**Practice Work 3**

September 29, 2015

**1.** Draw an ER diagram for the following case: Assume there are two entities, Student and Room, which is a part of dorm. A student can share a room with his/her friends. At least two students share a room. There is no vacant room. A student can stay in his/her house, which is not room of the dorm.

**2.** Consider the following set of requirements for a pharmacy database. Draw an ER or EER diagram that captures the details specified below. State your assumptions if any.

* (a) The pharmacy has several pharmacists, and many customers. Each customer has a unique account number. Any of the pharmacists may fill a prescription of a customer. Each person (customer or pharmacist) has SSN, name, address, phone. Each person has a unique SSN.
* (b) Each medicine has a name and a company that manufactures it. Medicines are manufactured in batches, where each batch of a medicine has a batch number and an expiry date associated with it.
* (c) Each customer’s history of prescription medicines dispensed is recorded. Each prescription has a unique prescription number, the name of a doctor who wrote that prescription, the day it is filled by the pharmacy, the pharmacist who dispensed the medicines, and a list of one or more medicines. Each prescribed medicine has a name and quantity.
* (d) It is possible that a customer may get different batches of the same medicine within a single prescription. For each medicine dispensed within each prescription, the system needs to keep track of the batch numbers and quantities of that batch given to the customer. For example, in dispensing 50 Lipitor pills, the pharmacist may have dispensed 30 pills from batch 14279 with expiry date 12/31/2013, and 20 pills from batch 15928 with expiry date 6/30/2014.

**3.** Consider the following set of requirements for an investment company database. Draw an ER or EER diagram that captures the details specified below. State your assumptions if any.

* (a)  The investment company has several branches. Each branch has a BranchId which is unique, address, phone and a manager.
* (b)  Each branch has a number of customer accounts, each of which has a unique account number, owner and an employee who acts as portfolio advisor. An account has only one owner. An employee may be the advisor for many accounts.
* (c)  Each person (customer or employee) has SSN, name, address, phone. Every customer has exactly one account. Each person has a unique SSN. Due to conflict of interest, employees are prohibited from having an account with the investment company.
* (d)  Each account has within it a number of stock holdings: stock symbol, name, and quantity. The quantity is further broken into lots that were purchased together. Each lot has quantity, purchase price per unit share, and date of purchase. For example, an account may have 500 shares of MSFT (Microsoft Corp), which were purchased in 2 lots: 200 shares at $25.75/share on 9/9/11, and 300 shares at $26.20/share on 10/4/11.