

Case Study: Citizen and Passport Management

System Business Context:

pom.xml:

```
<project xmlns="http://maven.apache.org/POM/4.0.0"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://maven.apache.org/POM/4.0.0
http://maven.apache.org/xsd/maven-4.0.0.xsd">

  <modelVersion>4.0.0</modelVersion>

  <groupId>com.example</groupId>

  <artifactId>CitizenPassportHibernate</artifactId>

  <version>0.0.1-SNAPSHOT</version>

  <properties>

    <maven.compiler.source>17</maven.compiler.source>

    <maven.compiler.target>17</maven.compiler.target>

  </properties>

  <dependencies>

    <dependency>

      <groupId>org.hibernate.orm</groupId>

      <artifactId>hibernate-core</artifactId>

      <version>6.2.7.Final</version>

    </dependency>
```

```

<dependency>

  <groupId>jakarta.persistence</groupId>

  <artifactId>jakarta.persistence-api</artifactId>

  <version>3.1.0</version>

</dependency>
<dependency>

  <groupId>com.mysql</groupId>

  <artifactId>mysql-connector-j</artifactId>

  <version>8.0.33</version>

</dependency>
</dependencies>
</project>

```

Citizen.java:

```

package com.example.entity;

import jakarta.persistence.*;

@Entity

public class Citizen {

  @Id

  @GeneratedValue(strategy = GenerationType.IDENTITY)

  private int id;

  private String name;

  @OneToOne(cascade = CascadeType.ALL)

  @JoinColumn(name = "passport_id")

  private Passport passport;

```

```

    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 Passport getPassport() { return passport; }

    public void setPassport(Passport passport) { this.passport = passport;
    }
}

```

Passport.java:

```

package com.example.entity;

import jakarta.persistence.*;

@Entity

public class Passport {

    @Id

    @GeneratedValue(strategy = GenerationType.IDENTITY)

    private int id;

    private String passportNumber;

    @OneToOne(mappedBy = "passport")

    private Citizen citizen;

    public int getId() { return id; }

    public void setId(int id) { this.id = id; }

    public String getPassportNumber() { return passportNumber; }

    public void setPassportNumber(String passportNumber) { this.passportNumber =
passportNumber; }

    public Citizen getCitizen() { return citizen; }

    public void setCitizen(Citizen citizen) { this.citizen = citizen;
    }
}

```

Hibernate.cfg.xml:

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

<hibernate-configuration>

    <session-factory>

<property name="hibernate.connection.driver_class">com.mysql.cj.jdbc.Driver</property>
<property name="hibernate.connection.url">jdbc:mysql://localhost:3306/passport_db
</property>

        <property name="hibernate.connection.username">root</property>

        <property name="hibernate.connection.password">password@123</property>

        <property name="hibernate.dialect">org.hibernate.dialect.MySQLDialect</property>

        <property name="hibernate.hbm2ddl.auto">update</property>

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

        <mapping class="com.example.entity.Citizen"/>

        <mapping class="com.example.entity.Passport"/>

    </session-factory>

</hibernate-configuration>
```

HibernateUtil.java

```
package com.example.util;

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

public class HibernateUtil {

    private static final SessionFactory sessionFactory;

    static {

        try {

            sessionFactory = new Configuration().configure().buildSessionFactory();

        } catch (Throwable ex) {
            // Log the exception.
        }
    }
}
```

```

    } catch (Throwable ex) {

        throw new ExceptionInInitializerError(ex);

    }
}

public static SessionFactory getSessionFactory() {

    return sessionFactory;

}
}

```

App.java:

```

package com.example.app;

import org.hibernate.Session;
import org.hibernate.Transaction;
import com.example.entity.Citizen;
import com.example.entity.Passport;
import com.example.util.HibernateUtil;

public class App {

    public static void main(String[] args) {

        Citizen citizen = new Citizen();

        citizen.setName("Adam");

        Passport passport = new Passport();

        passport.setPassportNumber("SA98709");

        citizen.setPassport(passport);

        passport.setCitizen(citizen);

        Session session = HibernateUtil.getSessionFactory().openSession();

        Transaction tx = session.beginTransaction();

        session.persist(citizen);
    }
}

```

```
tx.commit();  
session.close();  
System.out.println("Citizen and Passport saved successfully.");  
}  
}
```