

SENG 300 - Group Assignment 2 - Group 2 Design Justification

Preface

In this document, we discuss the conscious design choices made in order to satisfy the given design goal requirements. Those being, the ease of supporting alternative hardware, extensibility, and user communication.

Design Patterns - The Singleton

A Singleton design pattern has been utilized throughout the system logic. This choice was made to prevent the accidental installation of multiple instances of the same software on a single machine. We believe it is important to ensure that overlapping interactions, invalid control access, and waste of system resources never occurs.

Alternative Hardware Support - Meet the Modules

As a means to avoid entire software system rewrites for each particular hardware quirk, we opted to categorize each logical component as particular *modules*. These modules have no hardware reliance whatsoever, and instead receive and pass relevant information through the VendingManager.java file- which acts as a bridge between logic and hardware. Therefore, only VendingManger needs to be concerned when modifying hardware.

Ease of Extensibility - Simple is More

Using the aforementioned module system, support for other forms of payment- including mixed modes is not a concern for the Group 2 software package. VendingMachine provides a singular interface for any type of payment- it can simply pass relevant information (like the amount of credit received) to its modules which will store the no-frills version of the information. Credit card, money, or both? The module doesn't care as long as it adds credit.

Information Flexibility - Communication is Key

Communicating relevant information to the user has never been easier. The DisplayModule.java class handles the display of information and can be set to a cyclical queue mode with different duration, or interrupted at any time to pass new relevant information. (Credit, for example.) Paired with the Singleton design pattern, it ensures messages are never lost and are handled appropriately.

Smart Logging - Ready and Reliable Records

Done through the LoggingModule, detailed and timestamped information logs are ready for you by the day. The LoggingModule has been designed to be lightweight and flexible, giving the VendingManager the ability to log every component of the machine.