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**Program Name: - Hibernate-App-oneToMany & Hibernate-App-ManyToOne**

```
package com.app.model;
```

```
import java.util.List;
```

```
import javax.persistence.CascadeType;
```

```
import javax.persistence.Column;
```

```
import javax.persistence.Entity;
```

```
import javax.persistence.Id;
```

```
import javax.persistence.JoinColumn;
```

```
import javax.persistence.OneToMany;
```

```
import javax.persistence.OrderColumn;
```

```
import javax.persistence.Table;
```

```
@Entity
```

```
@Table(name = "user_table")
```

```
public class User {
```

```
    @Id
```

```
    @Column(name = "user_id")
```

```
    private int userId;
```

```
    @Column(name = "first_name")
```

```
    private String fName;
```

```
    @Column(name = "last_Name")
```

```
    private String lName;
```

```
    @OneToMany(targetEntity = PhoneNumber.class, cascade = CascadeType.ALL,  
               orphanRemoval = true)
```

```
    @JoinColumn(name="unid",referencedColumnName = "user_id")
```

```
    @OrderColumn(name = "list_index")
```

```
    private List<PhoneNumber> phoneNumber;
```

```
    public int getUserId() {
```

```
        return userId;
```

```

    }

    public void setUserId(int userId) {
        this.userId = userId;
    }

    public String getfName() {
        return fName;
    }

    public void setfName(String fName) {
        this.fName = fName;
    }

    public String getLname() {
        return lname;
    }

    public void setLname(String lname) {
        this.lname = lname;
    }

    @Override
    public String toString() {
        return "User [userId=" + userId + ", fName=" + fName + ", lname=" + lname + ", phoneNumber=" +
phoneNumber
        + "]\n";
    }

    public User() {
        super();
        // TODO Auto-generated constructor stub
    }

    public User(int userId, String fName, String lname, List<PhoneNumber> phoneNumber) {
        super();
        this.userId = 001;
        this.fName = "abc";
        this.lname = "xyz";
        this.phoneNumber = phoneNumber;
    }

    public List<PhoneNumber> getPhoneNumber() {

```

```
        return phoneNumber;
    }

    public void setPhoneNumber(List<PhoneNumber> phoneNumber) {
        this.phoneNumber = phoneNumber;
    }
}
```

---

```
package com.app.model;
```

```
import javax.persistence.Entity;
```

```
import javax.persistence.Id;
```

```
@Entity
```

```
public class Department {
```

```
    @Id
```

```
        private int deptno;
```

```
        private String deptName;
```

```
        private String deptHead;
```

```
        public int getDeptno() {
```

```
            return deptno;
```

```
        }
```

```
        public void setDeptno(int deptno) {
```

```
            this.deptno = deptno;
```

```
        }
```

```
        public String getDeptName() {
```

```
            return deptName;
```

```
        }
```

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

```
            this.deptName = deptName;
```

```
        }
```

```
        public String getDeptHead() {
```

```
            return deptHead;
```

```
        }
```

```
        public void setDeptHead(String deptHead) {
```

```
            this.deptHead = deptHead;
```

```

    }

    public Department() {
        super();
        // TODO Auto-generated constructor stub
    }

    public Department(int deptno, String deptName, String deptHead) {
        super();
        this.deptno = deptno;
        this.deptName = deptName;
        this.deptHead = deptHead;
    }
}.....

```

```
package com.app.model;
```

```

import javax.persistence.Column;
import javax.persistence.Entity;
import javax.persistence.Id;
import javax.persistence.Table;

```

```
@Entity
```

```
@Table(name = "phoneNumber")
```

```
public class PhoneNumber {
```

```
@Id
```

```
    private int phone;
```

```
    @Column(name = "number_type")
```

```
    private String numberType;
```

```
    public int getPhone() {
```

```
        return phone;
```

```
    }
```

```
    public void setPhone(int phone) {
```

```
        this.phone = phone;
```

```
    }
```

```
    public String getNumberType() {
```

```
        return numberType;
```

```

    }

    public void setNumberType(String numberType) {
        this.numberType = numberType;
    }

    @Override
    public String toString() {
        return "PhoneNumber [phone=" + phone + ", numberType=" + numberType + "]\n";
    }
}

}

package com.app.model;

import javax.persistence.CascadeType;
import javax.persistence.Entity;
import javax.persistence.FetchType;
import javax.persistence.Id;
import javax.persistence.JoinColumn;
import javax.persistence.ManyToOne;

@Entity
public class EmpDetails {
    @Id
    private int eno;
    private String ename;
    private long salary;
    @ManyToOne(targetEntity = Department.class, cascade=CascadeType.ALL,fetch =FetchType.EAGER )
    @JoinColumn(name = "deptno",referencedColumnName = "deptno")
    private Department department;
    public int getEno() {
        return eno;
    }
    public void setEno(int eno) {
        this.eno = eno;
    }
}

