* Create File -> New -> Java Project
* Add External jar given by trainer for hibernate
* Copy hibernate.cfg.xml file and com.package.entity -> Student java class
* Create package com.hexa.demos
* Create new class under demos package ViewAll

**Student.java**

package com.hexa.entity;

import java.util.Date;

import javax.persistence.Column;

import javax.persistence.Entity;

import javax.persistence.Id;

import javax.persistence.Table;

@Entity

@Table(name = "student")

public class Student {

@Id

@Column(name = "stu\_id")

private int stuId;

@Column(name = "stu\_name", length = 45)

private String stuName;

@Column(name = "dept", length = 20)

private String dept;

@Column(name = "stu\_dob")

private Date dob;

@Column(name = "stu\_marks")

private int marks;

public int getStuId() {

return stuId;

}

public void setStuId(int stuId) {

this.stuId = stuId;

}

public String getStuName() {

return stuName;

}

public void setStuName(String stuName) {

this.stuName = stuName;

}

public String getDept() {

return dept;

}

public void setDept(String dept) {

this.dept = dept;

}

public Date getDob() {

return dob;

}

public void setDob(Date dob) {

this.dob = dob;

}

public int getMarks() {

return marks;

}

public void setMarks(int marks) {

this.marks = marks;

}

@Override

public String toString() {

return stuId + " " + stuName + " " + marks + " " + dept + " " + dob;

}

}

**ViewAll.java with main method**

**package** com.hexa.demos;

**import** java.util.List;

**import** org.hibernate.Query;

**import** org.hibernate.Session;

**import** org.hibernate.SessionFactory;

**import** org.hibernate.cfg.AnnotationConfiguration;

**import** org.hibernate.cfg.Configuration;

**import** com.hexa.entity.Student;

**public** **class** ViewAll {

**public** **static** **void** main(String[] args) {

Configuration cfg = **new** AnnotationConfiguration().configure();

SessionFactory sfac = cfg.buildSessionFactory();

Session sess= sfac.openSession();

String hql = "from Student";

Query qry = sess.createQuery(hql);

List<Student> lst = qry.list();

sess.close();

lst.stream().forEach(System.***out***::println);

}

}

**O/P:**

Hibernate:

select

student0\_.stu\_id as stu1\_0\_,

student0\_.dept as dept0\_,

student0\_.stu\_dob as stu3\_0\_,

student0\_.stu\_marks as stu4\_0\_,

student0\_.stu\_name as stu5\_0\_

from

student student0\_

1001 Abhi 86 ECE 1995-10-12 00:00:00.0

1002 Benny 86 ECE 1995-10-19 00:00:00.0

1003 Edward 100 EEE 1995-05-19 00:00:00.0

1004 Stefan 95 EEE 1995-05-12 00:00:00.0

1005 Katherine 55 ECE 1995-05-14 00:00:00.0

1006 Bonnie 80 EEE 1996-09-02 00:00:00.0

1007 Ram Kumar 69 ECE 1995-06-09 00:00:00.0

1008 Damon 85 EEE 1996-07-03 00:00:00.0

1009 Ravi Kumar 70 ECE 1995-06-04 00:00:00.0

**ORDER BY DESCENDING MARKS**

**package** com.hexa.demos;

**import** java.util.List;

**import** org.hibernate.Query;

**import** org.hibernate.Session;

**import** org.hibernate.SessionFactory;

**import** org.hibernate.cfg.AnnotationConfiguration;

**import** org.hibernate.cfg.Configuration;

**import** com.hexa.entity.Student;

**public** **class** ViewAll {

**public** **static** **void** main(String[] args) {

Configuration cfg = **new** AnnotationConfiguration().configure();

SessionFactory sfac = cfg.buildSessionFactory();

Session sess= sfac.openSession();

String hql = "from Student order by marks desc";

Query qry = sess.createQuery(hql);

List<Student> lst = qry.list();

sess.close();

lst.stream().forEach(System.***out***::println);

}

}

O/P:

Hibernate:

select

student0\_.stu\_id as stu1\_0\_,

student0\_.dept as dept0\_,

student0\_.stu\_dob as stu3\_0\_,

student0\_.stu\_marks as stu4\_0\_,

student0\_.stu\_name as stu5\_0\_

from

student student0\_

order by

student0\_.stu\_marks desc

1003 Edward 100 EEE 1995-05-19 00:00:00.0

1004 Stefan 95 EEE 1995-05-12 00:00:00.0

1001 Abhi 86 ECE 1995-10-12 00:00:00.0

1002 Benny 86 ECE 1995-10-19 00:00:00.0

1008 Damon 85 EEE 1996-07-03 00:00:00.0

1006 Bonnie 80 EEE 1996-09-02 00:00:00.0

1009 Ravi Kumar 70 ECE 1995-06-04 00:00:00.0

1007 Ram Kumar 69 ECE 1995-06-09 00:00:00.0

1005 Katherine 55 ECE 1995-05-14 00:00:00.0

**Create a class WhereDemo.java with main method to display students of particular department**

**WhereDemo.java**

package com.hexa.demos;

**import** java.util.List;

**import** org.hibernate.Query;

**import** org.hibernate.Session;

**import** org.hibernate.SessionFactory;

**import** org.hibernate.cfg.AnnotationConfiguration;

**import** org.hibernate.cfg.Configuration;

**import** com.hexa.entity.Student;

**public** **class** WhereDemo {

**public** **static** **void** main(String[] args) {

Configuration cfg = **new** AnnotationConfiguration().configure();

SessionFactory sfac = cfg.buildSessionFactory();

Session sess= sfac.openSession();

String hql = "from Student where dept=?";

Query qry = sess.createQuery(hql);

qry.setString(0, "ECE"); // for jdbc it sarts from 1

List<Student> lst = qry.list();

sess.close();

lst.stream().forEach(System.***out***::println);

}

}

**O/P:**

Hibernate:

select

student0\_.stu\_id as stu1\_0\_,

student0\_.dept as dept0\_,

student0\_.stu\_dob as stu3\_0\_,

student0\_.stu\_marks as stu4\_0\_,

student0\_.stu\_name as stu5\_0\_

from

student student0\_

where

student0\_.dept=?

1001 Abhi 86 ECE 1995-10-12 00:00:00.0

1002 Benny 86 ECE 1995-10-19 00:00:00.0

1005 Katherine 55 ECE 1995-05-14 00:00:00.0

1007 Ram Kumar 69 ECE 1995-06-09 00:00:00.0

1009 Ravi Kumar 70 ECE 1995-06-04 00:00:00.0

**Create class AndDemo.java with main method to view the student who scored more than 90 for the given department**

**AndDemo.java**

**package** com.hexa.demos;

**import** java.util.List;

**import** org.hibernate.Query;

**import** org.hibernate.Session;

**import** org.hibernate.SessionFactory;

**import** org.hibernate.cfg.AnnotationConfiguration;

**import** org.hibernate.cfg.Configuration;

**import** com.hexa.entity.Student;

**public** **class** AndDemo {

**public** **static** **void** main(String[] args) {

Configuration cfg = **new** AnnotationConfiguration().configure();

SessionFactory sfac = cfg.buildSessionFactory();

Session sess= sfac.openSession();

String hql = "from Student where dept=? and marks>?";

Query qry = sess.createQuery(hql);

qry.setString(0, "ECE"); // for jdbc it sarts from 1

qry.setInteger(1, 90);

List<Student> lst = qry.list();

sess.close();

lst.stream().forEach(System.***out***::println);

}

}

O/P:

Hibernate:

select

student0\_.stu\_id as stu1\_0\_,

student0\_.dept as dept0\_,

student0\_.stu\_dob as stu3\_0\_,

student0\_.stu\_marks as stu4\_0\_,

student0\_.stu\_name as stu5\_0\_

from

student student0\_

where

student0\_.dept=?

and student0\_.stu\_marks>?

