INF319
System Analysis and Design

Instructor

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Lab Manual #7

Structured English

- Structure English is derived from structured programming language which gives more understandable and precise description of process. It is based on procedural logic that uses construction and imperative sentences designed to perform operations for action.

- Capitalize keywords such as GET, IF, THEN, ELSE, END IF, CASE, DO WHILE, etc

- If process steps will be repeated, then use a repetition loop (e.g., DO WHILE … END DO WHILE):

  DO WHILE there are Orders to process
  ….. [Insert statements here to describe processing] …..
  END-DO WHILE

- For situations in which the IF … THEN logic will include a series of conditions, use ELSE and ELSEIF keywords (see example below):

  BEGIN IF
  IF Customer Age > 65
  THEN Billing Rate = Senior Citizen Rate
  ELSEIF Customer Age < 12
  THEN Billing Rate = Child Rate
  ELSE Billing Rate = Standard Rate
  END-IF

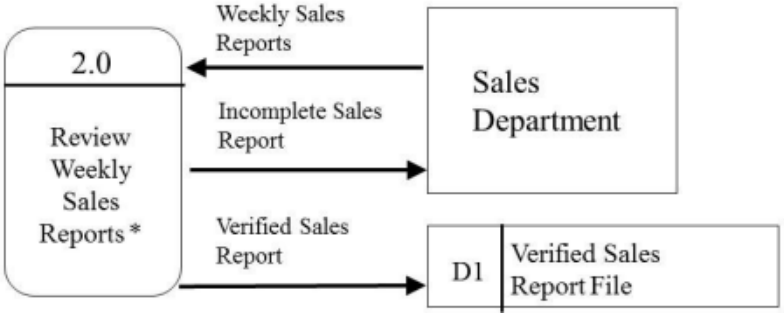
- Express actions as concise, simple commands:
  - RECEIVE Paycheck Request from Employee
  - GET the employee's Employee Record from Employee File
  - SEND the employee's Paycheck to Employee
  - STORE the employee's updated Employee Record to Employee File
  - APPEND the employee's ID number and salary to Manager Salary List

```
if customer pays advance
   then
      Give 5% Discount
   else
      if purchase amount >=10,000
         then
            if  the customer is a regular customer
               then Give 5% Discount
            else  No Discount
         end if
      else No Discount
   end if
end if
```

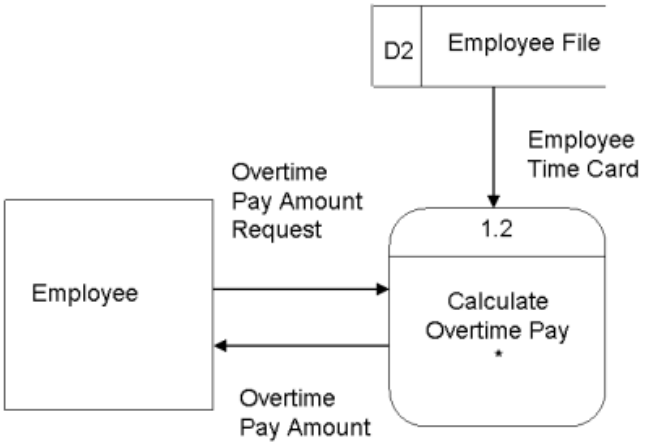
Solve by Yourself:

1. Write the Structured English of the following process:

Note: assume that Review Weekly Sales Report process checks whether the Verification Code is "Complete" or "Not Complete" and calculated using the following formula: Sales Report + Verification Code + Review Date + Reviewer Name



2. Write the Structured English of the following process:

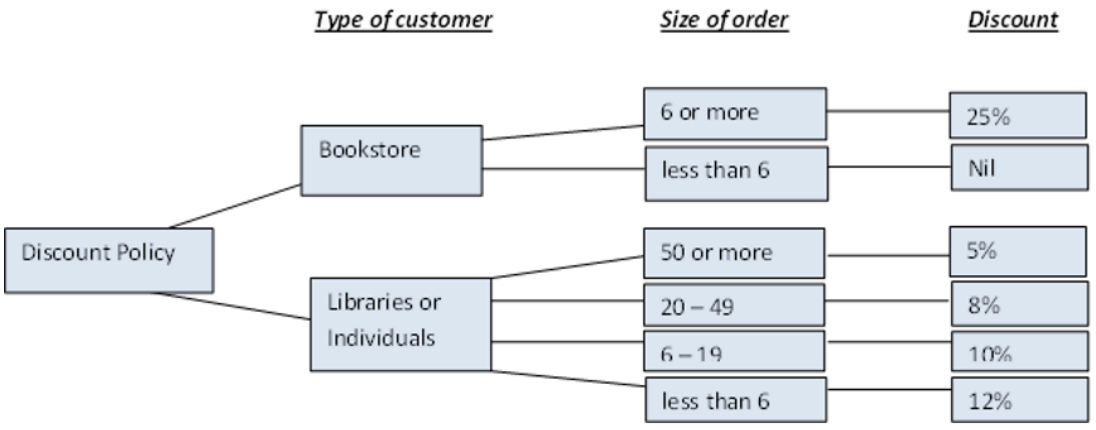


Decision Tree:

