

## Homework Assignment #4: Building an Abstract Data Model

### Due Time/Date

2:10PM Wednesday, April 28, 2021. Late submission will be penalized by 20% for each working day overdue.

### Note

The purpose of this assignment is for you to exercise the basics of domain modeling, which are the steps you take to go systematically from the problem domain to the solution domain. We will focus on the data part, i.e., the construction of an abstract data model, that would form the basis of a more detailed design.

Please write or type your solution on A4 (or similar size) paper. Put your completed homework on the instructor's desk before the class starts. For late submissions, please drop them in Yih-Kuen Tsay's mail box on the first floor of Management Building 2. You may discuss the problem with others, but copying answers is strictly forbidden.

### Problem Description

Construct an abstract data model for a hotel-room booking system that has to meet the following requirements:

- A hotel typically has several types of room, including single, double, suite, etc.
- A hotel may have from a few tens of rooms to several thousands of rooms, some allowing smoking or pets.
- Hotel rooms are priced according to their room types and days of the week.
- A customer may reserve several rooms, each for multiple days.
- A customer must have a full name, an email address, and a phone number.
- Additional option 1: hotel rooms are priced also according to different time periods of the year.
- Additional option 2: for promotion purposes, a hotel may implement a membership program. The members of a hotel often enjoy discounts when booking a room.

Please use the UML as much as possible when describing the model. State the assumptions, if any, you make for your design.