1009 Ravi Kumar 95 ECE 1995-06-04 00:00:00.0

**Create BetweenDemo.java to view students who scored marks between 60 and 80**

**package** com.hexa.demos;

**import** java.util.List;

**import** org.hibernate.Query;

**import** org.hibernate.Session;

**import** org.hibernate.SessionFactory;

**import** org.hibernate.cfg.AnnotationConfiguration;

**import** org.hibernate.cfg.Configuration;

**import** com.hexa.entity.Student;

**public** **class** BetweenDemo {

**public** **static** **void** main(String[] args) {

Configuration cfg = **new** AnnotationConfiguration().configure();

SessionFactory sfac = cfg.buildSessionFactory();

Session sess= sfac.openSession();

String hql = "from Student where marks between ? and ?";

Query qry = sess.createQuery(hql);

qry.setInteger(0, 60);

qry.setInteger(1, 80);

List<Student> lst = qry.list();

sess.close();

lst.stream().forEach(System.***out***::println);

}

}

**(or)**

**package** com.hexa.demos;

**import** java.util.List;

**import** org.hibernate.Query;

**import** org.hibernate.Session;

**import** org.hibernate.SessionFactory;

**import** org.hibernate.cfg.AnnotationConfiguration;

**import** org.hibernate.cfg.Configuration;

**import** com.hexa.entity.Student;

**public** **class** BetweenDemo {

**public** **static** **void** main(String[] args) {

Configuration cfg = **new** AnnotationConfiguration().configure();

SessionFactory sfac = cfg.buildSessionFactory();

Session sess= sfac.openSession();

String hql = "from Student where marks between :minmarks and :maxmarks";

Query qry = sess.createQuery(hql);

qry.setInteger("minmarks", 60);

qry.setInteger("maxmarks", 80);

List<Student> lst = qry.list();

sess.close();

lst.stream().forEach(System.***out***::println);

}

}

**O/P:**

Hibernate:

select

student0\_.stu\_id as stu1\_0\_,

student0\_.dept as dept0\_,

student0\_.stu\_dob as stu3\_0\_,

student0\_.stu\_marks as stu4\_0\_,

student0\_.stu\_name as stu5\_0\_

from

student student0\_

where

student0\_.stu\_marks between ? and ?

1006 Bonnie 80 EEE 1996-09-02 00:00:00.0

1007 Ram Kumar 69 ECE 1995-06-09 00:00:00.0

**Create BetweenDemo.java to view students whose name ends with kumar**

**package** com.hexa.demos;

**import** java.util.List;

**import** org.hibernate.Query;

**import** org.hibernate.Session;

**import** org.hibernate.SessionFactory;

**import** org.hibernate.cfg.AnnotationConfiguration;

**import** org.hibernate.cfg.Configuration;

**import** com.hexa.entity.Student;

**public** **class** LikeDemo {

**public** **static** **void** main(String[] args) {

Configuration cfg = **new** AnnotationConfiguration().configure();

SessionFactory sfac = cfg.buildSessionFactory();

Session sess= sfac.openSession();

String hql = "from Student where stu\_name like ?";

Query qry = sess.createQuery(hql);

qry.setString(0, "%kumar");

List<Student> lst = qry.list();

sess.close();

lst.stream().forEach(System.***out***::println);

}

}

**O/P:**

Hibernate:

select

student0\_.stu\_id as stu1\_0\_,

student0\_.dept as dept0\_,

student0\_.stu\_dob as stu3\_0\_,

student0\_.stu\_marks as stu4\_0\_,

student0\_.stu\_name as stu5\_0\_

from

student student0\_

where

stu\_name like ?

1007 Ram Kumar 69 ECE 1995-06-09 00:00:00.0

1009 Ravi Kumar 95 ECE 1995-06-04 00:00:00.0

**Create ProjectDemo.java with mainmethod to view only particular columns**

**package** com.hexa.demos;

**import** java.util.List;

**import** org.hibernate.Query;

**import** org.hibernate.Session;

**import** org.hibernate.SessionFactory;

**import** org.hibernate.cfg.AnnotationConfiguration;

**import** org.hibernate.cfg.Configuration;

**import** com.hexa.entity.Student;

**public** **class** ProjectionDemo {

**public** **static** **void** main(String[] args) {

Configuration cfg = **new** AnnotationConfiguration().configure();

SessionFactory sfac = cfg.buildSessionFactory();

Session sess= sfac.openSession();

String hql = "select stuId,stuName,marks from Student";

Query qry = sess.createQuery(hql);

List<Object[]> lst = qry.list();

sess.close();

lst.forEach(arr->{ System.***out***.println(arr[0]);

System.***out***.println(arr[1]);

System.***out***.println(arr[2]);

}

);

}

}

**O/P:**

Hibernate:

select

student0\_.stu\_id as col\_0\_0\_,

student0\_.stu\_name as col\_1\_0\_,

student0\_.stu\_marks as col\_2\_0\_

from

student student0\_

1001

Abhi

86

1002

Benny

86

1003

Edward

100

1004

Stefan

95

1005

Katherine

55

1006

Bonnie

80

1007

Ram Kumar

69

1008

Damon

85

1009

Ravi Kumar

95

Create a AggDemo.java class with main method to display the result of sql aggregate functions

**package** com.hexa.demos;

**import** java.util.List;

**import** org.hibernate.Query;

**import** org.hibernate.Session;

**import** org.hibernate.SessionFactory;

**import** org.hibernate.cfg.AnnotationConfiguration;

**import** org.hibernate.cfg.Configuration;

**import** com.hexa.entity.Student;

**public** **class** AggDemo {

**public** **static** **void** main(String[] args) {

// **TODO** Auto-generated method stub

Configuration cfg = **new** AnnotationConfiguration().configure();

SessionFactory sfac = cfg.buildSessionFactory();

Session sess= sfac.openSession();

String hql = "select sum(marks),avg(marks),max(marks),min(marks) from Student";

Query qry = sess.createQuery(hql);

Object[] arr = (Object[]) qry.uniqueResult();

sess.close();

System.***out***.println("Sum : "+arr[0]);

System.***out***.println("Avg : "+arr[1]);

System.***out***.println("Max : "+arr[2]);

System.***out***.println("Min : "+arr[3]);

}

}

**O/P:**

Hibernate:

select

sum(student0\_.stu\_marks) as col\_0\_0\_,

avg(student0\_.stu\_marks) as col\_1\_0\_,

max(student0\_.stu\_marks) as col\_2\_0\_,

min(student0\_.stu\_marks) as col\_3\_0\_

from

student student0\_

Sum : 751

Avg : 83.4444

Max : 100

Min : 55

**Create a class GroupbyDemo.java with main method to view the avg.max and min score in each dept**

**package** com.hexa.demos;

**import** java.util.List;

**import** org.hibernate.Query;

**import** org.hibernate.Session;

**import** org.hibernate.SessionFactory;

**import** org.hibernate.cfg.AnnotationConfiguration;

**import** org.hibernate.cfg.Configuration;

**import** com.hexa.entity.Student;

**public** **class** GroupbyDemo {

**public** **static** **void** main(String[] args) {

Configuration cfg = **new** AnnotationConfiguration().configure();

SessionFactory sfac = cfg.buildSessionFactory();

Session sess = sfac.openSession();

String hql = "select dept,max(marks),min(marks),avg(marks) from Student group by dept";

Query qry = sess.createQuery(hql);

List<Object[]> lst = qry.list();

sess.close();

lst.stream().forEach(System.***out***::println);

lst.forEach(arr -> {

System.***out***.println(arr[0]);

System.***out***.println(arr[1]);

System.***out***.println(arr[2]);

System.***out***.println(arr[3]);

});

