

The project requires applying several patterns: Factory, observer, decorator, and singleton

You are building software for a cake shop. The system must manage orders from placement to pickup. handle complex customizations, manage a single connection to the central order processor, and update (notify) the dashboards in real-time.

The system support creating different types of cake; AppleCake, CheeseCake, ChocolateCake. Factory

The customer can decorate any ordered cake with; chocolate chips; cream, and skittles (decorator)

The CakeOrdering system that receives requests from customers must be singleton to avoid conflict (Singleton)

After the cake is ready it appears on a customer dashboard writing the name of the ordered cake and the number of order, and on another dashboard (manger dashboard) show the up to date sold cake type and amount ; for example, Cheese cake 123 (observer)

Write a java code to achieve the above requirement including a test drive to test the system, make several orders and see things work and how the dashboards show the updates after every order.

Instructions:

You can work in teams of up to 3

Discussion is required

You can discuss whenever you finish; just send me a message in advance to arrange a time slot for the discussion

Last date for the discussion is 16/12/2025

Write your code in java

on the day of discussion bring your computer with code