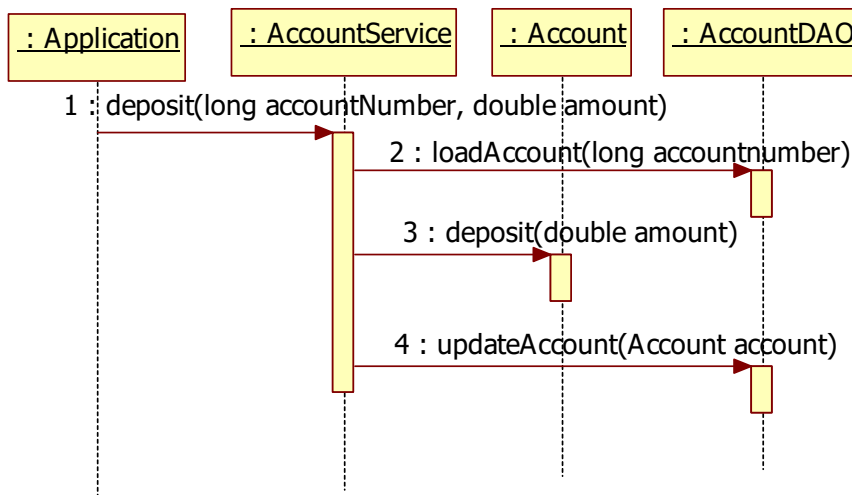
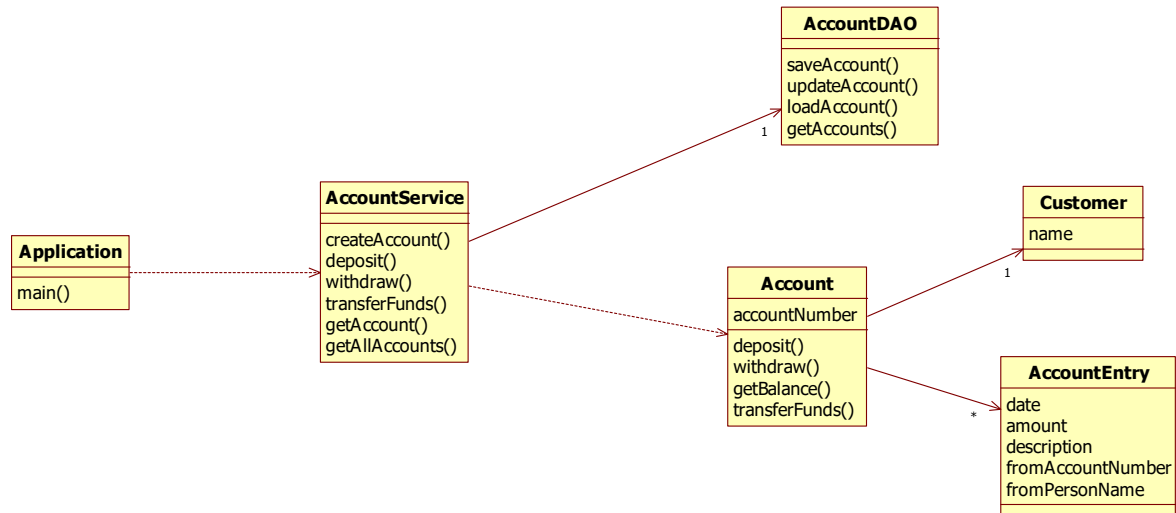


## Lab 9

**Part 1:** Given is the following bank application:



- a. Write an abstract factory class with the following functionality:
  - 1. For testing, we want to use a MockAccountDAO and a MockEmailSender
  - 2. For production we use the AccountDAO and an EmailSender class
  - 3. We specify the environment (production or test) in config.properties file.

- b. Builder pattern

Modify the code so that we use a Builder to create the AccountEntry objects

- c. Singleton pattern

Modify the code so that the EmailSender is a singleton that is thread safe

## **Part 2:**

See attached lab 9 part 2.