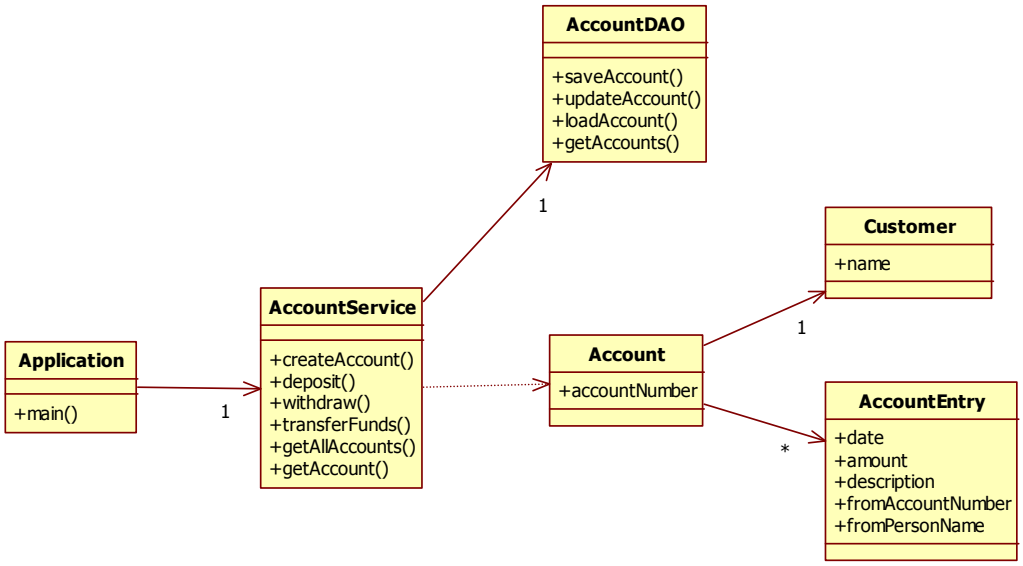
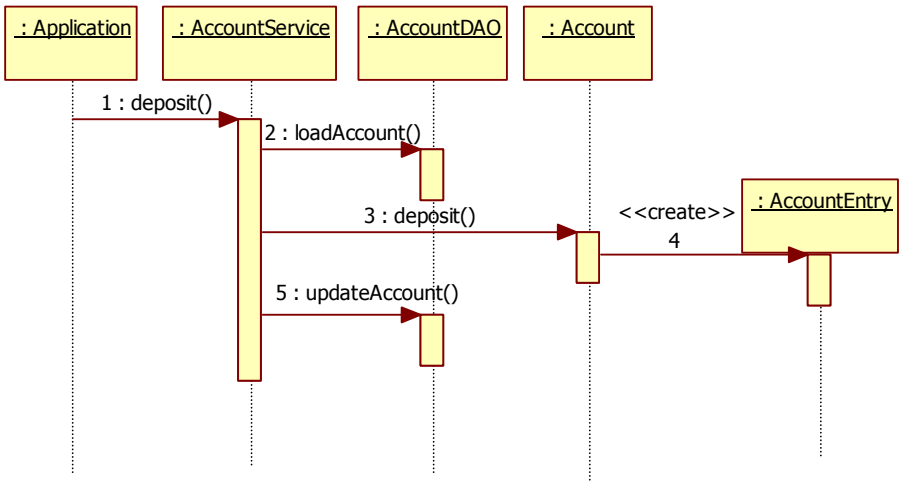
Factory pattern Lab

Given is the following bank application:





In the given code, the AccountDAO keeps an in-memory list of accounts. This AccountDAO might be very useful for testing, but in a real application we want this AccountDAO to go to a real database.
Suppose we want an AccountDAO that goes to the database, and a MockAccountDAO (that does not go to the database) that we can use for testing. We run now into the following problem: The AccountService class uses either the AccountDAO or the MockAccountDAO, but when we want to change from the production environment to the test environment we have to change the AccountService class.
Suppose we have another class, let's say a CustomerService, that also want to use the AccountDAO. Now the problem gets bigger: If we want to change from the production

environment to the test environment we have to change the AccountService class and the CustomerService class.

a. Explain how the Factory pattern can help here to solve this problem.
b. Implement the Factory pattern in the given code of the Bank application.