DAY 28:

ASSIGNMENT 2:

Task 2: Factory Method

Create a ShapeFactory class that encapsulates the object creation logic of different Shape objects like Circle, Square, and Rectangle."

ANSWER:

```
// Shape.java
abstract class Shape {
    public abstract void draw();
}

// Circle.java
class Circle extends Shape {
    @Override
    public void draw() {
        System.out.println("Drawing a Circle");
    }
}

// Square.java
class Square extends Shape {
    @Override
    public void draw() {
        System.out.println("Drawing a Square");
    }
}

// Rectangle.java
```

```
class Rectangle extends Shape {
    @Override
    public void draw() {
        System.out.println("Drawing a Rectangle");
    }
}

// ShapeFactory.java
class ShapeFactory {
    // Factory method to create shapes
    public Shape createShape(String shapeType) {
        if (shapeType == null) {
            return null;
        }
        if (shapeType.equalsIgnoreCase("CIRCLE")) {
            return new Circle();
        } else if (shapeType.equalsIgnoreCase("SQUARE")) {
            return new Square();
        } else if (shapeType.equalsIgnoreCase("RECTANGLE")) {
            return new Rectangle();
        }
        return null;
    }
}

// Main.java
public class Main {
    public static void main(String[] args) {
        ShapeFactory shapeFactory = new ShapeFactory();

        // Create a Circle
```

```
        Shape shape1 = shapeFactory.createShape("CIRCLE");
        shape1.draw(); // Output: Drawing a Circle

        // Create a Square
        Shape shape2 = shapeFactory.createShape("SQUARE");
        shape2.draw(); // Output: Drawing a Square

        // Create a Rectangle
        Shape shape3 = shapeFactory.createShape("RECTANGLE");
        shape3.draw(); // Output: Drawing a Rectangle
    }
}
```