

IBM[®]

Decision Tables

**Practice Problems
& Solutions**

PREFACE

These practice problems are designed to aid the student in learning how to use and prepare Decision Tables.

After the student has developed a table for a problem, he is encouraged to compare and evaluate his solution and the solution in this booklet.

WHEN THE QUANTITY ORDERED FOR A PARTICULAR ITEM DOESN'T EXCEED THE ORDER LIMIT AND THE CREDIT APPROVAL IS "OK", MOVE THE QUANTITY ORDERED AMOUNT TO THE QUANTITY SHIPPED FIELD THEN GO TO A TABLE TO PREPARE A SHIPMENT RELEASE. OF COURSE, THERE MUST BE A SUFFICIENT QUANTITY ON HAND TO FILL THE ORDER.

WHEN THE QUANTITY ORDERED EXCEEDS THE ORDER LIMIT, GO TO A TABLE NAMED ORDER REJECT . DO THE SAME IF THE CREDIT APPROVAL IS NOT "OK".

OCCASIONALLY, THE QUANTITY ORDERED DOESN'T EXCEED THE ORDER LIMIT, CREDIT APPROVAL IS "OK", BUT THERE IS INSUFFICIENT QUANTITY ON HAND TO FILL THE ORDER . IN THIS CASE, GO TO A TABLE NAMED BACK ORDER.

Practice Problems

Problem 1 - Selected Stockholders Report

Prepare a decision table from the following narrative.

From a file of stockholder records, we wish to extract the records of stockholders other than individuals and the records of individuals who hold more than 100,000 shares. With this information produce a detail listing containing the name of each stockholder, the type of stockholder (decoded) and number of shares owned. Also produce a final total of the number of stockholders and number of shares owned listed in this report.

For each stockholder we have:

1. Stockholder name
2. Stockholder type
(individual -01, trust -02
bank-03, broker-04)
3. Number of shares owned

Problem 2 - Posting Operation

Prepare a decision table from the following narrative.

There are two input files. A master file is in sequence by identification number (I.O.). Each I.O. number has an associated on hand (O.H.) amount. The other file is a detail transaction file also in sequence by identification number (I.O.). Each I.O. number in this file has associated types of transactions - receipt, issue, recount and their amounts, sequenced respectively. There can be multiple receipts and issues, but only a single recount. Duplicate recounts have been checked.

The output is one file, a new master, which contains I.O. number and on hand amount.

The processing procedure should:

Provide for writing old masters with no activity on the new master, provide for start and end of job, provide for an error routine in the case of a transaction occurring for which there is no master, not provide for additions or deletions to the master file, and provide for computing the new on hand amount (receipt=add, issues=subtract, recount=replace).

Probelm 3 - Personnel Selection

Prepare appropriate decision table(s) according to the following rules:

Given:

- A. Field Names
 - Employee name
 - Department number
 - Hourly rate
 - Hours worked
 - Deduction code (A, B, C, D)
 - Sex (M=male, F=female)

Obtain:

- A. Select all males who satisfy the following conditions:
 - 1. They must work in Department 47.
 - 2. Weekly hours not over 40.
 - 3. Must have a deduction code "B" or code "D".
- B. Select all females that satisfy the following conditions:
 - 1. They must work in department 48, 49 or 50.
 - 2. Weekly hours not over 40.
 - 3. Must have a deduction under code "C" or hourly rate must be more than \$2. 50.
- C. If section A is satisfied - go to routine 1.
If section B is satisfied - go to routine 2.
If neither A nor B are satisfied - go to routine 3.

Problem 4 - Profit Evaluation

Develop decision tables according to the following information:

- A. Classification of capital gains and losses. The phrase "short-term" applied to gains and losses from the sale or exchange of capital assets held for 6 months or less; the phrase "long-term" applied to capital assets held for more than 6 months.

Treatment of capital gains and losses: Short-term capital gains and losses will be merged to obtain the net short-term capital gain or loss. Long-term capital gains and losses (taken into account at 100 percent) will be merged to obtain the net long-term capital gain or loss.

- 1. Given: Purchase date
Sales date
Net sales price
Net cost
- 2. Obtain: Total long-term result
Total short-term result
Type of long-term result (gain, loss)
Type of short-term result (gain, loss)
Net result

9.

7.