```

```
public String getEname() {  
    return ename;  
}  
  
public void setEname(String ename) {  
    this.ename = ename;  
}  
  
public long getSalary() {  
    return salary;  
}  
  
public void setSalary(long salary) {  
    this.salary = salary;  
}  
  
public Department getDepartment() {  
    return department;  
}  
  
public void setDepartment(Department department) {  
    this.department = department;  
}  
  
public EmpDetails(int eno, String ename, long salary, Department department) {  
    super();  
    this.eno = eno;  
    this.ename = ename;  
    this.salary = salary;  
    this.department = department;  
}  
  
public EmpDetails() {  
    // TODO Auto-generated constructor stub  
}  
  
public void setDepartment() {  
    // TODO Auto-generated method stub  
}  
  
}
```

---

```
package com.app.model;
```

```
import javax.persistence.CascadeType;
```

```
import javax.persistence.Entity;
```

```
import javax.persistence.FetchType;
```

```
import javax.persistence.Id;
```

```
import javax.persistence.JoinColumn;
```

```
import javax.persistence.ManyToOne;
```

```
@Entity
```

```
public class EmpDetails {
```

```
    @Id
```

```
        private int eno;
```

```
        private String ename;
```

```
        private long salary;
```

```
        @ManyToOne(targetEntity = Department.class, cascade=CascadeType.ALL,fetch =FetchType.EAGER )
```

```
        @JoinColumn(name = "deptno",referencedColumnName = "deptno")
```

```
        private Department department;
```

```
        public int getEno() {
```

```
            return eno;
```

```
        }
```

```
        public void setEno(int eno) {
```

```
            this.eno = eno;
```

```
        }
```

```
        public String getEname() {
```

```
            return ename;
```

```
        }
```

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

```
            this.ename = ename;
```

```
        }
```

```
        public long getSalary() {
```

```
            return salary;
```

```
        }
```

```
        public void setSalary(long salary) {
```

```

        this.salary = salary;
    }

    public Department getDepartment() {
        return department;
    }

    public void setDepartment(Department department) {
        this.department = department;
    }

    public EmpDetails(int eno, String ename, long salary, Department department) {
        super();
        this.eno = eno;
        this.ename = ename;
        this.salary = salary;
        this.department = department;
    }

    public EmpDetails() {
        // TODO Auto-generated constructor stub
    }

    public void setDepartment() {
        // TODO Auto-generated method stub
    }

}

```

---

```
package com.app.factory;
```

```

import com.app.dao.ManyToOneDao;
import com.app.dao.OneToManyDao;
import com.app.dao.impl.ManyToOneDaoImpl;
import com.app.dao.impl.OneToManyDaoImpl;

    //OneToManyDao one= new OneToManyDaoImpl();

    public class OneToManyFactory {

        public static OneToManyDao getInstance() {
            return new OneToManyDaoImpl();
        }
    }

```



```
    }

    public static ManyToOneDao getManyInstance() {

        return new ManyToOneDaoImpl();

    }

}
```

---

```
package com.app.dao;
```

```
public interface ManyToOneDao {
    void addEmployeeWithDept();
```

```
}
```

---

```
package com.app.dao;
```

```
public interface OneToManyDao {
    void insertData(); //public Abstract void insertData;
    void listofData();
```

```
}
```

---

```
package com.app.dao.impl;
```

```
import java.util.ArrayList;
```

```
import java.util.List;
```

```
import org.hibernate.Session;
```

```
import org.hibernate.Transaction;
```

```
import com.app.dao.ManyToOneDao;
```

```
import com.app.model.Department;
```

```
import com.app.model.EmpDetails;
```

```
import com.app.util.UtilityClass;
```

```
public class ManyToOneDaoImpl implements ManyToOneDao {
```

```
    public void addEmployeeWithDept() {
```

```
        // TODO Auto-generated method stub
```

```
        Session session=UtilityClass.getSession();
```

```
        Department dept1= new Department(1,"HR","Wakle");
```

```
        Department dept2=new Department(2,"Production","Shinde");
```

```

List<Department> dept=new ArrayList<Department>();

dept.add(dept1);

dept.add(dept2);


//EmpDetails emp1=new EmpDetails(5001,"atul",50098,dept);
//EmpDetails emp2=new EmpDetails(5002, "Anant", 6542, dept2);


EmpDetails em=new EmpDetails();
em.setDepartment(dept2);
em.setSalary(2020);
em.setEname("Pallavi");
em.setEno(5003);


Transaction tx=session.beginTransaction();
session.update(em);
//session.saveOrUpdate(emp1);
tx.commit();
UtilityClass.closeSession();
}

```

```

}

```

---

```

package com.app.dao.impl;

```

```

import java.util.ArrayList;

