**Analytical Exercise set on Process Specification Lecture**

**(This set do not cover th theoretical questions)**

1. Represent different decision making that takes place when a user withdraws money from a Bank ATM.
2. Suppose a tic-tac-toe game software has the following features: It first asks the user to enter his name and difficulty level for the game. The user and computer then play alternate moves until the game drawn or won by either. Based on the outcome a congratulatory or conclusion message for the user is displayed. Represent the decision taking involved consequent to each user of move in the tic-tac-toe game in the form of decision table.
3. Create a data dictionary for the registration and login process of a library management system.
4. Create a data dictionary for customer order process of a Pizza Delivery System.
5. Create a data dictionary for billing process of an Online Shopping System.
6. A bank has the following policy on deposit. On deposits of Rs.50,000 and above for five years or above the interest rate is 15%. On the same deposit for a period less than 5 years it is 12%, on deposits below Rs.50,000 the interest is 10% regardless of period of deposit.

Write the above process using:

* + Structured English
  + A Decision Table

1. Bengali Food company followed a discount policy for the customers as follows.

If the customer want to pay his/her order on credit card and customer's record is good the order will be accepted but do not give any discount. If customer's record is not good do not accept any order.

If the customer want to pay his/her order on cash and sells amount is more than 1000BDT discount will be given 25%.

If the customer want to pay his/her order on cash and sells amount is between 500 and 1000BDT than discount will be given 15%.

If the customer want to pay his/her order on cash and sells amount is less than 500BDT, order is accepted but no discount will be made.

Write down the structured English to represent the process

* Prepare decision table for above scenario.
* Convert the decision table into decision tree

1. "High Tech Computer" receives order from distributors, resellers, and individuals for computers and accessories at a discount, which depends on the size of the order and type of customer. The clerk in charge stores and verifies the order and determines shipment cost. He also identified the type of customer for each order and sends related information to accounting department. An invoice is generated and accounts receivable are processed through the accounting department. IBM has following discount policy to generate invoice.

Distributor get a trade discount of 25% on orders of 500 computers or more, otherwise get 15% discount. For orders from resellers, 5% allowed on orders of 6-19 computers; 10% on orders for 20-49 computers; 15% on orders for 50-99 computers; 20% on order for 100 computers or more. For order individuals 5% discount is allowed on order of 3 computers or more; otherwise get no discount.

* Prepare decision table for above scenario.
* Convert the decision table into Decision Tree.
* Write down the structured English to represent the process.

1. "FAZ Technology Solutions Ltd" is a Technology and Business Solution company which is founded in 2005. They are providing Computer Repair, Networking. Wireless, Hardware Support, Child Protection Case Management System (CMS), Enterprise Resource Planning (ERP) and Monitoring, Evaluation and Reporting System (MER). The "FAZ Technology Solutions Ltd" company provides 50 printers ordered by "BD Soft Limited” software company. After some day they have detected printer problems based upon symptoms described to them over the phone from their clients. They will check the power cable if printer does not print, red light is not flashing and printer is unrecognized. They will check or replace ink printer if the red lights is flashing or also if the printer does not print or printer is unrecognized at the same time the red light is flashing.

* Prepare decision table for detecting the printer problems.
* Convert the decision table into decision tree.

1. "BdFashion Ltd." is a fashion wares business company. They have 20 showrooms in Dhaka city and every showroom has several sales persons. They purchase finished dresses of men and women of all ages from different suppliers and sale those items to the registered or non­registered customers. All Purchases are controlled from the head office and distributes items to all showrooms based on their previous sales records. They have discount policy for the registered customers. They have three types of customer: Platinum, Golden and General. If a Platinum customer purchase items by less than 1000 taka then they will get 5 % discount and purchase items by more than or equal 1000 taka they will get 7 % discount. If a Golden customer purchase items by less than 1000 taka they will get 4 % discount and purchase items by more than or equal 1000 taka they will get 6 % discount. General customers will always get 2 % discount whatever they purchase.
   1. Draw the decision tree for the above discount policy.
2. BARBY Widgets wants to encourage its employees to save for retirement To promote this goal, BARBY will match an employee's contribution to the approved retirement plan by 50% provided the employee keeps the money in the retirement plan at least two years. However, the company limits its matching contributions depending on the employee's salary and time of service as follows.

BARBY will match five, six, or seven percent of the first 3,00000 EDT of an employee's salary if he or she has been with the company for at least two five, or ten years respectively. If the employee has been with the company for at least five years, the company will match up to four percent of the next 2,50,000 BDT in salary and three percent of any excess. Ten-year plus workers get a five percent match from 3,00000 BDT to 5,50,000 BDT Long-term service employees (fifteen years or more) get seven percent on the first 3,00000BDT and five percent after that.

1. Create a decision tree, decision table and structured language that captures the business rules in this policy.
2. Azure Isle Resort has a pricing structure for vacationers in one of its three dwelling categories: the hotel, villas, and beach bungalows. The base price is for staying in the hotel. Beach bungalows have a 10 percent surcharge and renting a villa has a 15 percent surcharge. The final price includes a discount of 4 percent for returning customers. Further conditions apply to how close the resort is filled to capacity and whether the requested date is within one month from the current date. If the resort is 50 percent full and the time is within one month, there is a 12 percent discount. If the resort is 70 percent full and the time is within one month, there is a 6 percent discount. If the resort is 85 percent full and it is within one month, there is a 4 percent discount.
   1. Create a decision tree, decision table and structured language that captures the business rules in the Azure Isle Resort.