South East Technological University - Waterford

Assignment: Design Document Deliverable

Module: Database Fundamentals

Information Technology WD 155 - Year 2

Rafal Krzempek

Student Number: 20096679

13/11/2022

Table of Contents

Introduction

This draft was created for a project in the Database Fundamentals course, which, after corrections and additions, will be used as documentation for the implementation of the database into the MySQL environment. Its purpose is to show the whole process of creating database models, from their conceptual phase through to the logical phase, in order to finally create a Physical Data Model that allows implementation into a database. Each level of design is logically interlinked.

The 'Visual Paradigm' (Logical Data Model Draft) software was used for the project.

Business Description

Business Rule.
The publishing house collaborates with many authors, printing houses and bookshops. Once the manuscript of a title, submitted to the publishing house by the author(s), has been accepted, its printing is commissioned to one of the printing houses cooperating with the publishing house. Only one printer is contracted to print

each title. Some titles have a single author, while others have multiple authors. One or more salaries are paid by the publisher per title. Each payment is made to one author. Once the printed titles (books) have been delivered from the printing house, they are sold to bookshops, and a single sale always involves only one title and one bookshop. Information about each transaction, such as the date of sale, the account number, the number of items or the amount of the sale, should be recorded. Bookshops cooperating with a publisher for more than one year may receive a discount; some bookshops may receive more than one discount, e.g., depending on the volume of sales.

Conceptual Data Model

The Conceptual Data Model helps to identify the key elements of the business/systems and to establish the relationships that exist between them. It also helps to define the key issues that need to be handled by the system.
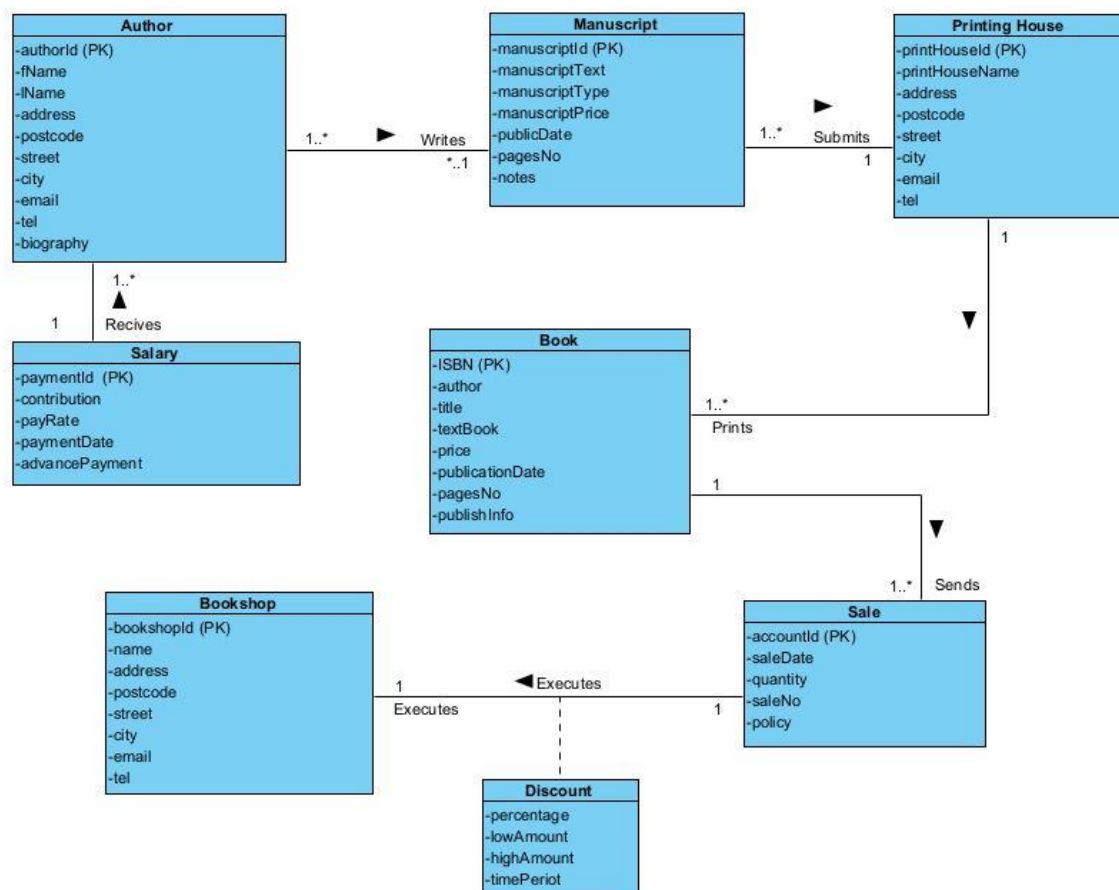
Logical Data Model

The Logical Data Model helps to define the attributes needed for data collection and processing to enable the whole system to function smoothly and correctly.

Salary (PaymentId, contribution, payRate, paymentData advancePayment)

Primary key PaymentId

Author (authorId, fName, lName, address, postcode, street, city, email, tel, biography)

Primary key authorId

Froreign key PaymentId references **Salary**(PaymentId)

Manuscript (manuscriptId, manuscriptText, manuscriptType, manuscriptPrice, publicDate, pagesNo, notes)

Primary key manuscriptId

Froreign key authorId references **Author** (authorId)

Froreign key printHouseId references **Printing House** (printHouseId)

Printing House (printHouseId, printHouseName, address, postcode, street, city, email, tel)

Primary key printHouseId

Book (ISBN, author, title, textbook, price, publicationDate, pagesNo, publishInfo)

Primary key ISBN

Froreign key printHouseId references **Printing House** (printHouseId)

Sale (accountId, saleDate, quantity, saleNo, policy)

Primary key accountId

Froreign key ISBN references **Book** (ISBN)

Book shop (bookshopId, name, address, postcode, street, city, email, tel)

Primary key bookshopId

Discount (percentage, lowAmount, HighAmount, time,Periot)

Primary key bookshopId, accountId

Froreign key bookshopId references **Book shop** (bookshopId)

Froreign key accountId references **Sale** (accountId)

References

The Visual Paradigm: https://www.visual-paradigm.com/