**Class on Transportation**

A *transportation problem* is one in which the objective for minimization is the cost of transporting a certain commodity from a number of origins to a number of destinations. Although the transportation problem can be

solved using the regular simplex method, but write separate program to get the initial BFS.

Suppose that there are m origins and n destinations. Let ai be the amount of a commodity available at origin i (i = 1, 2, . . . , m) and bj be the amount required at destination j (j = 1, 2, . . . , n). Let cij be the cost per unit of transporting the commodity from origin i to destination j.

Write different modules to obtain BFS with (i) matrix minima, (ii) north-west corner and (iii) VAM.

Problem 1: A scooter production company produces scooters at the units situated at various places (called origins) and supplies them to the places where the depot (called destination) are situated. Here the availability as well as requirements of the various depots are finite and constitute the limited resources. Please see the following:



Test whether the following allocation is optimal



Do it manually first then check it with the program.

If it is not then find the optimal solution.

Problem 2: find the optimal allocation of the following

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| W→  F  ↓ | W1 | W2 | W3 | W4 | Factory Capacity |
| F1 | 19 | 30 | 50 | 10 | 7 |
| F2 | 70 | 30 | 40 | 60 | 9 |
| F3 | 40 | 8 | 70 | 20 | 18 |
| Warehouse Requirement | 5 | 8 | 7 | 14 | 34 |