Experiment -9

Student Name: Rohit **UID:22BCS15476**

Branch: BE-CSE **Section/Group:IOT_640-A**

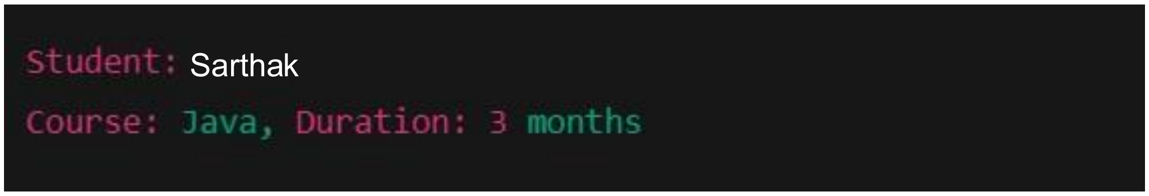
Semester:6th **Date of Performance:17/03/2025**

Subject Name: PBLJ **Subject Code: 22CSH-359**

Code:
```
// Course.java
public class Course { private
String courseName; private
String duration;

   public Course(String courseName, String duration) {
      this.courseName = courseName; this.duration
      = duration;
   }

   public String getCourseName() { return courseName; } public
   String getDuration() { return duration; }

   @Override
   public String toString() { return "Course: " + courseName + ",
      Duration: " + duration;
   }
}

// Student.java public
class Student { private
String name; private
Course course; public
Student(String name,
Course course) {
this.name = name;
this.course = course;
   }

   public void showDetails() {
      System.out.println("Student: " + name);
```

```
        System.out.println(course);
    }
}//              AppConfig.java                 import
org.springframework.context.annotation.*;

@Configuration    public
class AppConfig {
    @Bean
    public   Course   course()   {   return   new
        Course("Java", "3 months");
    }

    @Bean
    public Student student() { return new
    Student("Aman", course()); }
}// MainApp.java
import              org.springframework.context.ApplicationContext;              import
org.springframework.context.annotation.AnnotationConfigApplicationContext;

public class MainApp { public static void
    main(String[] args) {
        ApplicationContext context = new
AnnotationConfigApplicationContext(AppConfig.class);
        Student student = context.getBean(Student.class);
        student.showDetails();
    }
}
```

Output:



```
Student: Sarthak
Course: Java, Duration: 3 months
```

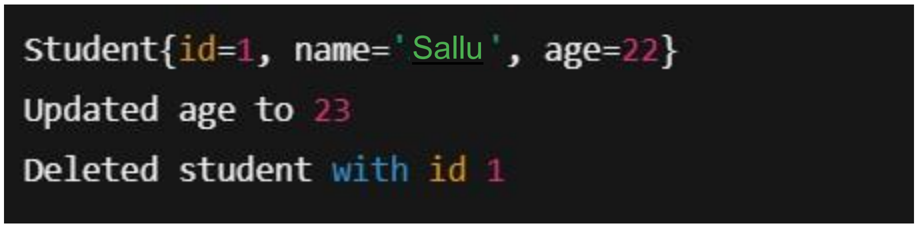
Code:

```
<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/testdb</property>
                <property name="hibernate.connection.username">root</property>
                <property name="hibernate.connection.password">password</property>
                <property
name="hibernate.dialect">org.hibernate.dialect.MySQL8Dialect</property>
                <property name="hibernate.hbm2ddl.auto">update</property>
                <mapping class="Student"/>
            </session-factory>
        </hibernate-configuration>

import javax.persistence.*;

Entity
public class Student {
   Id
   GeneratedValue(strategy = GenerationType.IDENTITY)
   private int id; private String name; private int age;

   public Student() {}
   public Student(String name, int age) {
      this.name = name; this.age = age;
   }
   // Getters, setters, toString
}
import org.hibernate.SessionFactory; import
org.hibernate.cfg.Configuration;

public class HibernateUtil { private static final
   SessionFactory sessionFactory;

   static { sessionFactory = new
      Configuration().configure().buildSessionFactory();
   }

   public static SessionFactory getSessionFactory() { return
      sessionFactory;
   }
```

```
}                    import

org.hibernate.*;

public class MainCRUD { public static
    void main(String[] args) {
        Session session = HibernateUtil.getSessionFactory().openSession();

        // Create
        Transaction tx = session.beginTransaction(); Student
        s1 = new Student("Aman", 22);
        session.save(s1);
        tx.commit();

        // Read
        Student student = session.get(Student.class, 1);
        System.out.println(student);

        // Update
        tx = session.beginTransaction();
        student.setAge(23);
        session.update(student);
        tx.commit();

        // Delete
        tx          =          session.beginTransaction();
        session.delete(student);
        tx.commit();

        session.close();
    }
}
```

