Department of Management Studies

Business Analytics BA 4206

Unit-V-Prescriptive Analytics

Prescriptive Analytics Analysis:

Prescriptive analytics brings out the best course of action to be chosen and as the name suggest it is prescriptive in nature. Here, is an example for Prescriptive analytics analysis is being done .

ABC is a small manufacture of golf equipment and supplies whose management has decided to move **into medium/standard and high priced golf bags.**

ABC company distributors agreed to buy all the golf bags **over the three months**. The steps involved in manufacturing a gold bag.

1. Cutting and dyeing the material
2. Sewing
3. Finishing
4. Inspection and packaging

The director after analyzing the manufacturing process found the time required following steps in medium/standard bags manufacturing

Process	Standard bags	Deluxe bag
Cutting	7	1
Sewing	2	5
Finishing	1	2
Inspection & packing	3	1

Accounting department analyzed and found that profit margin for

Standard bags =1000Rs &Deluxe bags =1500 Rs.

Problem formulation: Translate the verbal statement of a problem into a mathematical statement.

Describe the objective :We have to develop a mathematical model used to determine the number of deluxe bags or standard bags that have to be produced to maximize total profit .

Describe each constraint : There are four constraints that restrict the number of bags to be produced :

Bag production is constrained by a limited number of hours available in each department. After workload projections ,it was estimated that

630hours for cutting

600 hours for sewing

708 hours for finishing and

135 hours for inspection is available .

Constraint 1:

The no. of hours of cutting and dyeing must be less than or equal to the number of available for cutting and dyeing.

Constraint 2:

Similarly r to constraint 1 , no of hours of sewing time used must be less than or equal to no of hours of sewing time

Constraint 3 and Constraint **4 –similar to 1& 2 for finishing and inspection.**

Define decision Variables

Let S= number of standard bags

D= Number of deluxe bags in optimization terminology, S & D are referred to as decision variables.

Write the objectives in terms of decision variables :

Total profit contribution = 1000s+1500D

Write the constraints in terms of decision variable:

Total hours of cutting and dying time used <=7S+1D ,

7S+1D<=630

Total hours of sewing time used =Hours of time available for sewing ie. 2S+5D<=600

Similarly,

1S+2D<=708,

3s+1D<=135

And S>=0, D>=0

Mathematical model –LPP in SPSS for finding out the optimized production of the number of bags in standard and deluxe golf bags using SPSS or, TORA ,SAS, or excel software.