Adamson University
College of Engineering
Computer Engineering Department

UML Diagrams for Designing and Developing a Database with a User Interface for DDD Café

In Partial Fulfillment
of the Requirement of the Subject
Database Design and Development Lab

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Schedule:
MW / 7:00 – 10:00 / CL 19

Submitted to:

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I. Introduction

The DDD Café is a case study that is based on a point of sale system (POS), here, we are taking the point of view of the cashier that enables us to create a system wherein most cases, the controls and operations are done by the cashier-in-charge. A Unified Modeling Language (UML) Diagram is where an in-depth and a detailed explanation of how the system works is discussed, a graphical explanation of the structure and behavior of each component in the system that enables team members to be on the same page.

II. Entity Relationship Diagram

ERD diagrams are considered to be structural diagrams used in a database design, it has symbols such as rounded rectangles and connectors that signifies entities, attributes, and their inter-relationships. In our ERD diagram the first data in bold are specified as the *primary keys* while the italicized are the *foreign keys.*

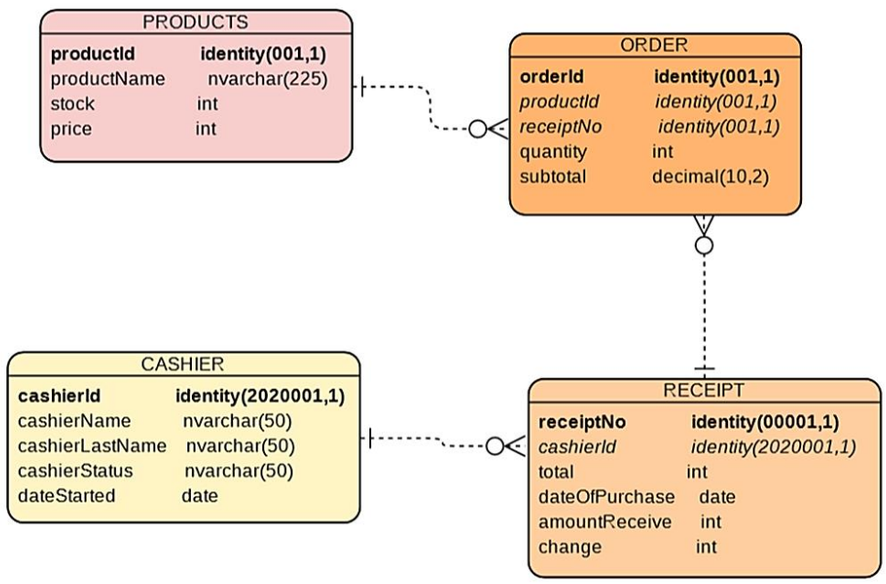

Figure 1.1: DDD Café database ERD

This ERD diagram contains four different tables found in the DDD Café database, first is the *Products* table where products from the Café are being stored, it contains the *product names*, the *stock*, and their respective *price*, the next one would be the *Cashier* table that contains the information of each cashier we have, along with that is the *cashier's full name*, the *status* – whether on duty or off duty, and the *date* the cashier started working. For the other tables, we have the *Order* and *Receipt* table, this is being filled every after transaction, as for the *Order* table, it will be containing the *productId* of the product bought, the *quantity* sold per product along with its *subtotal*, lastly, we have the *Receipt* table which will be filled with the *cashierId*, the *total* of the products bought, the *date of purchase*, the *amount receive*, and the *change*, all of this filled a row in the *Receipt* table in every transaction.

This ERD diagram is created after having a discussion where the group member's opinions are considered along with our instructor's help. We build our diagrams all together making sure that everyone are able to cope up.