- A decision tree is a map of the possible outcomes of a series of related choices.
- It allows an individual or organization to weigh possible actions against one another based on their costs, probabilities, and benefits.
- A decision tree typically starts with a single node, which branches into possible outcomes. Each of those outcomes leads to additional nodes, which branch off into other possibilities. This gives it a treelike shape.

Example:

Bookstores get a trade discount of 25% for orders of 6 or more copies of books. Libraries and individuals for 5% allowed on orders of 50 or more copies per book title; 8% on orders for 20 – 49 copies per book title; 10% on orders for 6 - 19 copies per book title, and 12% for orders of less than 6 copies per book title.



Solve by Yourself:

Draw the decision tree

There are three types of accounts in a bank. Assume that the accounts are current account, saving account and fixed deposit account. In current account bank do not give any interest, in saving account bank gives 5% of interest, and in fixed deposit account bank gives interest depend on time at following:

Duration	Interest
6 months	**8%**
1 year	**10%**
5 years	**12%**

Draw the decision tree

In a varsity book club if a member buys a book he/she will get a 10% discount. If the member buys the book for more than 1000 tk then he/she will get a 15% discount. If the buyer is not a member then he/she will not get any discount but he/she will get a discount of 7% if the amount is more than 1000 tk.

Solutions:

Question #1:

Repetition: DO-WHILE example

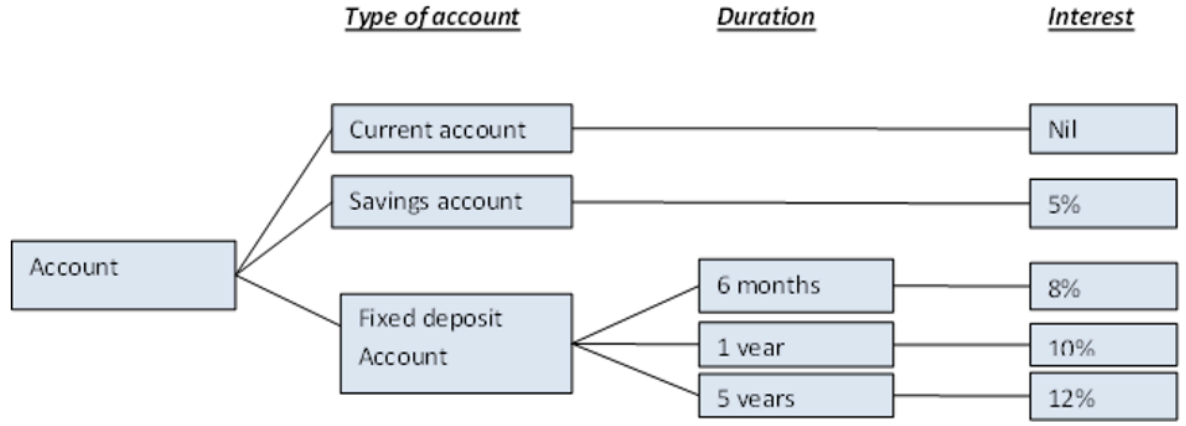
```
RECEIVE Weekly Sales Reports from Sales Department
DO WHILE there are Sales Reports to process
    BEGIN IF
        IF Sales Report has a value for each required element in data structure
            THEN Verification Code = "Complete"
                    Verified Sales Report = Sales Report + Verification Code
                            + Review Date + Reviewer Name
                STORE Verified Sales Report in Verified Sales Report File
            ELSE Verification Code = "Not Complete"
                Incomplete Sales Report = Sales Report + Verification Code
                        + Review Date + Reviewer Name + Reviewer Comment
                SEND Incomplete Sales Report to Sales Department
    END-IF
END-DO WHILE
```

Question #2:

```
RECEIVE Overtime Pay Amount Request from Employee
GET Employee's Employee Time Card for Desired Week from Employee File

BEGIN IF
    IF Total Overtime Hours > 0
        THEN Overtime Pay Amount = Total Overtime Hours * Standard Overtime Pay Rate
        ELSE Overtime Pay Amount =0
END-IF
SEND Overtime Pay Amount to Employee
```

Question #3:



Question #4: