2021 | SWEN30006 Software Modelling and Design

Report For Automail

Team 08 Mon 01:00 pm (Luke)
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Brief Intro

We are asked to change parts of the auto mail system to meet certain requirements including the addition of a charge feature on delivery. The following are the main changes to the system and how we implemented them.

The main change to the classes

1) In our implementation of the automail system, the Automail class acts as the creator class as it initiates both the MailPool and the deployment of the Robots. **(Creator Pattern)**

2) The main class is Simulation, for containing and altering the charge information, we include a property file that tells us whether to show the charge costs by setting a `ChargeDisplay` Boolean variable. This will allow the program's output to display or not display the charge values as desired based on a Boolean value. This file acts as an **Information Expert** containing all the universal values for the simulation, as described by the GRASP framework.

3) We import the `WifiModem` class to use the method `forwardCallToAPI_LookupPrice()` which returns the service fee according to the destination floor. The Modem class independently interacts with the external BMS system to return this price and is not discussed in the solution in depth. This interaction is independent of the simulation class, hence achieving **low coupling.**

4) The robot class is changed to count its steps and eventually allow for the activity cost to be calculated. The `goingToDes` variable stores movements between receiving a mail item and delivering it **(high cohesion).**

5) We add some more methods and arguments to the `MailItem` class to store the `activity_unit_price` and the `markup_percentage` to make sure the customer is charged properly without overcharging. The final cost is calculated within this class to avoid cluttering the robot class with the costs of two different items. This allows the system to maintain **high cohesion.**

6) The simulation class also contains the global total variables including total successful deliveries, total service cost, activity cost, billable activity and the number of successful and failed lookups **(Information Expert).**

Static Design Model