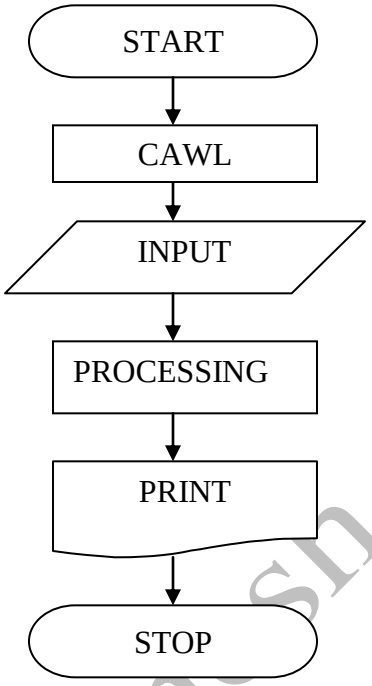
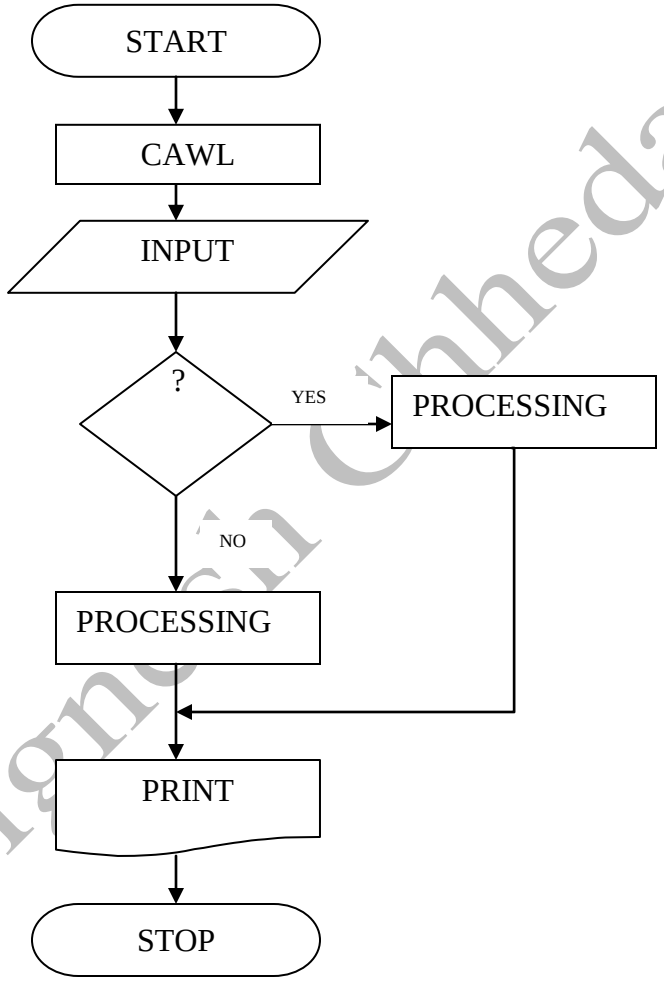
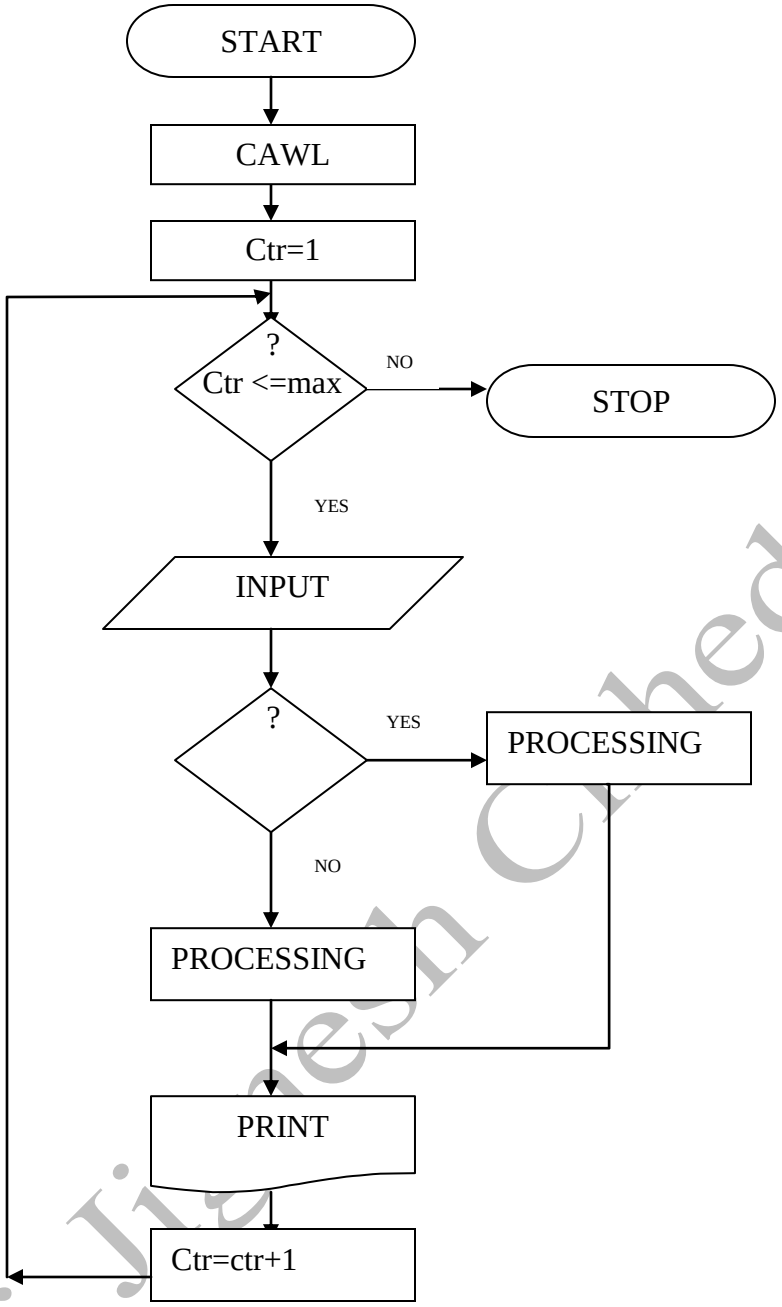
BASIC FORMAT OF FLOW CHART