}

}

**O/P:**

Hibernate:

select

student0\_.dept as col\_0\_0\_,

max(student0\_.stu\_marks) as col\_1\_0\_,

min(student0\_.stu\_marks) as col\_2\_0\_,

avg(student0\_.stu\_marks) as col\_3\_0\_

from

student student0\_

group by

student0\_.dept

[Ljava.lang.Object;@4e50c791

[Ljava.lang.Object;@7530ad9c

ECE

95

55

78.2

EEE

100

80

90.0

**Create a class noncoDeno.java to view the student who earns the max marks**

**package** com.hexa.demos;

**import** java.util.List;

**import** org.hibernate.Query;

**import** org.hibernate.Session;

**import** org.hibernate.SessionFactory;

**import** org.hibernate.cfg.AnnotationConfiguration;

**import** org.hibernate.cfg.Configuration;

**import** com.hexa.entity.Student;

**public** **class** NoncoDemo {

**public** **static** **void** main(String[] args) {

Configuration cfg = **new** AnnotationConfiguration().configure();

SessionFactory sfac = cfg.buildSessionFactory();

Session sess = sfac.openSession();

String hql = "from Student where marks = (select max(marks) from Student)";

Query qry = sess.createQuery(hql);

List<Student> lst = qry.list();

sess.close();

lst.stream().forEach(System.***out***::println);

}

}

**O/P:**

Hibernate:

select

student0\_.stu\_id as stu1\_0\_,

student0\_.dept as dept0\_,

student0\_.stu\_dob as stu3\_0\_,

student0\_.stu\_marks as stu4\_0\_,

student0\_.stu\_name as stu5\_0\_

from

student student0\_

where

student0\_.stu\_marks=(

select

max(student1\_.stu\_marks)

from

student student1\_

)

1003 Edward 100 EEE 1995-05-19 00:00:00.0

**Create a class CosubQueryDemo.java with main method to return the students who earns the max marks in each dept**

**package** com.hexa.demos;

**import** java.util.List;

**import** org.hibernate.Query;

**import** org.hibernate.Session;

**import** org.hibernate.SessionFactory;

**import** org.hibernate.cfg.AnnotationConfiguration;

**import** org.hibernate.cfg.Configuration;

**import** com.hexa.entity.Student;

**public** **class** CosubqueryDemo {

**public** **static** **void** main(String[] args) {

Configuration cfg = **new** AnnotationConfiguration().configure();

SessionFactory sfac = cfg.buildSessionFactory();

Session sess = sfac.openSession();

String hql = "from Student s1 where marks = (select max(marks) from Student where dept = s1.dept)";

Query qry = sess.createQuery(hql);

List<Student> lst = qry.list();

sess.close();

lst.stream().forEach(System.***out***::println);

}

}

**O/P:**

Hibernate:

select

student0\_.stu\_id as stu1\_0\_,

student0\_.dept as dept0\_,

student0\_.stu\_dob as stu3\_0\_,

student0\_.stu\_marks as stu4\_0\_,

student0\_.stu\_name as stu5\_0\_

from

student student0\_

where

student0\_.stu\_marks=(

select

max(student1\_.stu\_marks)

from

student student1\_

where

student1\_.dept=student0\_.dept

)

1003 Edward 100 EEE 1995-05-19 00:00:00.0

1009 Ravi Kumar 95 ECE 1995-06-04 00:00:00.0

**NativeQuery**

Create a class NativeDemo.java with main method

**package** com.hexa.demos;

**import** java.util.List;

**import** org.hibernate.Query;

**import** org.hibernate.Session;

**import** org.hibernate.SessionFactory;

**import** org.hibernate.cfg.AnnotationConfiguration;

**import** org.hibernate.cfg.Configuration;

**import** com.hexa.entity.Student;

**public** **class** NativeDemo {

**public** **static** **void** main(String[] args) {

Configuration cfg = **new** AnnotationConfiguration().configure();

SessionFactory sfac = cfg.buildSessionFactory();

Session sess= sfac.openSession();

String sql = "select stu\_id, stu\_name, stu\_marks from student";

Query qry = sess.createSQLQuery(sql);

List<Object[]> lst = qry.list();

sess.close();

lst.forEach(arr -> {

System.***out***.println(arr[0]);

System.***out***.println(arr[1]);

System.***out***.println(arr[2]);

});

}

}

O/P:

Hibernate:

select

stu\_id,

stu\_name,

stu\_marks

from

student

1001

Abhi

86

1002

Benny

86

1003

Edward

100

1004

Stefan

95

1005

**Relationship:**

Create new java project OneToMany , add the conf.xml file of hibernate , jar files for hibernate

Create a package com.hexa.entity with two classes Dept.java , Emp.java

**Dept.java**

**package com.hexa.entity;**

**import java.util.Set;**

**import javax.persistence.CascadeType;**

**import javax.persistence.Column;**

**import javax.persistence.Entity;**

**import javax.persistence.FetchType;**

**import javax.persistence.Id;**

**import javax.persistence.JoinColumn;**

**import javax.persistence.OneToMany;**

**import javax.persistence.Table;**

**@Entity**

**@Table(name="hexa\_dept")**

**public class Dept {**

**@Id**

**@Column(name="did")**

**private int deptId;**

**@Column(name="dname", length=20)**

**private String deptName;**

**@OneToMany(mappedBy = "dept")**

**@JoinColumn(name = "dept\_id", referencedColumnName = "did")**

**private Set<Emp> elist;**

**public Set<Emp> getElist() {**

**return elist;**

**}**

**public void setElist(Set<Emp> elist) {**

**this.elist = elist;**

**}**

**public int getDeptId() {**

**return deptId;**

**}**

**public void setDeptId(int deptId) {**

**this.deptId = deptId;**

**}**

**public String getDeptName() {**

**return deptName;**

**}**

**public void setDeptName(String deptName) {**

**this.deptName = deptName;**

**}**

**}**

**Emp.java**

package com.hexa.entity;

import javax.persistence.Column;

import javax.persistence.Entity;

import javax.persistence.Id;

import javax.persistence.JoinColumn;

import javax.persistence.ManyToOne;

import javax.persistence.Table;

@Entity

@Table(name="hexa\_employee")

public class Emp {

@Id

@Column(name="emp\_id")

private int empId;

@Column(name="emp\_name")

private String empName;

@Column(name="emp\_pwd")

private String pwd;

@Column(name="emp\_img")

private String img;

@Column(name="emp\_sal")

private double sal;

@ManyToOne

private Dept dept;

public Dept getDept() {

return dept;

}

public void setDept(Dept dept) {

this.dept = dept;

}

public int getEmpId() {

return empId;

}

public void setEmpId(int empId) {

this.empId = empId;

}

public String getEmpName() {

return empName;

}

public void setEmpName(String empName) {

this.empName = empName;

}

public String getPwd() {

return pwd;

}

public void setPwd(String pwd) {

this.pwd = pwd;

}

public String getImg() {

return img;

}

public void setImg(String img) {

this.img = img;

}

public double getSal() {

return sal;

}

public void setSal(double sal) {

this.sal = sal;

}

}

**InsertEmployee.java with main method**

**package** com.hexa.demos;

**import** org.hibernate.Session;

**import** org.hibernate.SessionFactory;

**import** org.hibernate.Transaction;

**import** org.hibernate.cfg.AnnotationConfiguration;

**import** org.hibernate.cfg.Configuration;

**import** com.hexa.entity.Dept;

**import** com.hexa.entity.Emp;

**public** **class** InsertEmployee {

**public** **static** **void** main(String[] args) {

Configuration cfg = **new** AnnotationConfiguration().configure();

SessionFactory sfac = cfg.buildSessionFactory();

Session sess = sfac.openSession();

Transaction tx = sess.beginTransaction();

Dept dept = **new** Dept();

dept.setDeptId(1);

Emp emp = **new** Emp();

emp.setEmpId(1001);

emp.setEmpName("ram kumar");

emp.setSal(45000);

emp.setPwd("ram123");

emp.setImg("1001.jpg");

emp.setDept(dept); // Stored the foreign Key

sess.save(emp);

tx.commit();

sess.close();

System.***out***.println("Table Created");

}

}

**O/P:**

Hibernate:

select

dept\_.did,

dept\_.dname as dname0\_

from

hexa\_dept dept\_

where

dept\_.did=?

