HIbernate and DevOps

What is Hibernate?

- is an object-relational mapping tool for the Java programming language. It provides a framework for mapping an object-oriented domain model to a relational database.

What is an ORM tool and what are its benefits

- is a programming technique for converting data between incompatible type systems using object-oriented programming languages. This creates, in effect, a "virtual object database" that can be used from within the programming language.

What are the states of an object in Hibernate

1. **Transient** - An object which is not associated with hibernate session and does not represent a row in the database is considered as transient.
2. **Persistent** - When the object is in persistent state, then it represent one row of the database and consists of an identifier value.You can make a transient instance persistent by associating it with a Session
3. **Detached** - Object which is just removed from hibernate session is called as detached object. Any changes made to the detached objects are not saved to the database. The detached object can be reattached to the new session and save to the database using update, saveOrUpdate and merge methods.

Get vs load

- **session.load()**
  It will always return a “proxy” (Hibernate term) without hitting the database. In Hibernate, proxy is an object with the given identifier value, its properties are not initialized yet, it just look like a temporary fake object.
  If no row found , it will throws an ObjectNotFoundException.
- **session.get()**
  It always hit the database and return the real object, an object that represent the database row, not proxy.
  If no row found , it return null.

Save vs persist

- hibernate **save()** can be used to save entity to database. We can invoke this method outside a transaction, that’s why I don’t like this method to save data. If we use this without transaction and we have cascading between entities, then only the primary entity gets saved unless we flush the session.
- Hibernate **persist()** adds the entity object to the persistent context, so any further changes are tracked. If the object properties are changed before the transaction is committed or session is flushed, it will also be saved into database.

  Second difference is that we can use persist() method only within the boundary of a

transaction, so it's safe and takes care of any cascaded objects.

Finally, persist doesn't return anything so we need to use the persisted object to get the generated identifier value.

Update vs merge

- **update()** if the object is in the session it will update. **merge()** should be called if the object is not in the session. Calling update for a detached instance will result in an exception
- **saveOrUpdate()** will call either of above based on unsaved-value checks so if we have persistent customer object and we update last name of his and create a new account also, then saveOrUpdate will take care of it.

Lazy vs eager fetching

- **FetchType.LAZY** = Doesn't load the relationships unless explicitly "asked for" via getter
- **FetchType.EAGER** = Loads ALL relationships

Common annotations

- Hibernate annotations are the newest way to define mappings without the use of XML file. You can use annotations in addition to or as a replacement of XML mapping metadata.
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- @Entity -
- @Table - Specify the database table this Entity maps to
- @Column - Specify the column mapping
- @Id - Specify the primary key column mapping
- @GeneratedValue -

- @OneToOne -
- @ManyToOne -
- @OneToMany -
- @ManyToMany -
- @PrimaryKeyJoinColumn -
- @JoinColumn -
- @JoinTable -
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Important interfaces

- Session interface -
- SessionFactory interface -
- Configuration interface -
- Transaction interface -
- Query and Criteria interfaces -

Criteria API
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Query API
HQL
Hibernate Cacheing
Properties of a TX
Isolation levels and problems they prevent
Hibernate.cfg.xml
Hbm files

What is DevOps
What is AWS
EC2
RDS
S3
Security Groups
IAM role
EBS
What is a pipeline? How do i build one? What tools can i use and for what
CI/CD
Jenkins
Jenkins Job
Jenkins Build
SonarQube