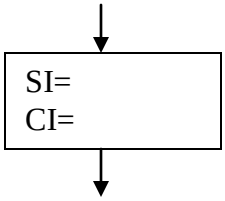
Decision box

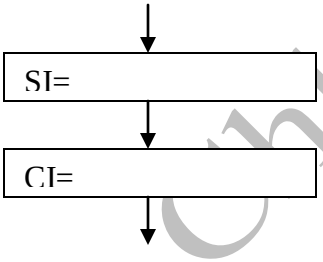




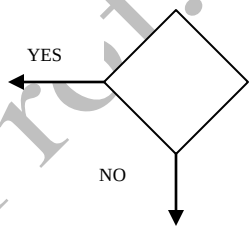
Notes:

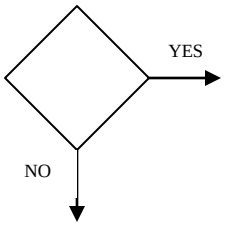
1) CAWL : clear all working location. It will remove all previous values and make their intial value to “zero”.
2) Input box: in this box we write that variables which we take from users.
    a. Don’t include constant variables in the input box.
    b. Variables are separated by coma(,).
3) Processing box: in this box we will write formula for the values expected by user or required by user.
    a. If we want to write two formula at the same time than use one the following presentation.

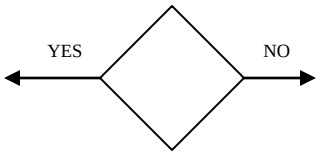




4) Print : in this box we will write only that variables which are asked in the question.
5) Decision box: whenever in the question condition is given than use decision box to solve that condition.
    a. Decision box has only two out flows that is one is “yes” and other is “no”.
    b. Decision box has only two decision parameters.
        i. One variable and other constant.
        ii. Both are variables
    c. Following are different types of representation







    d. If conditions are dependent than
        i. No of decision box = no of cond’s – 1
    e. If conditions are independent than
        i. No of decision box = no of cond’s

6) For finding total use following concept
    a. Pfd = Pfd + dep
       Here pfd represent total value and dep represent value that we want to accumulate.
7) If u have to do same thing again and again than use CTR concept for creating loop.
    a. Set ctr to 1
    b. Check ctr with the maximum limit that given in question
    c. Last increment ctr by 1 as ctr = ctr + 1
8) While defining the name of variables we are not allowed to use special characters like sign or ?,- etc...
9) Variables store at a time one value only. So if variable get new value than old value is removed and new value is stored.
10) Except START, CAWL and STOP all other symbol can come multiple times depending upon question.

