```
a. Basic ORM
                                                            Annotations used in hibernate for Association Mapping
 b. Bulk Operations
                                                             @ManyToOne
  c. Advanced ORM
                                                             @OneToMany

    Component Mapping

                                                             @ManyToMany
        Collection Mapping
                                                               @OneToOne
        Inheritance Mapping
        4. Association Mapping
                      1-1
1-*
                                                               Uni-Direction :: Access either from Parent 2 Child
                                  Uni-Direction
                                 Bi-Direction
                      *-1
                                                                                                Child 2 Parent
                                                                                                                                 UNI (1...*)
                                                                                                                                (pk) PHONE_NUM_ONE_MANY_UNI
                                                                  (pk) PERSON_ONE_MANY_UNI

    @OneToMany

                                                                   pid pname
                                                                                                                                 regno mobilNo type provider
                                                                                          paddress
                                                                                                                                                                                  person id
                                                                                            ΜI
                                                                             Sachin
                                                                                                                                           777...
     Person — PhoneNumber
                                                                                                                                           888...
                                                                                                                                                      offi. airtel
                                   (child)
     (Parent)
                                                                                                                                           999...
                                                                                                                                                                   jio
                                                                                                                                                       pers.
  Collection-Type
                                                                                                                                                        (Child)
    a. List
                                                                           (Parent)
    b. Set(no duplicate)
   c. Map
                                                                                                      save(parent)
                                                                                                        automatically its child also should be saved
    what is cascading?
   => Performing non-select operation on the object
         cascade = CascadeType.ALL

→ With Hiberante-29-Association-Mapping-O2M(UNI)

                                   (insert, update, delete)

\checkmark

rac{1}{2}

src

    # in.pwskills.nitin.bean

                                                              done on parent should be
                                                                                                                                                                               > 👤 Person.java
                                                                                                  Load child objects in Eager loading
                                                                                                                                                                                > 🗓 PhoneNumber.java
                                                               reflected to child

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                                                                                                                 \sqrt{} (default::lazy loading
                                                                                                                                                                                 > 🗗 IPersonDao.java
                                           Person.java
                                                                                                                                                                               > 🛭 PersonDaoImpl.java
@OneToMany(targetEntity = PhoneNumber.class,cascade = CascadeType.ALL,fetch = FetchType.EAGER)

    # in.pwskills.nitin.main

 @JoinColumn(name="person_id",referencedColumnName = "pid")//creating a fk in PhoneNumber Table
                                                                                                                                                                               > 🛭 MainApp.java
private Set<PhoneNumber> numbers;//special property to hold many phoneNumbers
                                                                                                                                                                             in.pwskills.nitin.util
                                                                                                                                                                               > 🗾 HibernateUtil.java
                                                                                                                                      Solution
                                                                                                                                                                               hibernate.cfg.xml
                                                                                                  @OneToMany(targetEntity = PhoneNumber.class,
                                                                                                                                                                            > Marcon JRE System Library [JavaSE-17]
                                                                                                                         cascade = CascadeType.ALL,
         mobileNo provider type person_id 🛅
                                                                                                                                                                           > 🛋 Hibernate
      1 888999777 airtel office
                                                    (NULL)
                                                                                                                          fetch = FetchType.EAGER,
                                                                                                                                                                           > 🛋 MySQL
        2 777888999 jio
                                                     (NULL)
                                  personal
                                                                                                                                                                           > 🛋 hikaricp
                                                                                                                          orphanRemoval = true)
                                                     (NULL)
          3 999777888 jio
                                  personal
                                                                                                    //creating a fk in PhoneNumber Table
         4 888999777 airtel
                                   office
                                                                                                  @JoinColumn(name="person_id",referencedColumnName = "pid")
         5 999777888 jio
                                  personal
                                                                        OrphanRecords
        6 777888999 jio
                                  personal
                                                                                                   private Set<PhoneNumber> numbers;//special property to hold many phoneNumbers
        7 666777888 vi
                                  office
                                                    (NULL)
                                                                                    BI_DIRECTION
  OneTwoMany-BiDirectional Mapping
                  (pk) PERSON_ONE_MANY_BI
                                                                                                                                                                       (pk) PHONE_NUM_ONE_MANY_BI
                                                                                                                                                                         🗸 遭 src
                                                                                                                                                                           in.pwskills.nitin.bean
                                                                                            regno mobilNo type provider person_id
                                         paddress
                             pname
                                                                                                                                                                              > 👤 Person.java
                                                                                                                                                                              > 👤 PhoneNumber.java
                             Sachin
                                            ΜI
                                                                                                                 pers. jio
                                                                                              1 777...
