Software Engineering ESOF 322 HW 1 (35 pts)
- Hand in a print out of your work during class on 9/11.
- You must use software to draw UML. Hand-drawn diagrams will receive 0.
- Use a partner. Clearly label every page with both names.
- Staple the pages together.

Due: Thursday 9/11 during class – NO EXCEPTIONS. This means no assignments will be accepted after 13:30 hours on 9/11.

Exercises Part A (15 pts)
For each of the following (pseudo)code snippets provide the UML class diagram.

1. Public class EPS {
    Private Room [10] entries;
}

Public class Room {
    Private EPS my_eng_bldg;
}

2. Public class X {
    Private List<DiskShare> entries;
}

Public class Y {
    Private DiskShare count;
}

Public class DiskShare {
    Private X x1;
    Private Y y1;
}

3. Public class BlogAccount{
    Private string name;
    Private Category[] categories;
    Private BlogEntry[] entries;
}

Public class Category {
    Private string name;
}

Public class BlogEntry{
    Private string name;
    Private Category[] categories;
}
4. Public abstract class Store {
   Public abstract void store(Article[] articles);
   Public abstract Article[] retrieve();
}

Public interface Accounting {
   ...
}

Public class BlogStore extends Store implements Accounting{
   Public void store(Article[] articles); { Book b = new Book(); // other code .... }
   Public Article[] retrieve() { ... }
}

Exercises Part B (20 pts)
Design the architecture for this system. Create a structural UML class diagram. Make sure you include enough information to convey the idea of your design. Your design should fit in one sheet of paper. (Hint. Not all information provided in the requirements has to be part of the class diagram. Remember that a UML class diagram represents the structural aspects of a design, not the behavioral aspects (i.e. no algorithms)).

Train Station

You are required to build a software system to handle the dispensing of tickets at a train station. In this case the ticket dispensing machine can hold only a finite number of coins and bills. The machine stores only information about trains that leave the station in which the machine is located. Each train makes a finite number of stops after leaving the station. These stops are called destinations. Each train has two types of cabins: first class and regular class. The maximum number of seats in each cabin varies across trains. A user of the ticket machine must enter a destination (as a selection), number of tickets required, and the type of cabin requested (only one type of cabin can be selected for the number of tickets ordered). The machine then checks whether a train that stops at the destination has available space in the type of cabin requested. If there is an available train, the system then reserves the required number of seats and displays the price to the user. The user must then enter payment (restrictions on type of payment are given below). After sufficient payment is entered the system dispenses the tickets. Each ticket contains the train identifier, the cabin type, and a seat number. If insufficient payment is entered the reservation is cancelled. The machine operates under the following conditions:

- This machine accepts only cash. Only nickels, dimes, quarters, dollar bills and five dollar bills are to be accepted as valid contributions to a payment.
- All other objects are rejected (rejected objects are called slugs).
- The number of coins and bills that the machine can store is limited. Below are the limits:
  - Nickels: maxN
  - Dimes: maxD
  - Quarters: maxQ
  - Dollar bills (1 and 5 dollar bills combined): maxB
- A ticket can only be dispensed if it is available and the payment is sufficient.
- Payment can only be made after a reservation is made on an available train