100 to the iframe element.
- With the open-source feature, developers can further enhance the responsiveness using online community support.
- The framework supplies a dev-based architecture, and developers need not write the code from scratch.
- The framework proposes pre-defined CSS classes to construct a responsive web page.