

INF2011S- Theory Individual Assignment 1

50 marks

30 August 2021

Open: 08:00am – Due: 23:55pm

Instructions

This is an individual assignment. You may not collaborate with anyone. You will have until midnight to complete and submit your work. This assignment is conducted under typical exam condition, therefore - **you are not allowed to request assistance from Tutors or classmates when doing it.**

You are welcome to work synchronously (via WhatsApp/MS Teams) or asynchronously via email. Do not copy or share your answer with other teams. Zero will be awarded if work is deemed as plagiarised. You are welcome to use any modelling tool of your choice. For online tool, we recommend Lucidchart (<https://www.lucidchart.com/pages/>). If you wish to install software on your own or Lab PC, check what is available on the ICTS website.

Save your solution file as a pdf to “INF2011S_Theory_Assignment1_STUDENTNO.pdf”. Specify your tutor name for ease of reference.

Poppel Case Study

Poppel is a manufacturer and importer of confectionary and soft drinks based in the Western Cape. The organisation has been growing rapidly over the last 3 years with the introduction of branded products for the large retail chains. Two major additions in the last three years have driven significant growth. Please review the full case study.

Assume that the following have taken place already;

1. An analysis of the current problems at Poppel. From those findings a **BUSINESS CASE** with recommendations to management has been developed.
2. The construction of a **USE CASE DIAGRAM** together with detailed scenarios to depict the main use cases in the Order Processing sub-system.
3. The development of a **DOMAIN CLASS DIAGRAM (DCD)** identifying the noteworthy concepts in the order processing system and documented these entity classes, their attributes and associations.
4. The DCD was then refined to become an **ANALYSIS CLASS DIAGRAM** representing the software classes required by the system.

- The final step in the process was a walkthrough where user requirements (taken from the relevant use case narratives) were used to test whether these classes, attributes and associations were able to accommodate all the user's requirements.

See the following Domain Class Diagram from as a start for your detailed class diagram.