SYSTEM PROBLEM 1
Page 1 of 1

Analyst _____
Date _____

** MAIN	RULE	1	2	3	4	5	ELSE
1 MORE STOCKHOLDERS	Y	Y	Y	Y	N		
2 TYPE OF STOCKHOLDER = 01	Y						
3 TYPE OF STOCKHOLDER = 02			Y				
4 TYPE OF STOCKHOLDER = 03				Y			
5 TYPE OF STOCKHOLDER = 04					Y		
6 NUMBER OF SHARES > 100,000	Y						
7 WRITE STOCKHOLDER NAME	X	X	X	X			
8 WRITE "INDIVIDUAL"	X						
9 WRITE "TRUST"		X					
10 WRITE "BANK"			X				
11 WRITE "BROKER"					X		
12 WRITE NUMBER OF SHARES	X	X	X	X			
13 SET STOCKHOLDER COUNT = STOCKHOLDER COUNT + 1	X	X	X	X			
14 SET TOTAL SHARE = TOTAL SHARES + NUMBER OF SHARES	X	X	X	X			
15 WRITE STOCKHOLDER COUNT					X		
16 WRITE TOTAL SHARES					X		
17 READ NEXT RECORD	X	X	X	X		X	
18 GO TO MAIN	X	X	X	X		X	
19 STOP					X		

REMARKS: ASSUMES THAT READING OF FIRST RECORD HAS BEEN ACCOMPLISHED. RULE 6, THE ELSE RULE, PROVIDES FOR THOSE RECORDS NOT REQUIRED FOR THE REPORT.

** MAIN	RULE	1	2	3	4	5	6	7	8	9	ELSE
1 START		Y	N	N	N	N	N	N	N	N	
2 END OF TRANS			Y	Y	N	N	N	N	N	N	
3 END OF MASTER			Y	N	Y	N	N	N	N	N	
4 OM I.D. vs TRANS I.D.						<	=	=	=	>	
5 TRANS TYPE = RECEIPT							Y				
6 TRANS TYPE = ISSUE								Y			
7 TRANS TYPE = RECOUNT									Y		
8 OPEN ALL FILES		X									
9 SET OH = OH + TRANS AMT							X				
10 SET OH = OH - TRANS AMT								X			
11 SET OH = TRANS AMT									X		
12 DO ERROR ROUTINE					X					X	X
13 WRITE NM FROM OM				X		X			X		
14 READ OM		X		X		X			X		
15 READ TRANS		X			X		X	X	X	X	X
16 CLOSE ALL FILES			X								
17 GO TO MAIN		X		X	X	X	X	X	X	X	X
18 STOP			X								

REMARKS: RULE 10, THE ELSE RULE, PROVIDES FOR ERRORS SUCH AS MISCODED TRANSACTION TYPE.

** PERSONNEL	RULE	1	2	3	4	ELSE
1 SEX EQ	"M"	"M"	"F"	"F"		
2 DEPARTMENT	EQ47	EQ47	GE48	GE48		
3 DEPARTMENT			LE50	LE50		
4 WEEKLY HOURS LE 40	X	X	X	X		
5 DEDUCTION CODE EQ	"B"	"D"	"C"			
6 HOURLY RATE GR 2.50				X		
7 GO TO	RT1	RT1	RT2	RT2	RT3	

** TABLE 1	RULE	1	2
1 NEXT ITEM EXISTS		Y	N
2 READ ITEM		X	
3 SET ELAPSED TIME EQUAL TO SALES DATE - PURCHASE DATE		X	
4 SET RESULT EQUAL TO NET SALES PRICE - NET COST		X	
5 GO TO TABLE 2		X	
6 GO TO TABLE 3			X
** TABLE 2	RULE	1	2
1 ELAPSED TIME GREATER OR EQUAL THAN 6 MONTHS		Y	N
2 ADD RESULTS TO LONG TERM RESULT		X	
3 ADD RESULT TO SHORT TERM RESULT			X
4 ADD RESULT TO NET RESULT		X	X
5 GO TO TABLE 1		X	X

** TABLE 3	RULE	1	2	3	4
1 LONG TERM RESULT GREATER OR EQUAL THAN ZERO		Y	Y	N	N
2 SHORT TERM RESULT GREATER OR EQUAL THAN ZERO		Y	N	Y	N
3 SET TYPE OF LONG TERM RESULT EQUAL TO "GAIN"		X	X		
4 SET TYPE OF LONG TERM RESULT EQUAL TO "LOSS"				X	X
5 SET TYPE OF SHORT TERM RESULT EQUAL TO "GAIN"		X		X	
6 SET TYPE OF SHORT TERM RESULT EQUAL TO "LOSS"			X		X
7 GO TO [NEXT TABLE]		X	X	X	X



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