Hibernate:

insert

into

hexa\_employee

(dept\_did, emp\_name, emp\_img, emp\_pwd, emp\_sal, emp\_id)

values

(?, ?, ?, ?, ?, ?)

Table Created

**ViewDeptNEmp.java with main method**

**package** com.hexa.demos;

**import** java.util.Set;

**import** org.hibernate.Session;

**import** org.hibernate.SessionFactory;

**import** org.hibernate.cfg.AnnotationConfiguration;

**import** org.hibernate.cfg.Configuration;

**import** com.hexa.entity.Dept;

**import** com.hexa.entity.Emp;

**public** **class** ViewDeptNEmp {

**public** **static** **void** main(String[] args) {

// **TODO** Auto-generated method stub

Configuration cfg = **new** AnnotationConfiguration().configure();

SessionFactory sfac = cfg.buildSessionFactory();

Session sess = sfac.openSession();

Dept dept = (Dept)sess.get(Dept.**class**, 1);

System.***out***.println(dept.getDeptId() + " " + dept.getDeptName());

System.***out***.println("-------------------------------------------");

Set<Emp> set = dept.getElist();

**for**(Emp e : set){

System.***out***.println(e.getEmpId() + " " + e.getEmpName() + " " + e.getSal());

}

sess.close();

}

}

**O/P:**

Hibernate:

select

dept0\_.did as did0\_0\_,

dept0\_.dname as dname0\_0\_

from

hexa\_dept dept0\_

where

dept0\_.did=?

1 Production

-------------------------------------------

Hibernate:

select

elist0\_.dept\_id as dept7\_2\_,

elist0\_.emp\_id as emp1\_2\_,

elist0\_.emp\_id as emp1\_1\_1\_,

elist0\_.dept\_did as dept6\_1\_1\_,

elist0\_.emp\_name as emp2\_1\_1\_,

elist0\_.emp\_img as emp3\_1\_1\_,

elist0\_.emp\_pwd as emp4\_1\_1\_,

elist0\_.emp\_sal as emp5\_1\_1\_,

dept1\_.did as did0\_0\_,

dept1\_.dname as dname0\_0\_

from

hexa\_employee elist0\_

left outer join

hexa\_dept dept1\_

on elist0\_.dept\_did=dept1\_.did

where

elist0\_.dept\_id=?

@OneToMany(mappedBy = "dept", fetch=FetchType.***EAGER***)

O/P:

Hibernate:

select

dept0\_.did as did0\_2\_,

dept0\_.dname as dname0\_2\_,

elist1\_.dept\_id as dept7\_4\_,

elist1\_.emp\_id as emp1\_4\_,

elist1\_.emp\_id as emp1\_1\_0\_,

elist1\_.dept\_did as dept6\_1\_0\_,

elist1\_.emp\_name as emp2\_1\_0\_,

elist1\_.emp\_img as emp3\_1\_0\_,

elist1\_.emp\_pwd as emp4\_1\_0\_,

elist1\_.emp\_sal as emp5\_1\_0\_,

dept2\_.did as did0\_1\_,

dept2\_.dname as dname0\_1\_

from

hexa\_dept dept0\_

left outer join

hexa\_employee elist1\_

on dept0\_.did=elist1\_.dept\_id

left outer join

hexa\_dept dept2\_

on elist1\_.dept\_did=dept2\_.did

where

dept0\_.did=?

1 Production

**Changes**

**package** com.hexa.demos;

**import** java.util.Set;

**import** org.hibernate.Session;

**import** org.hibernate.SessionFactory;

**import** org.hibernate.cfg.AnnotationConfiguration;

**import** org.hibernate.cfg.Configuration;

**import** com.hexa.entity.Dept;

**import** com.hexa.entity.Emp;

**public** **class** ViewDeptNEmp {

**private** **static** SessionFactory *sfac*;

**static** {

Configuration cfg = **new** AnnotationConfiguration().configure();

*sfac* = cfg.buildSessionFactory();

}

**public** **static** **void** main(String[] args) {

// **TODO** Auto-generated method stub

Dept dept = *getDept*();

System.***out***.println(dept.getDeptId() + " " + dept.getDeptName());

System.***out***.println("-------------------------------------------");

Set<Emp> set = dept.getElist();

**for**(Emp e : set){

System.***out***.println(e.getEmpId() + " " + e.getEmpName() + " " + e.getSal());

}

}

**public** **static** Dept getDept() {

Session sess = *sfac*.openSession();

Dept dept = (Dept)sess.get(Dept.**class**, 2);

sess.close();

**return** dept;

}

}

**package** com.hexa.demos;

**import** java.util.Set;

**import** org.hibernate.Hibernate;

**import** org.hibernate.Session;

**import** org.hibernate.SessionFactory;

**import** org.hibernate.cfg.AnnotationConfiguration;

**import** org.hibernate.cfg.Configuration;

**import** com.hexa.entity.Dept;

**import** com.hexa.entity.Emp;

**public** **class** ViewEmployee {

**private** **static** SessionFactory *sfac*;

**static** {

Configuration cfg = **new** AnnotationConfiguration().configure();

*sfac* = cfg.buildSessionFactory();

}

**public** **static** **void** main(String[] args) {

// **TODO** Auto-generated method stub

Session sess = *sfac*.openSession();

Emp emp = (Emp)sess.get(Emp.**class**, 1003);

sess.close();

System.***out***.println(emp.getEmpId() + " " + emp.getEmpName() + " " + emp.getSal()+ " " + emp.getDept().getDeptName());

}

}

O/P:

Hibernate:

select

emp0\_.emp\_id as emp1\_1\_1\_,

emp0\_.dept\_id as dept6\_1\_1\_,

emp0\_.emp\_name as emp2\_1\_1\_,

emp0\_.emp\_img as emp3\_1\_1\_,

emp0\_.emp\_pwd as emp4\_1\_1\_,

emp0\_.emp\_sal as emp5\_1\_1\_,

dept1\_.did as did0\_0\_,

dept1\_.dname as dname0\_0\_

from

hexa\_employee emp0\_

left outer join

hexa\_dept dept1\_

on emp0\_.dept\_id=dept1\_.did

where

emp0\_.emp\_id=?

1003 Emma 49000.0 Production

JoinDemo1.java

**package** com.hexa.demos;

**import** java.util.List;

**import** org.hibernate.Query;

**import** org.hibernate.Session;

**import** org.hibernate.SessionFactory;

**import** org.hibernate.cfg.AnnotationConfiguration;

**import** org.hibernate.cfg.Configuration;

**import** com.hexa.entity.Emp;

**public** **class** JoinDemo1 {

**private** **static** SessionFactory *sfac*;

**static** {

Configuration cfg = **new** AnnotationConfiguration().configure();

*sfac* = cfg.buildSessionFactory();

}

**public** **static** **void** main(String[] args) {

// **TODO** Auto-generated method stub

Session sess = *sfac*.openSession();

String hql = "from Emp e inner join fetch e.dept";

Query qry = sess.createQuery(hql);

List<Emp> lst = qry.list();

sess.close();

**for** (Emp emp : lst) {

System.***out***.println(

emp.getEmpId() + " " + emp.getEmpName() + " " + emp.getSal() + " " + emp.getDept().getDeptName());

}

}

}

O/P:

Hibernate:

select

emp0\_.emp\_id as emp1\_1\_0\_,

dept1\_.did as did0\_1\_,

emp0\_.dept\_id as dept6\_1\_0\_,

emp0\_.emp\_name as emp2\_1\_0\_,

emp0\_.emp\_img as emp3\_1\_0\_,

emp0\_.emp\_pwd as emp4\_1\_0\_,

emp0\_.emp\_sal as emp5\_1\_0\_,

dept1\_.dname as dname0\_1\_

from

hexa\_employee emp0\_

inner join

hexa\_dept dept1\_

on emp0\_.dept\_id=dept1\_.did

1001 Edward 49000.0 Production

1002 Roger 49000.0 Production

1003 Emma 49000.0 Production

1004 Potter 49000.0 Training

1005 Edward 49000.0 Training

**JoinDemo2.java**

**package** com.hexa.demos;

**import** java.util.List;

**import** org.hibernate.Query;

**import** org.hibernate.Session;

**import** org.hibernate.SessionFactory;

**import** org.hibernate.cfg.AnnotationConfiguration;

**import** org.hibernate.cfg.Configuration;

**import** com.hexa.entity.Emp;

**public** **class** JoinDemo2 {

**private** **static** SessionFactory *sfac*;

**static** {

Configuration cfg = **new** AnnotationConfiguration().configure();

*sfac* = cfg.buildSessionFactory();

}

**public** **static** **void** main(String[] args) {

// **TODO** Auto-generated method stub

Session sess = *sfac*.openSession();

String hql = "from Emp e inner join fetch e.dept where e.empId=?";

Query qry = sess.createQuery(hql);

qry.setInteger(0, 1003);

Emp emp = (Emp) qry.uniqueResult();

sess.close();

System.***out***.println(emp.getEmpId() + emp.getEmpName() + emp.getSal() + emp.getDept().getDeptName());

}

}

O/P:

Hibernate:

select

emp0\_.emp\_id as emp1\_1\_0\_,

dept1\_.did as did0\_1\_,

emp0\_.dept\_id as dept6\_1\_0\_,

emp0\_.emp\_name as emp2\_1\_0\_,

emp0\_.emp\_img as emp3\_1\_0\_,

emp0\_.emp\_pwd as emp4\_1\_0\_,

emp0\_.emp\_sal as emp5\_1\_0\_,

dept1\_.dname as dname0\_1\_

from

hexa\_employee emp0\_

inner join

hexa\_dept dept1\_

on emp0\_.dept\_id=dept1\_.did

where

emp0\_.emp\_id=?

1003Emma49000.0Production

JoinDemo3

**package** com.hexa.demos;

**import** java.util.List;

**import** org.hibernate.Query;

**import** org.hibernate.Session;

**import** org.hibernate.SessionFactory;

**import** org.hibernate.cfg.AnnotationConfiguration;

**import** org.hibernate.cfg.Configuration;

**import** com.hexa.entity.Emp;

**public** **class** JoinDemo3 {

**private** **static** SessionFactory *sfac*;

**static** {

Configuration cfg = **new** AnnotationConfiguration().configure();

*sfac* = cfg.buildSessionFactory();

}

**public** **static** **void** main(String[] args) {

// **TODO** Auto-generated method stub

Session sess = *sfac*.openSession();

String hql = "from Emp e inner join fetch e.dept d where d.deptName=?";

Query qry = sess.createQuery(hql);

qry.setString(0, "Training");

List<Emp> emp = qry.list();

sess.close();

**for**(Emp e : emp) {

System.***out***.println(e.getEmpId() + e.getEmpName() + e.getSal() + e.getDept().getDeptName());

}

}

}

O/P:

Hibernate:

select

emp0\_.emp\_id as emp1\_1\_0\_,

dept1\_.did as did0\_1\_,

emp0\_.dept\_id as dept6\_1\_0\_,

emp0\_.emp\_name as emp2\_1\_0\_,

emp0\_.emp\_img as emp3\_1\_0\_,

emp0\_.emp\_pwd as emp4\_1\_0\_,

emp0\_.emp\_sal as emp5\_1\_0\_,

dept1\_.dname as dname0\_1\_

from

hexa\_employee emp0\_

inner join

hexa\_dept dept1\_

on emp0\_.dept\_id=dept1\_.did

where

dept1\_.dname=?

1004Potter49000.0Training

1005Edward49000.0Training

Create a new project add jar files and config file

**package com.hexa.entity;**

**import javax.persistence.Column;**

**import javax.persistence.Entity;**

**import javax.persistence.Id;**

**import javax.persistence.OneToOne;**

**import javax.persistence.Table;**

**@Entity**

**@Table(name="sap\_car")**

**public class Car {**

**@Id**

**@Column(name="car\_id")**

**private int carId;**

**private String carName;**

**private double price;**

**@OneToOne(mappedBy="car")**

**private Chasis chasis;**

**public Chasis getChasis() {**

**return chasis;**

**}**

**public void setChasis(Chasis chasis) {**

**this.chasis = chasis;**

**}**

**public int getCarId() {**

**return carId;**

**}**

**public void setCarId(int carId) {**

**this.carId = carId;**

**}**

**public String getCarName() {**

**return carName;**

**}**

**public void setCarName(String carName) {**

**this.carName = carName;**

**}**

**public double getPrice() {**

**return price;**

**}**

**public void setPrice(double price) {**

**this.price = price;**

**}**

**}**

**package com.hexa.entity;**

**import javax.persistence.Entity;**

**import javax.persistence.Id;**

**import javax.persistence.JoinColumn;**

**import javax.persistence.ManyToOne;**

**@Entity**

**public class Chasis {**

**@Id**

**private int chasisId;**

**private String chasisType;**

**@ManyToOne**

**@JoinColumn(name="cid", referencedColumnName="car\_id",unique=true)**

**private Car car;**

**public int getChasisId() {**

**return chasisId;**

**}**

**public void setChasisId(int chasisId) {**

**this.chasisId = chasisId;**

**}**

**public String getChasisType() {**

**return chasisType;**

**}**

**public void setChasisType(String chasisType) {**

**this.chasisType = chasisType;**

**}**

**}**

**package** com.hexa.demos;

**import** org.hibernate.Session;

**import** org.hibernate.SessionFactory;

**import** org.hibernate.cfg.AnnotationConfiguration;

**import** org.hibernate.cfg.Configuration;

**import** com.hexa.entity.Car;

**public** **class** ViewCar {

// **TODO** Auto-generated method stub

**private** **static** SessionFactory *sfac*;

**static** {

Configuration cfg = **new** AnnotationConfiguration().configure();

*sfac* = cfg.buildSessionFactory();

Session sess = *sfac*.openSession();

Car car = (Car) sess.get(Car.**class**, 1);

sess.close();

System.***out***.println(car.getCarId() + " " + car.getCarName() + " " + car.getPrice());

System.***out***.println(car.getChasis().getChasisId() + " " + car.getChasis().getChasisType());

}

**public** **static** **void** main(String[] args) {

System.***out***.println("Table Created");

}

}

**O/P:**

Hibernate:

select

car0\_.car\_id as car1\_0\_1\_,

car0\_.carName as carName0\_1\_,

car0\_.price as price0\_1\_,

chasis1\_.chasisId as chasisId1\_0\_,

chasis1\_.cid as cid1\_0\_,

chasis1\_.chasisType as chasisType1\_0\_

from

sap\_car car0\_

left outer join

Chasis chasis1\_

on car0\_.car\_id=chasis1\_.cid

where

car0\_.car\_id=?

