Pak-Austria Fachhochschule: Institute of Applied Sciences and Technology
School of Computing Sciences

Group Assignment # 03

Course Title: Software Engineering (COMP-171) **CLO # 02,03**

Course Instructor: Dr. Muhammad Shuaib Qureshi **Max Marks: 20**

Instructions:

- All the diagrams in the report should be high-resolution image format.
- Use tools such as Lucidchart, Draw.io, StarUML, or any UML modelling tool of your choice.

Draw Sequence Diagram and State Diagram for the following case studies.

1. ATM Withdrawal Process

User inserts a card into the ATM. ATM requests the user to enter the PIN. User enters the PIN. ATM sends the PIN to ATM System for verification. ATM System checks the PIN by querying the Bank Server. Bank Server validates the PIN. If the PIN is valid, ATM requests the user to input the withdrawal amount. User enters the withdrawal amount. ATM sends the withdrawal request to ATM System with the specified amount. ATM System checks with Bank Server to see if the user has sufficient funds. Bank Server verifies the balance. ATM System sends a response to ATM with either success or failure. If funds are available, ATM dispenses cash to User and updates the account balance. ATM returns a receipt and ejects the card.

2. Drink Dispenser:

The user enters some coins, then he pushes a button to select either a bottle of juice or a bottle of water. If the user entered enough money, the selected bottle will be provided to the user, unless there are no bottles left within the machine.
Any unused money will be returned. The user may at any point in time cancel the operation and any money entered will be returned.
The machine is connected to the Internet, and a bottle delivery person who replaces the sold bottles, or a manager may access the machine over the Internet and perform the following operations:

- If the machine is in the *idle* state, then the machine may be put into the *standby* state.

In this state, the following operations can be performed:

(a) read the numbers of juice and water bottles left in the machine
(b) update the number of bottles stored in the machine