5. Demonstrate mapping List, Set, Bag, and Map in collection using XML file.

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

<!DOCTYPE hibernate-mapping PUBLIC "-//Hibernate/Hibernate Mapping

DTD 3.0//EN"

"http://www.hibernate.org/dtd/hibernate-mapping-3.0.dtd">

<hibernate-mapping package="com.example.model">

<class name="Department" table="departments">

<id name="id" column="department\_id">

<generator class="increment"/>

</id>

<property name="name" column="name" />

<!-- Mapping for List -->

<list name="employees" table="department\_employees" cascade="all">

<key column="department\_id"/>

<list-index column="list\_index" />

<many-to-many column="employee\_id" class="Employee"/>

</list>

<!-- Mapping for Set -->

<set name="managers" table="department\_managers" cascade="all">

<key column="department\_id"/>

<many-to-many column="employee\_id" class="Employee"/>

</set>

<!-- Mapping for Bag -->

<bag name="projects" table="department\_projects" cascade="all">

<key column="department\_id"/>

<many-to-many column="project\_id" class="Project"/>

</bag>

<!-- Mapping for Map -->

<map name="phoneNumbers" table="department\_phonenumbers" cascade="all">

<key column="department\_id"/>

<index column="phone\_type" type="string" />

<element column="phone\_number" type="string" />

</map>

</class>

</hibernate-mapping>

import java.util.List; import java.util.Set; import java.util.Map;

import javax.persistence.Entity; import javax.persistence.GeneratedValue; import javax.persistence.GenerationType; import javax.persistence.Id; import javax.persistence.ManyToMany; import javax.persistence.OneToMany; import javax.persistence.Table;

@Entity

@Table(name = "departments") public class Department {

@Id

@GeneratedValue(strategy = GenerationType.IDENTITY)

private int id; private String name; @OneToMany(mappedBy = "department") private List<Employee> employees;

@ManyToMany(mappedBy = "departmentsAsManager")

private Set<Employee> managers;

@ManyToMany(mappedBy = "departments")

private List<Project> projects;

@OneToMany(mappedBy = "department") private Map<String, String> phoneNumbers;

// Getters and setters

public int getId() { return id;

}

public void setId(int id) {

this.id = id;

}

public String getName() { return name;

}

public void setName(String name) { this.name = name;

}

public List<Employee> getEmployees() {

return employees;

}

public void setEmployees(List<Employee> employees) { this.employees = employees;

}

public Set<Employee> getManagers() {

return managers;

}

public void setManagers(Set<Employee> managers) { this.managers = managers;

}

public List<Project> getProjects() {

return projects;

}

public void setProjects(List<Project> projects) { this.projects = projects;

}

public Map<String, String> getPhoneNumbers() { return phoneNumbers;

}

public void setPhoneNumbers(Map<String, String> phoneNumbers) { this.phoneNumbers = phoneNumbers;

}

}

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| department\_id | name |

|---------------|----------------|

| 1 | HR |

| 2 | IT |

| employee\_id | first\_name | last\_name | department\_id |

|-------------|------------|-----------|---------------|

| 1 | John | Doe | 1 | | 2 | Jane | Smith | 1 |

| 3 | Mike | Johnson | 2 |

| department\_id | employee\_id |

|---------------|-------------|

| 1 | 1 |

| 1 | 2 |

| 2 | 3 |

| department\_id | employee\_id |

|---------------|-------------|

| 1 | 1 |

| department\_id | project\_id |

|---------------|------------|

| 1 | 1 |

| 1 | 2 |

| 2 | 1 |

| department\_id | phone\_type | phone\_number |

|---------------|------------|--------------|

| 1 | Office | 1234567890 |

| 1 | Mobile | 9876543210 |

| 2 | Office | 5555555555 |