```

```

import java.util.List;

```

```

import org.hibernate.Transaction;

```

```

import org.hibernate.query.Query;

```

```

import org.hibernate.Session;

```

```

import com.app.dao.OneToManyDao;

```

```
import com.app.model.PhoneNumber;
```

```
import com.app.model.User;
```

```
import com.app.util.UtilityClass;
```

```
public class OneToManyDaoImpl implements OneToManyDao {
```

```
    public void insertData() {
```

```
        // TODO Auto-generated method stub
```

```
        Session session=UtilityClass.getSession();
```

```
        Transaction tx=session.beginTransaction();
```

```
        PhoneNumber phoneNumber=new PhoneNumber();
```

```
        phoneNumber.setNumberType("home");
```

```
        phoneNumber.setPhone(97671343);
```

```
        PhoneNumber phoneNumber1=new PhoneNumber();
```

```
        phoneNumber1.setNumberType("office");
```

```
        phoneNumber1.setPhone(876543);
```

```
        List<PhoneNumber> list= new ArrayList<PhoneNumber> ();
```

```
        list.add(phoneNumber1);
```

```
        list.add(phoneNumber);
```

```
        User user=new User();
```

```
        user.setfName("Atul");
```

```
        user.setLname("Wakle");
```

```
        user.setUserId(101);
```

```
        user.setPhoneNumber(list);
```

```
        session.save(user);
```

```
        tx.commit();
```

```
        UtilityClass.closeSession();
```

```
    }
```

```
    public void listofData() {
```

```

        // TODO Auto-generated method stub

        Session session=UtilityClass.getSession();

        Query<User>query=session.createQuery("from User");

        List<User>list=query.list();

        for(User user:list) {

            System.out.println(user.getUserId()+"\t"+user.getfName()+"\t"+user.getLname()+"\t"+user.getPhoneNumbe
r());

            }

            UtilityClass.closeSession();

        }

}

```

---

```
package com.app.util;
```

```

import org.hibernate.Session;
import org.hibernate.SessionFactory;
import org.hibernate.cfg.Configuration;

```

```

public class UtilityClass {

    private static SessionFactory factory;

    static {

        try {

            factory=new Configuration().configure("Hibernet-cfg.xml").buildSessionFactory();

            /*      Configuration configuration=new Configuration();
                     configuration.configure("Hibernate-cfg.xml");
                     factory=configuration.buildSessionFactory();
            */

        } catch (Exception e) {

            e.printStackTrace();

        }

    }

}

```

```

    }

    static ThreadLocal<Session> local=new ThreadLocal();

    static Session session=null;

    public static Session getSession() {
        try {
            if(local.get()==null) {
                session=factory.openSession();
                local.set(session);
                return session;
            }else {
                return local.get();
            }
        } catch (Exception e) {
            // TODO: handle exception
            return null;
        }
    }

    public static void closeSession() {
        try {
            session.close();
        } catch (Exception e) {
            // TODO: handle exception
            e.printStackTrace();
        }
    }
}

```

---

```
package com.app.client;
```

```
import com.app.dao.ManyToOneDao;
```

```
import com.app.dao.OneToManyDao;
```

```
import com.app.factory.OneToManyFactory;
```

```
public class Test {
```

```

public static void main(String[] args) {

    // TODO Auto-generated method stub

    //OneToManyDao dao=OneToManyFactory.getInstance();

    //dao.insertData();

    //dao.listofData();

    ManyToOneDao dao= OneToManyFactory.getManyInstance();

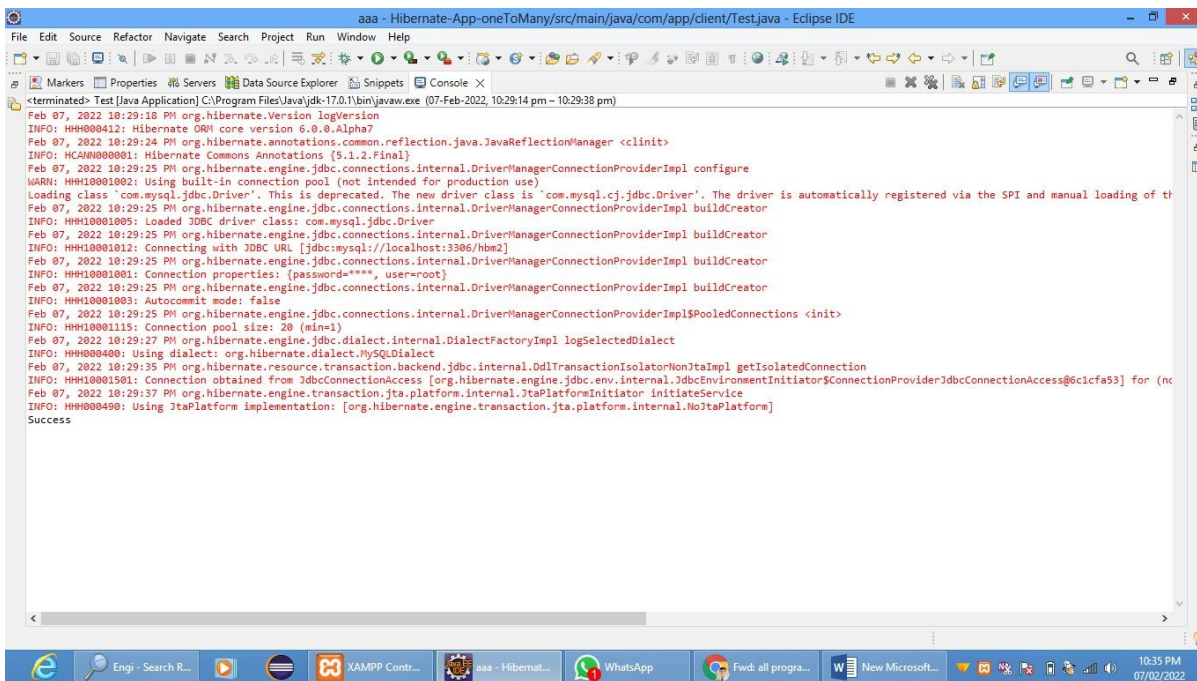
    dao.addEmployeeWithDept();

    System.out.println("Success");

}
}