Decision Table :

Decision table is management tool to take routine decision for a routine problems.

Decision table is divided in to four parts.

Part 1: Condition Stub

In this part of decision table we are going to write condition which we have to find from question.

For whiting condition we have to follow following rule:

1. Each be written condition should be written once irrespective of their multiple occurrence.
2. Don't include complementary part of condition if other part of condition is already included.

Part 2: Condition Entries

In this part of decision table we are going to define rules based on condition.

No of Rules = $2^{\text{No of Condition}}$

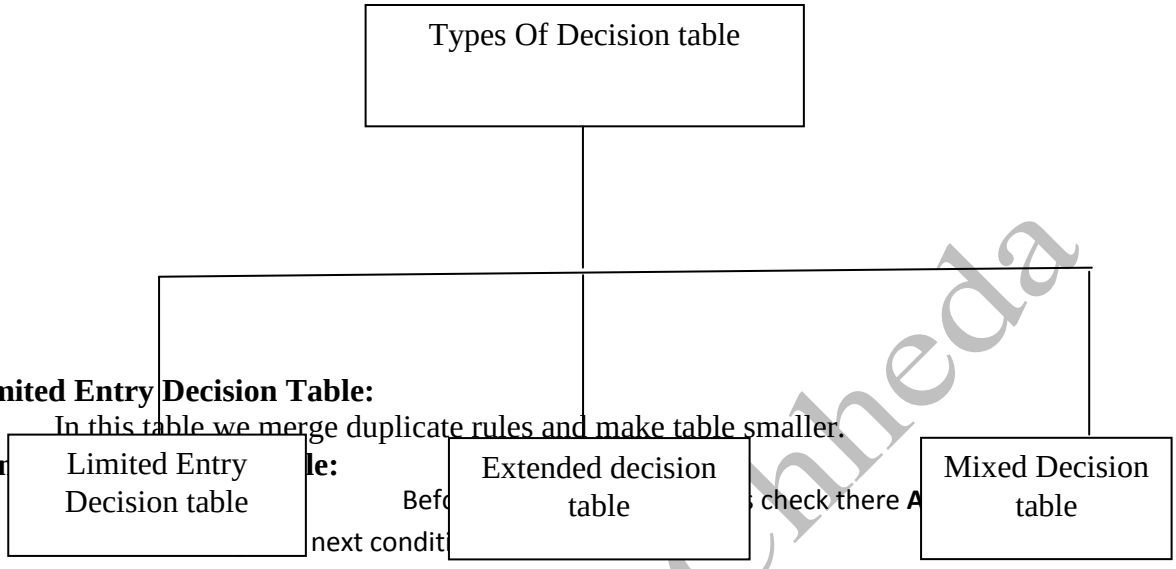
After defining rules we are going to fill "true" and "false" or "yes" and "no".

Part 3: Action Stub

In this part of decision table we are going to write Action or decision which we have to take based on condition.

Part 4: Action Entries

In this part of decision table we are going to select action which we have to take based on decision table.



Limited Entry Decision Table:

In this table we merge duplicate rules and make table smaller.

Cor le:

Befo check there **A**

next conditi

2. If **action entries of both** are same than check there **corresponding condition entries** . in that "**all should be match except one"** if that is true than merge the rules.

Condition for merging Not applicable:

We can merge not applicable with any of rule based on "check there **corresponding condition entries**. **I**n that "**all should be match except one"** if that is true than merge the rules"

PROBLEMS ON FLOWCHARTS

DATA PROBLEMS

1. Input the length and breadth of a rectangle farm. Calculate and print its area.

2. Input the amount invested, the rate of interest and the period of investment in years. Calculate and print the simple interest and compound interest on the same.

3. Input 4 nos. print the sum of first three and average of last two nos.

4. Input the radius. Calculate the area and circumference of a circle.

5. Input the name and sales of a salesman. Calculate and print the name, sales and commission where commission is 10% if sales are atleast ` 25,000 or more and 5% otherwise.

6. Same as Ex. 6 but input for 100 salesman.

7. Input the name and salary of an employee calculate and print the name, salary and bonus where bonus is 8.33% if the salary is atleast ` 1,00,000 or more and 6% otherwise.

8. Same as Ex. 7 but input for 200 employees.

9. Input the name and invoice amount for 500 customers. When the invoice amount is atleast ` 1,00,000 or more, the customers are offered a discount of 5% and 2% otherwise. Find and print the net amount receivable for each customer.