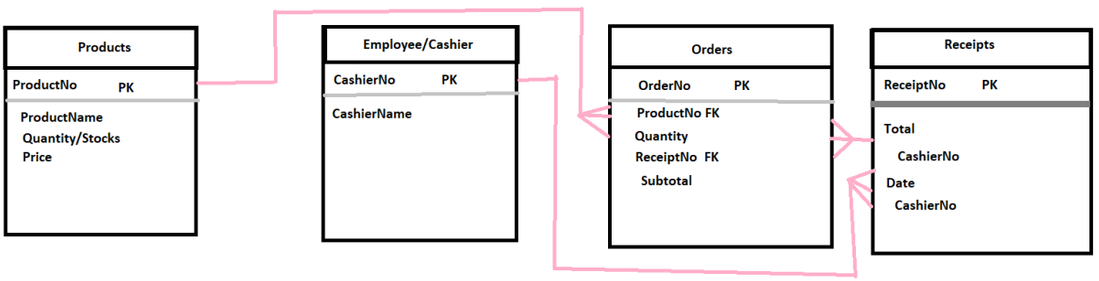

Figure 1.2: DDD Café database ERD draft

The diagram above is the reference we used in creating the diagram, it can be seen here the simplified one-is-to-many connection which explains the relationship of primary keys to other tables. We used an online diagram tool to create and enhance the finalized version. (Online ERD Tool)

III. Use – Case Diagram

These diagrams are frequently referred to as behavior diagrams because they are used to describe a set of certain actions that some system should or could collaboratively perform with one or more external users of the system.

Figure 2: Use-case diagram of DDD Café POS with the actors

This diagram shows a system that can be seen in a rectangular shape along with the system's identification, the actors or the whoever would be interacting with the system, usually in the form of stick figures, and a basic flow of what the system does. It doesn't really have a detail but could turn complex ideas into basic ones. Solid lines represent the association of the actor with that specific flow, there are also *Include* that is depended with the base case and *Extend* that will only happen once a criteria is met, both written in double chevrons with a dashed arrow.

In this diagram, we showed here how the system we created is supposed to be used. We created this by learning from tutorial videos on the internet (Lucidchart, 2018). This diagram shows how the customer will be interacting with the system by giving the orders and payment, while the cashier, who controls the system most of time and is in-charge with every transactions, along with that, is a manager who is the only one capable of deleting or canceling an order since the manager is the only one who knows the password the complete the cancelation of order/s.

III. Sequence Diagram

Sequence Diagrams are those who show the objects of the system or classes with the syntax that interacts with each other particularly as to the order where that interaction takes place. This shows the sequence of the events in a chronological order.

