

1.Create below given classes and configure as entities using xml configuration and provide persistence unit information in persistence.xml class Ticket attributes: source, destination, price, date class Person, attributes :personName,personEmail,personPhone class Employee ,attributes:employeeName,employeeDepartment,employeeDesignation class Student,attributes:studentName,marks,semester

Employee.java:

```
package com;
```

```
public class Employee {  
    private String employeeName;  
    private String employeeDepartment;  
    private String employeeDesignation;  
    public Employee() {}  
  
    public Employee(String employeeName, String employeeDepartment, String  
employeeDesignation) {  
        this.employeeName = employeeName;  
        this.employeeDepartment = employeeDepartment;  
        this.employeeDesignation = employeeDesignation;  
    }  
    public String getEmployeeName() {  
        return employeeName;  
    }  
    public void setEmployeeName(String employeeName) {  
        this.employeeName = employeeName;  
    }  
  
    public String getEmployeeDepartment() {  
        return employeeDepartment;  
    }  
    public void setEmployeeDepartment(String employeeDepartment) {  
        this.employeeDepartment = employeeDepartment;  
    }  
}
```

```

    }

    public String getEmployeeDesignation() {
        return employeeDesignation;
    }

    public void setEmployeeDesignation(String employeeDesignation) {
        this.employeeDesignation = employeeDesignation;
    }
}

```

Person.java:

```
package com;
```

```

public class Person {
    private String personName;
    private String personEmail;
    private long personPhone;
    public Person() {}
    public Person(String personName, String personEmail, long personPhone) {
        this.personName = personName;
        this.personEmail = personEmail;
        this.personPhone = personPhone;
    }
    public String getPersonName() {
        return personName;
    }
    public void setPersonName(String personName) {
        this.personName = personName;
    }
    public String getPersonEmail() {
        return personEmail;
    }
}

```

```
}  
  
public void setPersonEmail(String personEmail) {  
    this.personEmail = personEmail;  
}  
  
public long getPersonPhone() {  
    return personPhone;  
}  
  
public void setPersonPhone(long personPhone) {  
    this.personPhone = personPhone;  
}  
}
```

Student.java:

```
package com;
```

```
public class Student {  
    private String studentName;  
    private int marks;  
    private String semester;  
    public Student() {}  
    public Student(String studentName, int marks, String semester) {  
        this.studentName = studentName;  
        this.marks = marks;  
        this.semester = semester;  
    }  
  
    public String getStudentName() {  
        return studentName;  
    }  
  
    public void setStudentName(String studentName) {
```

```

        this.studentName = studentName;
    }

    public int getMarks() {
        return marks;
    }

    public void setMarks(int marks) {
        this.marks = marks;
    }

    public String getSemester() {
        return semester;
    }

    public void setSemester(String semester) {
        this.semester = semester;
    }
}

```

Ticket.java:

```
package com;
```

```
import java.util.Date;
```

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

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

```
@Entity
```

```
public class Ticket {
```

```
    private String source;
```

```
    private String destination;
```

```
    private int price;
```

```
    @Id
```

```
private Date date;

public String getSource() {
    return source;
}

public Ticket() {}

public Ticket(String source, String destination, int price, Date date) {
    this.source = source;
    this.destination = destination;
    this.price = price;
    this.date = date;
}

public void setSource(String source) {
    this.source = source;
}

public String getDestination() {
    return destination;
}

public void setDestination(String destination) {
    this.destination = destination;
}

public int getPrice() {
    return price;
}

public void setPrice(int price) {
    this.price = price;
}

public Date getDate() {
    return date;
}
```

```

    }

    public void setDate(Date date) {
        this.date = date;
    }

    @Override
    public String toString() {
        return "Ticket [source=" + source + ", destination=" + destination + ", price=" + price + ",
date=" + date
                                + "]\n";
    }
}

