**Exercise 2: Implementing the Factory Method Pattern**

**CODE:**

abstract class Notification {

    public abstract void sendNotification();

}

class EmailNotification extends Notification {

    public void sendNotification() {

        System.out.println("Sending Email Notification");

    }

}

class SMSNotification extends Notification {

    public void sendNotification() {

        System.out.println("Sending SMS Notification");

    }

}

class User {

    private Notification notification;

    public User(int type) {

        if (type == 1) {

            notification = new EmailNotification();

        } else if (type == 2) {

            notification = new SMSNotification();

        } else {

            notification = null;

        }

    }

    public Notification getNotification() {

        return notification;

    }

    public void cleanup() {

        notification = null;

    }

}

public class E2 {

    public static void main(String[] args) {

        User user = new User(2); // 1 for Email, 2 for SMS

        Notification notification = user.getNotification();

        if (notification != null) {

            notification.sendNotification();

        } else {

            System.out.println("Invalid notification type.");

        }

        user.cleanup();

    }

}

**OUTPUT:**