                                                                                                                                                                           in.pwskills.nitin.dao
                                                                                              2 888... offi. airtel
                                                                                                                                                                               > 🗗 IPersonDao.java
                                                                                             3 999... pers. jio
                                                                                                                                                                              > 🗾 PersonDaolmpl.java
                                                                                                                                                                            in.pwskills.nitin.main
                                                                                                                                                                              > 🗵 MainApp.java
                                                                                                                                                                             > 🌐 in.pwskills.nitin.util
                           (Parent)
                                                                                                                (child)
                                                                                                                                                                             hibernate.cfg.xml
                                                                                                                     PhoneNumber.java

⇒ JRE System Library [JavaSE-17]

                                 Person.java
                                                                                                                                                                           > 🛋 Hibernate
                                                                                                 @ManyToOne(targetEntity = Person.class
                                                                                                                                                                           > 🛋 MySQL
     @OneToMany(targetEntity = PhoneNumber.class,
                                                                                                                 cascade = CascadeType.ALL,
                                                                                                                                                                           > 🛋 hikaricp
                       cascade = CascadeType.ALL,
                                                                                                                 fetch = FetchType.EAGER,
                       fetch = FetchType.EAGER,
                       orphanRemoval = true,
                         -mappedBy = "person") 💝
                                                                                                @JoinColumn(name="person_id", referencedColumnName = "pid")
                                                                                            —

☐ Person person;
                 Set<PhoneNumber> number;
 Created a link by referring to Person
 ManyToManyAssociation(Bi-Direction)
                                                                                                  Both sides
                                                                                                                       M — Parent
                                                                                                                        M ——— child
                                       @ManyToMany
Set<Doctor> doctor
    @ManyToMany
 Set<Patient> patient
                                                                                                               (pk) PATIENT_MTM
                                                                     DOCTOR_MTM
                                                      docId docName hospital
                                                                                                                patId patName problem
                                                                                            DOCTOR_PATIENT_MTM
                                                                                      DOCT_ID
                                                                                                              PATIENT_ID
                                         Doctor.java
@ManyToMany(targetEntity = Patient.class,cascade = CascadeType.ALL,fetch = FetchType.EAGER)
                                                                                                                                                      @ManyToMany(targetEntity = Doctor.class,
@JoinTable(name = "DOCTOR_PATIENT_M2M",
                                                                                                                                                                             cascade = CascadeType.ALL,
                 joinColumns = @JoinColumn(name="DOCT_ID", referencedColumnName = "doctId"),
                                                                                                                                                                             fetch = FetchType.EAGER,
                inverseJoinColumns = @JoinColumn(name="PAT_ID", referencedColumnName = "patId"))
                                                                                                                                                                             mappedBy = "patients")
                                                                                                                                                      private Set<Doctor> doctor;
private Set<Patient> patients;
                                                                                                    two way link
  public interface IHospitalDao {

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in
                                                       //performing insert operation using parent
       > 🛭 Doctor.java
                                                       public void saveRecordUsingParent();
        > 👤 Patient.java
     in.pwskills.nitin.dao
                                                       public void saveRecordUsingChild();
        > 🛭 HospitalDaolmpl.java
        > 🗗 IHospitalDao.java
     in.pwskills.nitin.main
                                                       //performing select operation using parent
        > 🗓 MainApp.java
                                                       public void loadRecordUsingParent();

    # in.pwskills.nitin.util

                                                       public void loadRecordUsingChild();
        › Il HibernateUtil.java
      hibernate.cfg.xml
    > 🛋 JRE System Library [JavaSE-17]
    > 🛋 Hibernate
    > 🛋 MySQL
    > 🛋 hikaricp
  Note: mappedBy should be placed in "@OneToMany" side in OneToMany-BiDirection
```

where as for ManyToMany and OneToOne Bi-direction we can keep on any side.