```

## Output



The screenshot shows the Eclipse IDE interface with the console window open. The console displays the output of a Java application using Hibernate. The output includes various log messages from the Hibernate ORM core, including version information, class loading, and database connection details. The application successfully connects to a MySQL database and prints "Success".

```

<terminated> Test [Java Application] C:\Program Files\Java\jdk-17.0.1\bin\javaw.exe (07-Feb-2022, 10:29:14 pm - 10:29:38 pm)
Feb 07, 2022 10:29:18 PM org.hibernate.Version logVersion
INFO: HH0000412: Hibernate ORM core version 6.0.0.Alpha7
Feb 07, 2022 10:29:24 PM org.hibernate.annotations.common.reflection.java.JavaReflectionManager <clinit>
INFO: HCANN000001: Hibernate Commons Annotations {5.1.2.Final}
Feb 07, 2022 10:29:25 PM org.hibernate.engine.jdbc.connections.internal.DriverManagerConnectionProviderImpl configure
WARN: HH010001002: Using built-in connection pool (not intended for production use)
Loading class 'com.mysql.jdbc.Driver'. This is deprecated. The new driver class is 'com.mysql.cj.jdbc.Driver'. The driver is automatically registered via the SPI and manual loading of the
Feb 07, 2022 10:29:25 PM org.hibernate.engine.jdbc.connections.internal.DriverManagerConnectionProviderImpl buildCreator
INFO: HH010001005: Loaded JDBC driver class: com.mysql.jdbc.Driver
Feb 07, 2022 10:29:25 PM org.hibernate.engine.jdbc.connections.internal.DriverManagerConnectionProviderImpl buildCreator
INFO: HH010001012: Connecting with JDBC URL [jdbc:mysql://localhost:3306/hbm2]
Feb 07, 2022 10:29:25 PM org.hibernate.engine.jdbc.connections.internal.DriverManagerConnectionProviderImpl buildCreator
INFO: HH010001001: Connection properties: {password=****, user=root}
Feb 07, 2022 10:29:25 PM org.hibernate.engine.jdbc.connections.internal.DriverManagerConnectionProviderImpl buildCreator
INFO: HH010001003: Autocommit mode: false
Feb 07, 2022 10:29:25 PM org.hibernate.engine.jdbc.connections.internal.DriverManagerConnectionProviderImpl$PooledConnections <init>
INFO: HH010001115: Connection pool size: 20 (min=1)
Feb 07, 2022 10:29:27 PM org.hibernate.engine.jdbc.dialect.internal.DialectFactoryImpl logSelectedDialect
INFO: HH0000400: Using dialect: org.hibernate.dialect.MySQLDialect
Feb 07, 2022 10:29:35 PM org.hibernate.resource.transaction.backend.jdbc.internal.DdlTransactionIsolatorNonJtaImpl getIsolatedConnection
INFO: HH010001501: Connection obtained from JdbcConnectionAccess [org.hibernate.engine.jdbc.env.internal.JdbcEnvironmentInitiator$ConnectionProviderJdbcConnectionAccess@6c1cfa53] for (no
Feb 07, 2022 10:29:37 PM org.hibernate.engine.transaction.jta.platform.internal.JtaPlatformInitiator initializeService
INFO: HH0000490: Using JtaPlatform implementation: [org.hibernate.engine.transaction.jta.platform.internal.NoJtaPlatform]
Success

```