```

Library.java:

```
package JPALAB;
```

```
import java.sql.Date;
```

```
import javax.persistence.EntityManager;
```

```
import javax.persistence.EntityManagerFactory;
```

```
import javax.persistence.Persistence;
```

```
import com.Person;
```

```
public class Library {
```

```
    public boolean someLibraryMethod() {
```

```
        return true;
```

```
    }
```

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

```
        EntityManagerFactory emf = Persistence.createEntityManagerFactory("TicketPU");
```

```
        EntityManager entitymanager = emf.createEntityManager();
```

```
        Person obj = new Person();
```

```
obj.setPersonName("Praveen Kumar");  
obj.setPersonEmail("praveen3@gmail.com");  
obj.setPersonPhone(9835656213);
```

```
entityManager.getTransaction().begin();  
entityManager.persist(obj);  
entityManager.flush();  
entityManager.getTransaction().commit();
```

```
}
```

```
}
```

orm.xml:

```
<?xml version="1.0" encoding="UTF-8"?>  
<entity-mappings xmlns="http://java.sun.com/xml/ns/persistence/orm"  
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"  
  xsi:schemaLocation="http://java.sun.com/xml/ns/persistence/orm  
    http://java.sun.com/xml/ns/persistence/orm_1_0.xsd"  
  version="1.0">  
  <entity class="com.Person">  
    <table name="Person">  
  
    </table>  
  
    <attributes>  
      <id name="personName"></id>  
  
      <basic name="personPhone">  
  
        <column name="personPhone"/>
```

</basic>

</attributes>

</entity>

<entity class="com.Student">

<table name="Student">

</table>

<attributes>

<id name="studentName"></id>

<basic name="semester">

<column name="semester"/>

</basic>

</attributes>

</entity>

</entity-mappings>

persistence.xml:

<?xml version="1.0" encoding="UTF-8"?>

<persistence xmlns="http://java.sun.com/xml/ns/persistence"

xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"



```

xsi:schemaLocation="http://java.sun.com/xml/ns/persistence
http://java.sun.com/xml/ns/persistence/persistence_2_0.xsd"

version="2.0">

<persistence-unit name = "TicketPU">
<provider>org.hibernate.ejb.HibernatePersistence</provider>
<properties>
<property name="hibernate.connection.url" value="jdbc:postgresql://localhost:5432/postgres"/>
<property name="hibernate.connection.driver_class" value="org.postgresql.Driver"/>
<property name="hibernate.connection.username" value="postgres"/>
<property name="hibernate.connection.password" value="postgres"/>
<property name="hibernate.archive.autodetection" value="class"/>
<property name="hibernate.hbm2ddl.auto" value="create"/>
<property name="hibernate.show_sql" value="true"/>
<property name="hibernate.format_sql" value="true"/>

</properties>

</persistence-unit>
</persistence>

```

2. Jason wants to create a class for storing details of Customer

The attributes are customerName and customerEmail

The details of customerAddress have to be created as a separate class Address and used as attributes in Customer class

The final design is given below

```
public class Customer
```

```
{  
    private String customerName;  
    private String customerEmail;  
    private Address customerAddress  
    //getter setter methods and constructor  
}
```

create the above classes and configure as entity using Annotations

Define persistence unit for above classes in xml file and persist information to database

Address.java:

```
package com;
```

```
import java.io.Serializable;
```

```
public class Address implements Serializable{  
    private String customerAddress;  
    public Address() {}  
    public Address(String customerAddress) {  
        this.customerAddress = customerAddress;  
    }  
    public String getCustomerAddress() {  
        return customerAddress;  
    }  
    public void setCustomerAddress(String customerAddress) {  
        this.customerAddress = customerAddress;  
    }  
    @Override  
    public String toString() {  
        return customerAddress;  
    }  
}
```

```
    }  
}
```