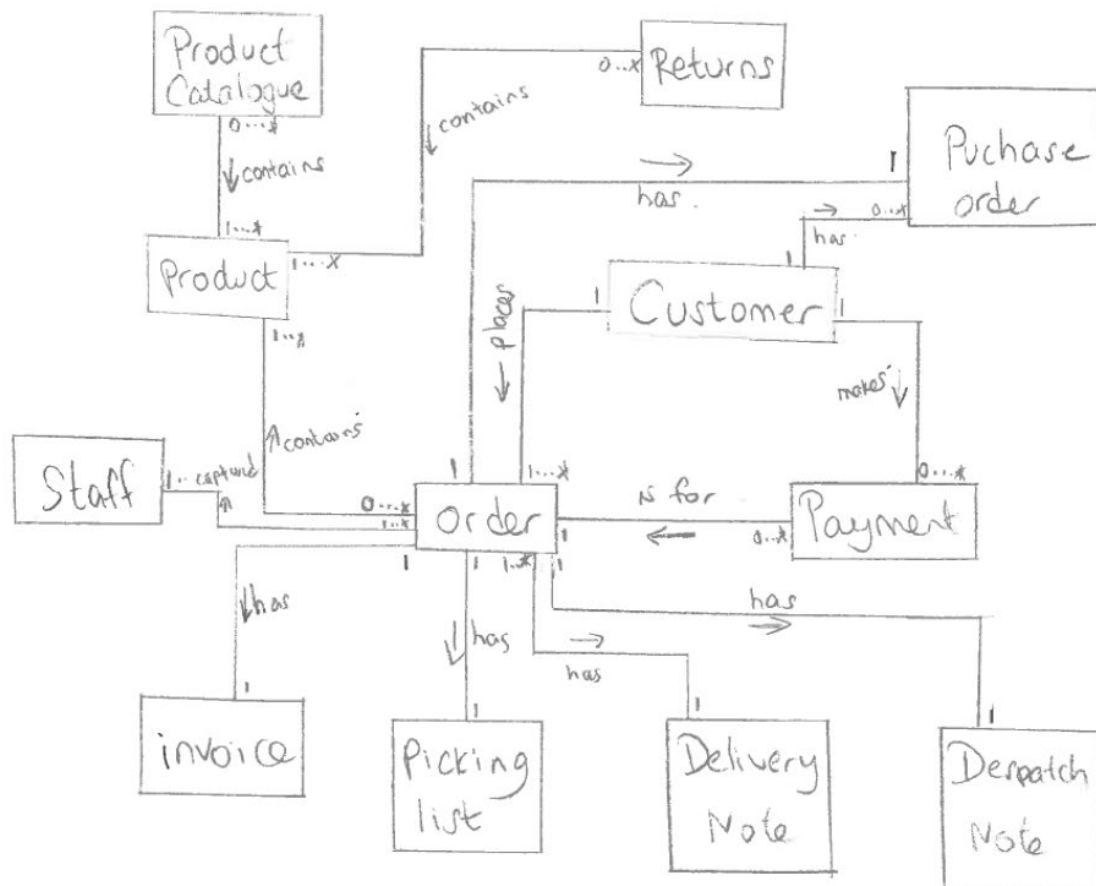


Figure 1: Poppel Domain Model Class Diagram

For this assignment, you will at some point be required to draw a detailed design class diagram of the "Create a customer order via the marketing clerk" use case.

As a recap from your lessons on class design, recall that a Design Class Diagrams are based on a domain class diagram but in addition shows objects, attributes and their methods including visibility indicators for the system.

In this use-case, the central class is the Order class which is associated with the Customer making the purchase and the Payment. Consider that the Payment is one of three kinds: Cash, Check, or Credit. Below are some guidelines for your class diagram.

- For the Order class, you will need to keep information about the order number, the date it was created, the date it has to be shipped, the address it has to be shipped to,

the status of the order (New order, On hold, Shipped, delivered or closed), and the grand total for the order (calculated by using the line item details and price). Use enumeration to capture the order status. The order class should also be able to calculate the grand total for a particular order

- For the Customer, each customer is associated with a customer identifier, their address, telephone and email.
- Order Item captures the quantity selected for each product. You should be able to edit, update or delete an item
- The Product has information about the price of the product, the description, the supplier, image and the product identifier.
- Product category has the category id, name, and description.

Now, answer the following questions:

1. Identify any two classes that could serve as Information experts. Why have you chosen these classes and what information do they have that warrants them to serve as information experts? (4)
2. Identify any two classes that could be responsible for creating objects (to fulfil the Creator principle). Why these classes? (4)
3. Would you say there is less or high coupling between Staff, Order and Payment? Motivate your answer. (4)
4. How is enumeration indicated in the order status class? (4)
5. Provide an example of association in your class diagram? (4)
6. Draw a detailed design class diagram using these identified classes (in Figure 1) for the following scenario as shown below (Table 1). (30)

Create a Customer Order via the Marketing Clerk Use Case

Below is an example of the typical course of events from the “Create a Customer Order via the Marketing Clerk” use case for your information – you may have identified additional activities or a different sequence of actions. Remember you are modelling the “happy day” scenario.

| Typical Course of Events | |
|--|---|
| Actor Action | System Response |
| 1. Customer submits a completed order form | |
| 2. Marketing Clerk enters the customer number into the system | 3. System checks the customer's details and current credit status 4. If Credit Status is OK the system prompts Marketing Clerk to capture order items. |
| 5. Marketing Clerk captures an item and quantity in the system | 6. If this is the first item requested, the system creates an order 7. System obtains the price and description of the item and checks the availability of stock 8. System checks the product entitlement to ensure customer is entitled to order the product. 9. System adds the line item to the order |
| 10. If there are more items, return to step 4 | |
| 11. Marketing Clerk confirms order | 12. System updates reserved stock balances, updates order status to 'On Hold', confirms credit status is OK and updates order status to "Order Confirmed" |
| Alternate Course of Events | |
| 13. Customer has not purchased from Poppel before. | 14. Marketing Clerk requests customer details and forwards to new accounts |
| 15. Customer credit limit has problems. | 16. Clarify details with customer. |

Table 1. Create a Customer Order via the Marketing Clerk Use Case