**Lab Tasks**

1. You are designing a state chart diagram for an online delievery system for a company that processes orders for various items. Initially when an order is placed, it enters the ‘Unprocessed’ state. After one hour the company checks the order to determine if all the items or ingredients or items required for fulfilling the order are available, the order is marked for delievery. If anyone of the required items are unavailable, the system will wail until they become available. However if the necessary items donot become available within two days, the system will automatically cancel the order.
2. Let us consider an example: a laptop running on a battery. When the laptop is on and the user is working, i.e. is pressing the keyboard keys and moving the mouse, the laptop stays On. However, after 5 minutes of user inactivity, the laptop turns off the screen to save power. If the user touches the keyboard or mouse while the screen is Off, the screen turns back on, hence the Key or mouse change Screen off back to On. If, however, the user remains inactive for 10 minutes more, the laptop switches to the Sleep mode to further minimize the battery usage. In the Sleep state, the laptop does not react to the mouse and the keyboard. To wake the laptop up again, you need to press the power button , which change Sleep to On. In any of the three (On, Screen Off, or Sleep) the laptop consumes the battery power. When the battery level falls to 10% the laptop is forced to shut down. While Shut down the laptop will only react to the power button which change the laptop mode from sleep to on.

3. In an order processing system all customers are initially set up as prospective customers, but when they place their first order ther are considered to be active customer.If a customer does not pay an invoice on time, he is placed on notice. If he continues to keep overdue, he is given warning. If the customer doesnot pay the dues within the month of the warning, legal actions are taken against the customers. If the customer pays after the warning, he is taken back to the system as a risky customer. Only when he has a good record of transaction for six months he is taken as regular customer. If an active customer does pay on time and has ordered more than $10,00 in the previous six months, he warrants preferred status. Preferred status may be changed only if the customer is late on two or more payments. Then he returns to active status rather than probation, giving him this benefit on the basis of his previous history. Sometimes an active customer can become preferred customer if the management has special issues with the customer. The customer information is archived for good if the customer dies or if there has been no transaction with the customer for more than five years.