10. Input for 500 employees the Basic Salary and Dearness Allowance. Find and print the Tax Deducted At Source (TDS) which is charged on the Gross Salary which is Basic Salary + Dearness Allowance according to the following table:

Gross Salary	**TDS**
` 50,000 or below	NIL
Above ` 50,000	5% on excess over 50,000

11. Input two numbers from the keyboard Swap/Exchange their values. (By using 2 and 3 variables).

12. Input for 500 Salesmen, their names and sales figures.

    Draw a flowchart to calculate the commission based on the following set of rules:

1. If the sales is less than ` 500 then there is no commission.
2. If the sales are ` 500 or above but less than ` 5,000 then the commission is computed @ 10% of the sales.
3. If the sales are ` 5,000 or above, the commission is ` 500 and @ 12% of the sales above ` 5,000.

Print the name, sales and commission.

13. Input for 500 employees their name, and number of days for which they remain absent. The employees are charged a fine according to the policy of the organisation stated as under:
    1. If the employee is not absent at all, he does not have to pay any fine.
    2. If the employee is absent for maximum 3 days, he has to pay fine of ` 20.
    3. If the employee is absent for maximum 8 days, he has to pay a fine of ` 100.
    4. In any other case, the fine is ` 200.

    Find and print the name and fine payable by each employee.
14. Input the name and basic salary for 100 employees. Each employee contributes 10% of basic salary towards Provident fund. Find and print the name, P.F. contribution made by each employee. Also print the total contribution of all employees.

. A college has 600 students whose results for T.Y.B.Com. have been declared and all have passed. Draw a flowchart to input average marks of the students and determine the percentage of students in each category.
    1. Pass Class (Avg. < 45%)
    2. IInd Class (45% < = Avg. < 60%)
    3. Ist Class (60% < = Avg. < 75%)
    4. Distinction (Avg. = > 75%)

15. A firm has 200 employees. Input salaries for 200 employees and find number of employees in each categories. Their salaries are divided in 4 categories as under:
    1. Less than ` 2,000
    2. ` 2,000 to ` 4,000
    3. ` 4,001 to ` 5,000
    4. Above ` 5,000

16. Draw a flowchart to compute and print income tax, surcharge, education cess and total income tax on each of income of 100 people where income is the input.

    Slab rates are as follows:

Income	**Tax Rate**
Upto ` 1,00,000	Nil

Upto ` 1,50,000	@ 10%
Upto ` 2,50,000	@ 20%
Above ` 2,50,000	@ 30%

Charge surcharge @ 5% on the amount of tax, if the income of the person exceeds ` 10,00,000. Charge education cess @ 2% on income tax plus surcharge.

NUMERICAL PROBLEMS

1. Find and print the sum of the following series:

   (i) $2 + 4 + 6 + 8 + 10$.

   (ii) $1 + 3 + 5 + 7 + 9$ ------- 39.

   (iii) $4 + 9 + 14 + 19$ -------- 504.

   (iv) $2 + 5 + 10 + 17$ ------ 101 (do by two methods)

   (v) $2^2 + 4^2 + 6^2 + 8^2$ --------- 20^2

   (vi) $2/3 + 4/7 + 6/11 +$ ------- 202/403

   (vii) $1^2/2^3 + 2^2/3^3 + 3^2/4^3 + 4^2/5^3 +$ ------ $1999^2/2000^3$

   (viii) $2^2 + 4^2 + 6^2 +$ ------ 16 Terms

   (ix) $1 + 11 + 111 + 1111 +$ ------ 25 Terms

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Decision Table

Question 1

A bank uses the following rules to classify new accounts.
If depositor's age is 21 or above and if the deposit is Rs 100 or more, classify the account type
as A.
If the depositor is under 21 and the deposit is Rs 100 or more, classify it as type B.
If the depositor is 21 or over and deposit is below Rs 100 classify it as C. If the depositor is
under 21 and deposit is below Rs 100 do-not open account.

Question 2

A shop owner allows credit facility to his customers if they satisfy any one of the following
conditions :
1. Holding the present job for more than 3 years and residing in the same place for more than 5 years.
2. Monthly Salary exceeds Rs. 1500 and holding the present job for more than 3 years.
3. Residing in the same place for more than 5 years and monthly salary exceeds Rs. 1500.

The facility is rejected for all other customers.

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