1 hyundaiI10 500000.0

1 ladder frame

Table Created

**Criteria API**

**package** com.hexa.demos;

**import** java.util.List;

**import** org.hibernate.Criteria;

**import** org.hibernate.Session;

**import** org.hibernate.SessionFactory;

**import** org.hibernate.cfg.AnnotationConfiguration;

**import** org.hibernate.cfg.Configuration;

**import** com.hexa.entity.Student;

**public** **class** ViewAll {

**private** **static** SessionFactory *sfac*;

**static** {

Configuration cfg = **new** AnnotationConfiguration().configure();

*sfac* = cfg.buildSessionFactory();

}

**public** **static** **void** main(String[] args) {

Session sess = *sfac*.openSession();

Criteria crit = sess.createCriteria(Student.**class**);

List<Student> lst = crit.list();

sess.close();

lst.forEach(System.***out***::println);

}

}

package com.hexa.entity;

import java.util.Date;

import javax.persistence.Column;

import javax.persistence.Entity;

import javax.persistence.Id;

import javax.persistence.Table;

@Entity

@Table(name = "student")

public class Student {

@Id

@Column(name = "stu\_id")

private int stuId;

@Column(name = "stu\_name", length = 45)

private String stuName;

@Column(name = "dept", length = 20)

private String dept;

@Column(name = "stu\_dob")

private Date dob;

@Column(name = "stu\_marks")

private int marks;

public int getStuId() {

return stuId;

}

public void setStuId(int stuId) {

this.stuId = stuId;

}

public String getStuName() {

return stuName;

}

public void setStuName(String stuName) {

this.stuName = stuName;

}

public String getDept() {

return dept;

}

public void setDept(String dept) {

this.dept = dept;

}

public Date getDob() {

return dob;

}

public void setDob(Date dob) {

this.dob = dob;

}

public int getMarks() {

return marks;

}

public void setMarks(int marks) {

this.marks = marks;

}

@Override

public String toString() {

return stuId + " " + stuName + " " + marks + " " + dept + " " + dob;

}

}

O/P:

Hibernate:

select

this\_.stu\_id as stu1\_0\_0\_,

this\_.dept as dept0\_0\_,

this\_.stu\_dob as stu3\_0\_0\_,

this\_.stu\_marks as stu4\_0\_0\_,

this\_.stu\_name as stu5\_0\_0\_

from

student this\_

1001 Abhi 86 ECE 1995-10-12 00:00:00.0

1002 Benny 86 ECE 1995-10-19 00:00:00.0

1003 Edward 100 EEE 1995-05-19 00:00:00.0

1004 Stefan 95 EEE 1995-05-12 00:00:00.0

1005 Katherine 55 ECE 1995-05-14 00:00:00.0

1006 Bonnie 80 EEE 1996-09-02 00:00:00.0

1007 Ram Kumar 69 ECE 1995-06-09 00:00:00.0

1008 Damon 85 EEE 1996-07-03 00:00:00.0

1009 Ravi Kumar 95 ECE 1995-06-04 00:00:00.0

**OrderByDemo.java**

**package** com.hexa.demos;

**import** java.util.List;

**import** org.hibernate.Criteria;

**import** org.hibernate.Session;

**import** org.hibernate.SessionFactory;

**import** org.hibernate.cfg.AnnotationConfiguration;

**import** org.hibernate.cfg.Configuration;

**import** org.hibernate.criterion.Order;

**import** com.hexa.entity.Student;

**public** **class** OrderByDemo {

**private** **static** SessionFactory *sfac*;

**static** {

Configuration cfg = **new** AnnotationConfiguration().configure();

*sfac* = cfg.buildSessionFactory();

}

**public** **static** **void** main(String[] args) {

Session sess = *sfac*.openSession();

Criteria crit = sess.createCriteria(Student.**class**);

Order ord = Order.*desc*("marks");

crit.addOrder(ord);

List<Student> lst = crit.list();

sess.close();

lst.forEach(System.***out***::println);

}

}

**O/P:**

Hibernate:

select

this\_.stu\_id as stu1\_0\_0\_,

this\_.dept as dept0\_0\_,

this\_.stu\_dob as stu3\_0\_0\_,

this\_.stu\_marks as stu4\_0\_0\_,

this\_.stu\_name as stu5\_0\_0\_

from

student this\_

order by

this\_.stu\_marks desc

1003 Edward 100 EEE 1995-05-19 00:00:00.0

1004 Stefan 95 EEE 1995-05-12 00:00:00.0

1009 Ravi Kumar 95 ECE 1995-06-04 00:00:00.0

1001 Abhi 86 ECE 1995-10-12 00:00:00.0

1002 Benny 86 ECE 1995-10-19 00:00:00.0

1008 Damon 85 EEE 1996-07-03 00:00:00.0

1006 Bonnie 80 EEE 1996-09-02 00:00:00.0

1007 Ram Kumar 69 ECE 1995-06-09 00:00:00.0

1005 Katherine 55 ECE 1995-05-14 00:00:00.0

**package** com.hexa.demos;

**import** java.util.List;

**import** org.hibernate.Criteria;

**import** org.hibernate.Session;

**import** org.hibernate.SessionFactory;

**import** org.hibernate.cfg.AnnotationConfiguration;

**import** org.hibernate.cfg.Configuration;

**import** org.hibernate.criterion.Criterion;

**import** org.hibernate.criterion.Order;

**import** org.hibernate.criterion.Restrictions;

**import** com.hexa.entity.Student;

**public** **class** WhereDemo {

**private** **static** SessionFactory *sfac*;

**static** {

Configuration cfg = **new** AnnotationConfiguration().configure();

*sfac* = cfg.buildSessionFactory();

}

**public** **static** **void** main(String[] args) {

Session sess = *sfac*.openSession();

Criteria crit = sess.createCriteria(Student.**class**);

Criterion c1 = Restrictions.*eq*("dept","ECE");

crit.add(c1);

List<Student> lst = crit.list();

sess.close();

lst.forEach(System.***out***::println);

}

}

**O/P:**

Hibernate:

select

this\_.stu\_id as stu1\_0\_0\_,

this\_.dept as dept0\_0\_,

this\_.stu\_dob as stu3\_0\_0\_,

this\_.stu\_marks as stu4\_0\_0\_,

this\_.stu\_name as stu5\_0\_0\_

from

student this\_

where

this\_.dept=?

1001 Abhi 86 ECE 1995-10-12 00:00:00.0

1002 Benny 86 ECE 1995-10-19 00:00:00.0

1005 Katherine 55 ECE 1995-05-14 00:00:00.0

1007 Ram Kumar 69 ECE 1995-06-09 00:00:00.0

1009 Ravi Kumar 95 ECE 1995-06-04 00:00:00.0

**package** com.hexa.demos;

**import** java.util.List;

**import** org.hibernate.Criteria;

**import** org.hibernate.Session;

**import** org.hibernate.SessionFactory;

**import** org.hibernate.cfg.AnnotationConfiguration;

**import** org.hibernate.cfg.Configuration;

**import** org.hibernate.criterion.Criterion;

**import** org.hibernate.criterion.Order;

**import** org.hibernate.criterion.Restrictions;

**import** com.hexa.entity.Student;

**public** **class** AndDemo {

**private** **static** SessionFactory *sfac*;

**static** {

Configuration cfg = **new** AnnotationConfiguration().configure();

*sfac* = cfg.buildSessionFactory();

}

**public** **static** **void** main(String[] args) {

Session sess = *sfac*.openSession();

Criteria crit = sess.createCriteria(Student.**class**);

Criterion c1 = Restrictions.*eq*("dept","ECE");

Criterion c2 = Restrictions.*ge*("marks",90);

crit.add(c1);

crit.add(c2);

List<Student> lst = crit.list();

sess.close();

lst.forEach(System.***out***::println);

}

}

**O/P**

Hibernate:

select

this\_.stu\_id as stu1\_0\_0\_,

this\_.dept as dept0\_0\_,

this\_.stu\_dob as stu3\_0\_0\_,

this\_.stu\_marks as stu4\_0\_0\_,

this\_.stu\_name as stu5\_0\_0\_

from

student this\_

where

this\_.dept=?

and this\_.stu\_marks>=?

