Every entity is required to have a field which maps to primary key of the database table. Such field must be annotated with **@Id.**

**Simple vs Composite primary keys**

A simple primary key consists of a single Java field which maps to a single table column.  
A composite primary key consists of multiple Java fields which individually map to separate columns.

### Supported types for a primary key

A simple primary key field or one of the composite primary key field should be one of the following types:

* Any Java primitive type
* any Any primitive wrapper type
* java.lang.String
* java.util.Date
* java.sql.Date
* java.math.BigDecimal
* java.math.BigInteger

The use of the **@GeneratedValue** annotation is only required to be supported for simple primary keys.

The JPA specification supports 4 different primary key generation strategies which generate the primary key values programmatically or use database features, like auto-incremented columns or sequences. The only thing you have to do is to add the @GeneratedValue annotation to your primary key attribute and choose a generation strategy.

Those 4 generation strategy:

1. *AUTO*: Hibernate selects the generation strategy based on the used dialect,
2. *IDENTITY*: Hibernate relies on an auto-incremented database column to generate the primary key,
3. *SEQUENCE*: Hibernate requests the primary key value from a database sequence,
4. *TABLE*: Hibernate uses a database table to simulate a sequence.

### GenerationType.AUTO

The GenerationType.AUTO is the default generation type and lets the persistence provider choose the generation strategy.

If you use Hibernate as your persistence provider, it selects a generation strategy based on the database specific dialect. For most popular databases, it selects GenerationType.SEQUENCE

### GenerationType.IDENTITY

The GenerationType.IDENTITY is the easiest to use but not the best one from a performance point of view. It relies on an auto-incremented database column and lets the database generate a new value with each insert operation. From a database point of view, this is very efficient because the auto-increment columns are highly optimized, and it doesn’t require any additional statements.