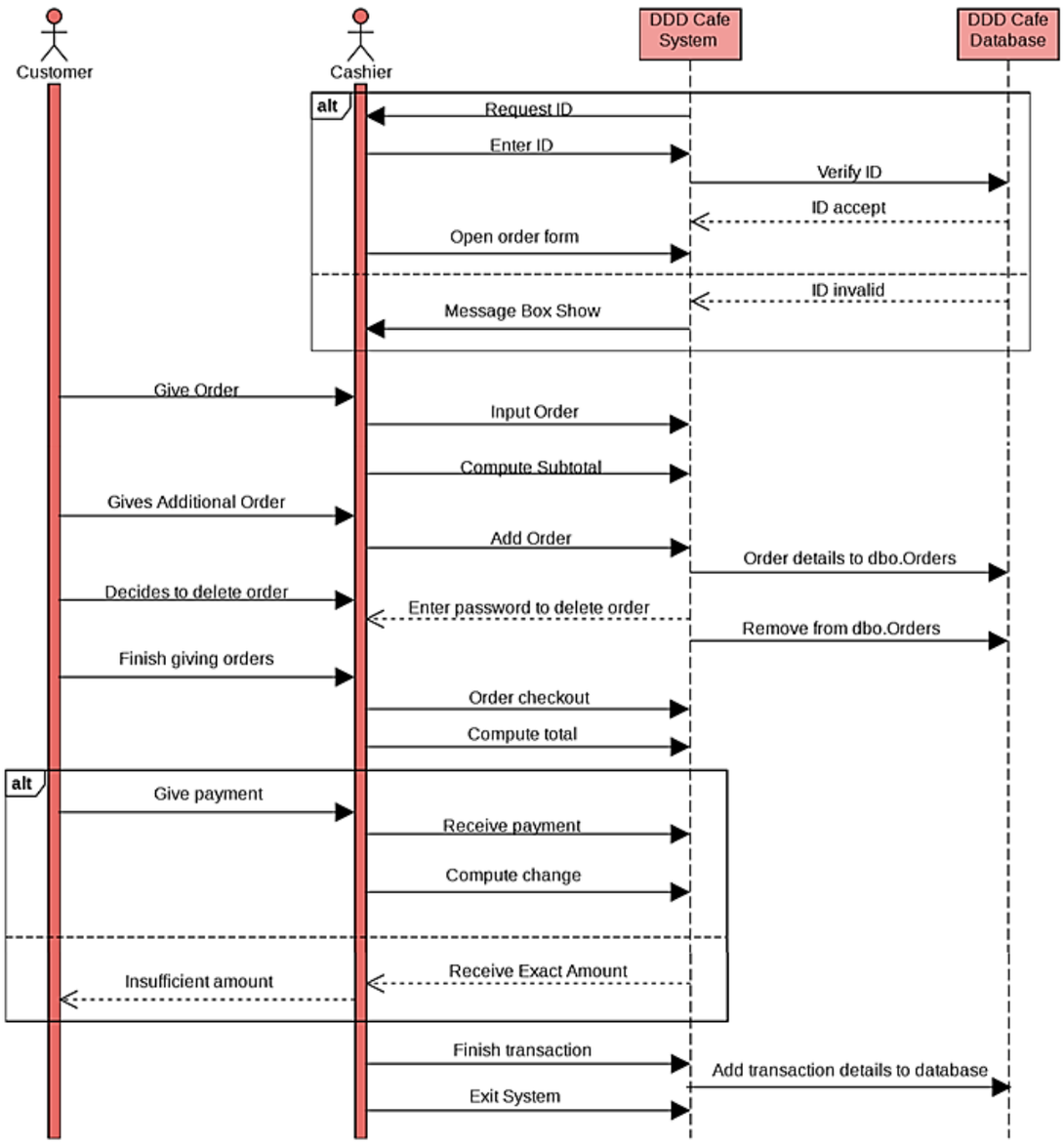

Figure 3: A sequence diagram of the transaction process at DDD Café

Our diagram shows how the POS transaction at our Café can be completed, we learned also learned how to create one with the help of the internet, here we have a customer that will give orders, a cashier who will manipulate the system, and the system itself with the database, all of these are placed in a sequential order. Solid arrows represent the message while the dashed lines represent the message that is returned by the receiving object. The rectangular shape on the other hand that is divided into two parts by a dashed line, is a conditional figure of *if* and *else*, the upper part would be the *if* and the lower is the *else*.

V. References

[1] Online.visual-paradigm.com. 2020. *Online ERD Tool*. [online] Available at: <https://online.visual-paradigm.com/diagrams/features/erd-tool/>.

[2] Smartdraw.com. n.d. *UML Diagram - Everything You Need To Know About UML Diagrams*. [online] Available at: <https://www.smartdraw.com/uml-diagram/>.

[3] Visual-paradigm.com. *What Is Entity Relationship Diagram (ERD)?*. [online] Available at: <https://www.visual-paradigm.com/guide/data-modeling/what-is-entity-relationship-diagram/>.

[4] Visual-paradigm.com. *What Is Use Case Diagram?*. [online] Available at: <https://www.visual-paradigm.com/guide/uml-unified-modeling-language/what-is-use-case-diagram/>.

[5] Lucidchart, 2018. *Https://Www.Youtube.Com/Watch?V=Zid-Mvo7m-E*. [online] Available at: <https://www.youtube.com/watch?v=zid-MVo7M-E>.

[6] Visual-paradigm.com. *What Is Sequence Diagram?*. [online] Available at: <https://www.visual-paradigm.com/guide/uml-unified-modeling-language/what-is-sequence-diagram/>.

[7] Lucidchart, 2018. *How To Make A UML Sequence Diagram*. [online] Available at: <https://www.youtube.com/watch?v=pCK6prSq8aw>.