Output:

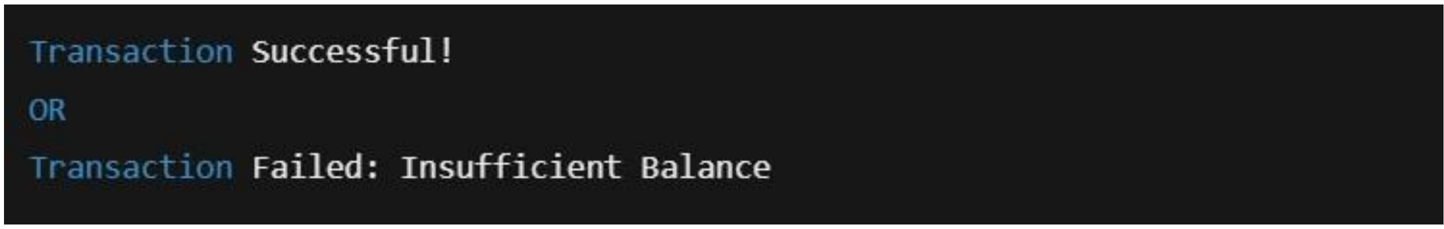


```
Student{id=1, name='Sallu', age=22}
Updated age to 23
Deleted student with id 1
```

Code:

```
import javax.persistence.*;

Entity
public class Account {
   @Id
   private     int     accountId;
   private String holderName;
   private double balance;

   // Constructors, getters, setters
}

import javax.persistence.*; import
java.util.Date;

@Entity
public class BankTransaction {
   @Id
   @GeneratedValue(strategy = GenerationType.IDENTITY)
   private int txnId; private int fromAcc; private int toAcc;
   private double amount; private Date txnDate = new Date();

   // Constructors, getters, setters
}
import org.hibernate.*;
import org.springframework.transaction.annotation.Transactional; public class
BankService {
   private SessionFactory sessionFactory;

   public BankService(SessionFactory sessionFactory) {
      this.sessionFactory = sessionFactory;
   }

   @Transactional
   public void transferMoney(int fromId, int toId, double amount) { Session
      session = sessionFactory.getCurrentSession();
```

```
        Account from = session.get(Account.class, fromId);
        Account to = session.get(Account.class, toId);

        if (from.getBalance() < amount) {
            throw new RuntimeException("Insufficient Balance");
        }

        from.setBalance(from.getBalance() - amount); to.setBalance(to.getBalance()
        + amount);

        session.update(from);
        session.update(to);

        BankTransaction txn = new BankTransaction(fromId, toId, amount);
        session.save(txn);
    }
}
@Configuration
@EnableTransactionManagement
public class AppConfig {
    @Bean
    public DataSource dataSource() {
        DriverManagerDataSource ds = new DriverManagerDataSource();
        ds.setDriverClassName("com.mysql.cj.jdbc.Driver");
        ds.setUrl("jdbc:mysql://localhost:3306/testdb");
        ds.setUsername("root");
        ds.setPassword("password");
        return ds;
    }

    @Bean
    public LocalSessionFactoryBean sessionFactory() {
        LocalSessionFactoryBean lsf = new LocalSessionFactoryBean();
        lsf.setDataSource(dataSource());
        lsf.setPackagesToScan("your.package"); Properties props =
        new Properties();
        props.put("hibernate.dialect",       "org.hibernate.dialect.MySQL8Dialect");
        props.put("hibernate.hbm2ddl.auto", "update");
        lsf.setHibernateProperties(props);
        return lsf;
    }

    @Bean
    public HibernateTransactionManager transactionManager(SessionFactory sf) {
        return new HibernateTransactionManager(sf);
    }

    @Bean
    public BankService bankService(SessionFactory sf) { return
        new BankService(sf);
    }
}

public class MainApp { public static void
    main(String[] args) {
        AnnotationConfigApplicationContext ctx = new
AnnotationConfigApplicationContext(AppConfig.class);
        BankService service = ctx.getBean(BankService.class);

        try  {  service.transferMoney(101,  102,
            500);
            System.out.println("Transaction Successful!");
        } catch (Exception e) {
            System.out.println("Transaction Failed: " + e.getMessage());
        }
        ctx.close();
    }
```



```
Transaction Successful!
OR
Transaction Failed: Insufficient Balance
```

```
}
```

OUTPUT