1009 Ravi Kumar 95 ECE 1995-06-04 00:00:00.0

**package** com.hexa.demos;

**import** java.util.List;

**import** org.hibernate.Criteria;

**import** org.hibernate.Session;

**import** org.hibernate.SessionFactory;

**import** org.hibernate.cfg.AnnotationConfiguration;

**import** org.hibernate.cfg.Configuration;

**import** org.hibernate.criterion.Criterion;

**import** org.hibernate.criterion.Restrictions;

**import** com.hexa.entity.Student;

**public** **class** BetweenDemo {

**private** **static** SessionFactory *sfac*;

**static** {

Configuration cfg = **new** AnnotationConfiguration().configure();

*sfac* = cfg.buildSessionFactory();

}

**public** **static** **void** main(String[] args) {

Session sess = *sfac*.openSession();

Criteria crit = sess.createCriteria(Student.**class**);

Criterion c1 = Restrictions.*between*("marks",60,80);

crit.add(c1);

List<Student> lst = crit.list();

sess.close();

lst.forEach(System.***out***::println);

}

}

**O/P:**

Hibernate:

select

this\_.stu\_id as stu1\_0\_0\_,

this\_.dept as dept0\_0\_,

this\_.stu\_dob as stu3\_0\_0\_,

this\_.stu\_marks as stu4\_0\_0\_,

this\_.stu\_name as stu5\_0\_0\_

from

student this\_

where

this\_.stu\_marks between ? and ?

1006 Bonnie 80 EEE 1996-09-02 00:00:00.0

1007 Ram Kumar 69 ECE 1995-06-09 00:00:00.0

**package** com.hexa.demos;

**import** java.util.List;

**import** org.hibernate.Criteria;

**import** org.hibernate.Session;

**import** org.hibernate.SessionFactory;

**import** org.hibernate.cfg.AnnotationConfiguration;

**import** org.hibernate.cfg.Configuration;

**import** org.hibernate.criterion.Criterion;

**import** org.hibernate.criterion.Restrictions;

**import** com.hexa.entity.Student;

**public** **class** LikeDemo {

**private** **static** SessionFactory *sfac*;

**static** {

Configuration cfg = **new** AnnotationConfiguration().configure();

*sfac* = cfg.buildSessionFactory();

}

**public** **static** **void** main(String[] args) {

Session sess = *sfac*.openSession();

Criteria crit = sess.createCriteria(Student.**class**);

Criterion c1 = Restrictions.*like*("stuName", "%Kumar");

crit.add(c1);

List<Student> lst = crit.list();

sess.close();

lst.forEach(System.***out***::println);

}

}

**O/P:**

Hibernate:

select

this\_.stu\_id as stu1\_0\_0\_,

this\_.dept as dept0\_0\_,

this\_.stu\_dob as stu3\_0\_0\_,

this\_.stu\_marks as stu4\_0\_0\_,

this\_.stu\_name as stu5\_0\_0\_

from

student this\_

where

this\_.stu\_name like ?

1007 Ram Kumar 69 ECE 1995-06-09 00:00:00.0

1009 Ravi Kumar 95 ECE 1995-06-04 00:00:00.0

**package com.hexa.demos;**

**import java.util.List;**

**import org.hibernate.Criteria;**

**import org.hibernate.Session;**

**import org.hibernate.SessionFactory;**

**import org.hibernate.cfg.AnnotationConfiguration;**

**import org.hibernate.cfg.Configuration;**

**import org.hibernate.criterion.Criterion;**

**import org.hibernate.criterion.Restrictions;**

**import com.hexa.entity.Student;**

**public class OrDemo {**

**private static SessionFactory sfac;**

**static {**

**Configuration cfg = new AnnotationConfiguration().configure();**

**sfac = cfg.buildSessionFactory();**

**}**

**public static void main(String[] args) {**

**Session sess = sfac.openSession();**

**Criteria crit = sess.createCriteria(Student.class);**

**Criterion c1 = Restrictions.ge("marks", 80);**

**Criterion c2 = Restrictions.eq("dept", "ECE");**

**Criterion c3 = Restrictions.or(c1, c2);**

**crit.add(c1);**

**crit.add(c2);**

**crit.add(c3);**

**List<Student> lst = crit.list();**

**sess.close();**

**lst.forEach(System.out::println);**

**}**

**}**

**O/P:**

Hibernate:

select

this\_.stu\_id as stu1\_0\_0\_,

this\_.dept as dept0\_0\_,

this\_.stu\_dob as stu3\_0\_0\_,

this\_.stu\_marks as stu4\_0\_0\_,

this\_.stu\_name as stu5\_0\_0\_

from

student this\_

where

this\_.stu\_marks>=?

and this\_.dept=?

and (

this\_.stu\_marks>=?

or this\_.dept=?

)

1001 Abhi 86 ECE 1995-10-12 00:00:00.0

1002 Benny 86 ECE 1995-10-19 00:00:00.0

1009 Ravi Kumar 95 ECE 1995-06-04 00:00:00.0

**package** com.hexa.demos;

**import** java.util.List;

**import** org.hibernate.Criteria;

**import** org.hibernate.Session;

**import** org.hibernate.SessionFactory;

**import** org.hibernate.cfg.AnnotationConfiguration;

**import** org.hibernate.cfg.Configuration;

**import** org.hibernate.criterion.Criterion;

**import** org.hibernate.criterion.Projection;

**import** org.hibernate.criterion.ProjectionList;

**import** org.hibernate.criterion.Projections;

**import** org.hibernate.criterion.Restrictions;

**import** com.hexa.entity.Student;

**public** **class** ProjectionsDemo {

**private** **static** SessionFactory *sfac*;

**static** {

Configuration cfg = **new** AnnotationConfiguration().configure();

*sfac* = cfg.buildSessionFactory();

}

**public** **static** **void** main(String[] args) {

Session sess = *sfac*.openSession();

Criteria crit = sess.createCriteria(Student.**class**);

ProjectionList pList = Projections.*projectionList*();

pList.add(Projections.*property*("stuId"));

pList.add(Projections.*property*("stuName"));

pList.add(Projections.*property*("marks"));

crit.setProjection(pList);

List<Object[]> lst = crit.list();

sess.close();

lst.forEach(arr->{System.***out***.println(arr[0]);

System.***out***.println(arr[1]);

System.***out***.println(arr[2]);

});

}

}

Hibernate:

select

this\_.stu\_id as y0\_,

this\_.stu\_name as y1\_,

this\_.stu\_marks as y2\_

from

student this\_

1001 Abhi 86 ------

1002 Benny 86 ------

1003 Edward 100 ------

1004 Stefan 95 ------

1005 Katherine 55 ------

1006 Bonnie 80 ------

1007 Ram Kumar 69 ------

1008 Damon 85 ------

1009 Ravi Kumar 95 ------

**package** com.hexa.demos;

**import** java.util.List;

**import** org.hibernate.Criteria;

**import** org.hibernate.Session;

**import** org.hibernate.SessionFactory;

**import** org.hibernate.cfg.AnnotationConfiguration;

**import** org.hibernate.cfg.Configuration;

**import** org.hibernate.criterion.Projection;

**import** org.hibernate.criterion.ProjectionList;

**import** org.hibernate.criterion.Projections;

**import** com.hexa.entity.Student;

**public** **class** AggDemo {

**private** **static** SessionFactory *sfac*;

**static** {

Configuration cfg = **new** AnnotationConfiguration().configure();

*sfac* = cfg.buildSessionFactory();

}

**public** **static** **void** main(String[] args) {

Session sess = *sfac*.openSession();

Criteria crit = sess.createCriteria(Student.**class**);

ProjectionList pList = Projections.*projectionList*();

pList.add(Projections.*sum*("marks"));

pList.add(Projections.*avg*("marks"));

pList.add(Projections.*min*("marks"));

pList.add(Projections.*max*("marks"));

crit.setProjection(pList);