Customer.java:

```
package com;  
  
import javax.persistence.Entity;  
import javax.persistence.Id;  
@Entity  
public class Customer {  
    @Id  
    private String customerName;  
    private String customerEmail;  
    private Address customerAddress;  
    public Customer() {}  
    public Customer(String customerName, String customerEmail, Address customerAddress) {  
        this.customerName = customerName;  
        this.customerEmail = customerEmail;  
        this.customerAddress = customerAddress;  
    }  
    public Address getCustomerAddress() {  
        return customerAddress;  
    }  
    public void setCustomerAddress(Address customerAddress) {  
        this.customerAddress = customerAddress;  
    }  
    public String getCustomerName() {  
        return customerName;  
    }  
    public void setCustomerName(String customerName) {
```

```

        this.customerName = customerName;
    }

    public String getCustomerEmail() {
        return customerEmail;
    }

    public void setCustomerEmail(String customerEmail) {
        this.customerEmail = customerEmail;
    }
}

```

Library.java:

```

/*
 * This Java source file was generated by the Gradle 'init' task.
 */

package petdemo;

import javax.persistence.EntityManager;

import javax.persistence.EntityManagerFactory;
import javax.persistence.Persistence;

import com.Address;
import com.Customer;

public class Library {
    public boolean someLibraryMethod() {
        return true;
    }

    public static void main(String[] args) {
        EntityManagerFactory emf = Persistence.createEntityManagerFactory("CustomerPU");
    }
}

```

```
EntityManager entitymanager = emf.createEntityManager();  
  
Address add = new Address();  
  
add.setCustomerAddress("opposite Tea break shop,Daspalla Hills");
```

```
Customer custo = new Customer();  
  
custo.setCustomerName("Tarun Ram");  
  
custo.setCustomerEmail("tarunram645@gmail.com");  
  
custo.setCustomerAddress(add);
```

```
entitymanager.getTransaction().begin();  
  
entitymanager.persist(custo);  
  
entitymanager.flush();  
  
entitymanager.getTransaction().commit();
```

```
Customer mycustomer = entitymanager.find(Customer.class, "Tarun Ram");  
  
System.out.println(mycustomer.getCustomerName());  
  
System.out.println(mycustomer.getCustomerEmail());  
  
System.out.println(mycustomer.getCustomerAddress());
```

```
}
```

```
}
```

persistence.xml:

```
<?xml version="1.0" encoding="UTF-8"?>
```

```
<persistence xmlns="http://java.sun.com/xml/ns/persistence"
```

```
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
```

```
xsi:schemaLocation="http://java.sun.com/xml/ns/persistence
    http://java.sun.com/xml/ns/persistence/persistence_2_0.xsd"
```

```
version="2.0">
```

```
<persistence-unit name = "CustomerPU">
```

```
<provider>org.hibernate.ejb.HibernatePersistence</provider>
```

```
<properties>
```

```
<property name="hibernate.connection.url" value="jdbc:postgresql://localhost:5432/postgres"/>
```

```
<property name="hibernate.connection.driver_class" value="org.postgresql.Driver"/>
```

```
<property name="hibernate.connection.username" value="postgres"/>
```

```
<property name="hibernate.connection.password" value="postgres"/>
```

```
<property name="hibernate.archive.autodetection" value="class"/>
```

```
<property name="hibernate.hbm2ddl.auto" value="create"/>
```

```
<property name="hibernate.show_sql" value="true"/>
```

```
<property name="hibernate.format_sql" value="true"/>
```

```
</properties>
```

```
</persistence-unit>
```

```
</persistence>
```

### 3. View the below given classes

```
public class PassengerId
{
    private String passengerEmail;
    private String passengerMobile
}
```

The above class PassengerId has to be used to create composite key in class Passenger with attributes passengerName,source and destination