List<Object[]> lst = crit.list();

sess.close();

lst.forEach(arr->{System.***out***.print(arr[0] + " ");

System.***out***.print(arr[1]+" ");

System.***out***.print(arr[2]+" ");

System.***out***.print(arr[3]+" ");

System.***out***.println("------");

});

}

}

**o/P:**

Hibernate:

select

sum(this\_.stu\_marks) as y0\_,

avg(this\_.stu\_marks) as y1\_,

min(this\_.stu\_marks) as y2\_,

max(this\_.stu\_marks) as y3\_

from

student this\_

751 83.4444 55 100 ------

**package** com.hexa.demos;

**import** java.util.List;

**import** org.hibernate.Criteria;

**import** org.hibernate.Session;

**import** org.hibernate.SessionFactory;

**import** org.hibernate.cfg.AnnotationConfiguration;

**import** org.hibernate.cfg.Configuration;

**import** org.hibernate.criterion.Projection;

**import** org.hibernate.criterion.ProjectionList;

**import** org.hibernate.criterion.Projections;

**import** com.hexa.entity.Student;

**public** **class** AggDemo {

**private** **static** SessionFactory *sfac*;

**static** {

Configuration cfg = **new** AnnotationConfiguration().configure();

*sfac* = cfg.buildSessionFactory();

}

**public** **static** **void** main(String[] args) {

Session sess = *sfac*.openSession();

Criteria crit = sess.createCriteria(Student.**class**);

ProjectionList pList = Projections.*projectionList*();

pList.add(Projections.*groupProperty*("dept"));

pList.add(Projections.*avg*("marks"));

pList.add(Projections.*min*("marks"));

pList.add(Projections.*max*("marks"));

crit.setProjection(pList);

List<Object[]> lst = crit.list();

sess.close();

lst.forEach(arr->{System.***out***.print(arr[0] + " ");

System.***out***.print(arr[1]+" ");

System.***out***.print(arr[2]+" ");

System.***out***.print(arr[3]+" ");

System.***out***.println("------");

});

}

}

**O/P:**

Hibernate:

select

this\_.dept as y0\_,

avg(this\_.stu\_marks) as y1\_,

min(this\_.stu\_marks) as y2\_,

max(this\_.stu\_marks) as y3\_

from

student this\_

group by

this\_.dept

ECE 78.2 55 95 ------

EEE 90.0 80 100 ------

Inheritance

1. **Table Per Hierarchy**

**package** com.hexa.entity;

**import** javax.persistence.DiscriminatorColumn;

**import** javax.persistence.Entity;

**import** javax.persistence.Id;

**import** javax.persistence.Inheritance;

**import** javax.persistence.InheritanceType;

**import** javax.persistence.Table;

@Entity

@Table(name="emp\_hierarchy")

@Inheritance(strategy=InheritanceType.***SINGLE\_TABLE***)

@DiscriminatorColumn(name="etype")

**public** **abstract** **class** Employee {

@Id

**private** **int** eid;

**private** String ename;

**private** **double** sal;

**public** **int** getEid() {

**return** eid;

}

**public** **void** setEid(**int** eid) {

**this**.eid = eid;

}

**public** String getEname() {

**return** ename;

}

**public** **void** setEname(String ename) {

**this**.ename = ename;

}

**public** **double** getSal() {

**return** sal;

}

**public** **void** setSal(**double** sal) {

**this**.sal = sal;

}

}

Contract.java

**package** com.hexa.entity;

**import** javax.persistence.DiscriminatorValue;

**import** javax.persistence.Entity;

@Entity

@DiscriminatorValue("contract emp")

**public** **class** Contract **extends** Employee{

**public** **int** days;

**public** **int** getDays() {

**return** days;

}

**public** **void** setDays(**int** days) {

**this**.days = days;

}

}

Onroll.java

**package** com.hexa.entity;

**import** javax.persistence.DiscriminatorValue;

**import** javax.persistence.Entity;

@Entity

@DiscriminatorValue("onroll emp")

**public** **class** Onroll **extends** Employee {

**public** **double** bonus;

**public** **double** getBonus() {

**return** bonus;

}

**public** **void** setBonus(**double** bonus) {

**this**.bonus = bonus;

}

}

Com.hexa.Demos package

**package** com.hexa.demos;

**import** org.hibernate.Session;

**import** org.hibernate.SessionFactory;

**import** org.hibernate.Transaction;

**import** org.hibernate.cfg.AnnotationConfiguration;

**import** org.hibernate.cfg.Configuration;

**import** com.hexa.entity.Contract;

**import** com.hexa.entity.Onroll;

**public** **class** Demo1 {

**private** **static** SessionFactory *sfac*;

**static** {

Configuration cfg = **new** AnnotationConfiguration().configure();

*sfac* = cfg.buildSessionFactory();

}

**public** **static** **void** main(String[] args) {

Session sess = *sfac*.openSession();

Transaction tx = sess.beginTransaction();

Onroll obj = **new** Onroll();

obj.setEid(1001);

obj.setEname("taylor");

obj.setSal(45000);

obj.setBonus(5000);

Contract ctrt = **new** Contract();

ctrt.setEid(1002);

ctrt.setEname("Emma");

ctrt.setSal(45000);

ctrt.setDays(5);

sess.save(obj);

sess.save(ctrt);

tx.commit();

sess.close();

System.***out***.println("Row Inserted");

}

}

O/P:

Hibernate:

insert

into

emp\_hierarchy

(ename, sal, bonus, etype, eid)

values

(?, ?, ?, 'onroll emp', ?)

Hibernate:

insert

into

emp\_hierarchy

(ename, sal, days, etype, eid)

values

(?, ?, ?, 'contract emp', ?)

Row Inserted



**Table Per Sub Class**

**package** com.hexa.entity;

**import** javax.persistence.Entity;

**import** javax.persistence.Table;

@Entity

@Table(name = "user\_contact")

**public** **class** Contact **extends** User {

**private** String email;

**public** String getEmail() {

**return** email;

}

**public** **void** setEmail(String email) {

**this**.email = email;

}

}

**package** com.hexa.entity;

**import** javax.persistence.Entity;

**import** javax.persistence.Id;

**import** javax.persistence.Inheritance;

**import** javax.persistence.InheritanceType;

**import** javax.persistence.Table;

@Entity

@Inheritance(strategy=InheritanceType.***JOINED***)

**public** **class** User {

@Id

**private** **int** uid;

**private** String uname;

**public** **int** getUid() {

**return** uid;

}

**public** **void** setUid(**int** uid) {

**this**.uid = uid;

}

**public** String getUname() {

**return** uname;

}

**public** **void** setUname(String uname) {

**this**.uname = uname;

}

}

**package** com.hexa.demos;

**import** org.hibernate.Session;

**import** org.hibernate.SessionFactory;

**import** org.hibernate.Transaction;

**import** org.hibernate.cfg.AnnotationConfiguration;

**import** org.hibernate.cfg.Configuration;

**import** com.hexa.entity.Contact;

**public** **class** Demo1 {

**private** **static** SessionFactory *sfac*;

**static** {

Configuration cfg = **new** AnnotationConfiguration().configure();

*sfac* = cfg.buildSessionFactory();

}

**public** **static** **void** main(String[] args) {

Session sess = *sfac*.openSession();

Contact ctct = (Contact) sess.get(Contact.**class**, 1001);

sess.close();

System.***out***.println(ctct.getEmail() + ctct.getUid() + ctct.getUname() );

}

}

**O/P:**

Hibernate:

select

contact0\_.uid as uid0\_0\_,

contact0\_1\_.uname as uname0\_0\_,

contact0\_.email as email1\_0\_

from

user\_contact contact0\_

inner join

User contact0\_1\_

on contact0\_.uid=contact0\_1\_.uid

where

contact0\_.uid=?

abhi@gmail.com1001Abhi