Passenger.java:

```
package com;
```

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

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

```
import javax.persistence.IdClass;
```

```
@Entity
```

```
@IdClass(PassengerId.class)
```

```
public class Passenger {
```

```
    @Id private String passengerEmail;
```

```
    @Id private long passengerMobile;
```

```
    public String getPassengerEmail() {
```

```
        return passengerEmail;
```

```
    }
```

```
    public void setPassengerEmail(String passengerEmail) {
```

```
        this.passengerEmail = passengerEmail;
```

```
    }
```

```
    public long getPassengerMobile() {
```

```
        return passengerMobile;
```

```
    }
```

```
    public void setPassengerMobile(long passengerMobile) {
```

```
        this.passengerMobile = passengerMobile;
```

```
    }
```

```
    private String passengerName;
```

```
    private String Source;
```

```

private String destination;

public Passenger() {}

public Passenger(String passengerName, String source, String destination) {
    this.passengerName = passengerName;
    Source = source;
    this.destination = destination;
}

public String getPassengerName() {
    return passengerName;
}

public void setPassengerName(String passengerName) {
    this.passengerName = passengerName;
}

public String getSource() {
    return Source;
}

public void setSource(String source) {
    Source = source;
}

public String getDestination() {
    return destination;
}

public void setDestination(String destination) {
    this.destination = destination;
}
}

```

PassengerId.java:

```
package com;
```



```
import java.io.Serializable;
```

```
public class PassengerId implements Serializable{  
    private String passengerEmail;  
    private long passengerMobile;  
    public PassengerId() {}  
    public PassengerId(String passengerEmail, long passengerMobile) {  
        this.passengerEmail = passengerEmail;  
        this.passengerMobile = passengerMobile;  
    }  
    public String getPassengerEmail() {  
        return passengerEmail;  
    }  
    public void setPassengerEmail(String passengerEmail) {  
        this.passengerEmail = passengerEmail;  
    }  
    public long getPassengerMobile() {  
        return passengerMobile;  
    }  
    public void setPassengerMobile(long passengerMobile) {  
        this.passengerMobile = passengerMobile;  
    }  
}
```

Library.java:

```
/*  
 * This Java source file was generated by the Gradle 'init' task.  
 */  
package petdemo;  
import javax.persistence.EntityManager;
```

```
import javax.persistence.EntityManagerFactory;
import javax.persistence.Persistence;

import com.PassengerId;
import com.Passenger;

public class Library {
    public boolean someLibraryMethod() {
        return true;
    }

    public static void main(String[] args) {
        EntityManagerFactory emf = Persistence.createEntityManagerFactory("PetPU");
        EntityManager entitymanager = emf.createEntityManager();

        PassengerId pid = new PassengerId();
        pid.setPassengerEmail("pradeep456@gmail.com");
        pid.setPassengerMobile(8642732965);

        Passenger pass = new Passenger();
        pass.setPassengerEmail(pid.getPassengerEmail());
        pass.setPassengerMobile(pid.getPassengerMobile());
        pass.setPassengerName("Pradeep Raj");
        pass.setSource("Vijayawada");
        pass.setDestination("Guntur");

        entitymanager.getTransaction().begin();
```

```
        entityManager.persist(pass);

        entityManager.flush();

        entityManager.getTransaction().commit();

    }
}
```

build.gradle:

```
plugins {

    // Apply the java-library plugin to add support for Java Library
    id 'java-library'

}

repositories {

    // Use jcenter for resolving dependencies.
    // You can declare any Maven/Ivy/file repository here.
    jcenter()

}

dependencies {

    // This dependency is exported to consumers, that is to say found on their compile classpath.
    api 'org.apache.commons:commons-math3:3.6.1'

    // This dependency is used internally, and not exposed to consumers on their own compile classpath.
    implementation 'com.google.guava:guava:28.0-jre'

    // Use JUnit test framework
    testImplementation 'junit:junit:4.12'
```

```
// https://mvnrepository.com/artifact/org.eclipse.persistence/javax.persistence
implementation group: 'org.eclipse.persistence', name: 'javax.persistence', version: '2.0.0'

// https://mvnrepository.com/artifact/org.hibernate/hibernate-entitymanager
implementation group: 'org.hibernate', name: 'hibernate-entitymanager', version: '3.5.6-Final'

// https://mvnrepository.com/artifact/org.postgresql/postgresql
implementation group: 'org.postgresql', name: 'postgresql', version: '42.2.23'

compile 'org.slf4j:slf4j-api:1.7.24'
compile 'org.slf4j:slf4j-simple:1.7.24'
}
```