

ASSIGNMENT PROBLEM

What is assignment problem?

- Assignment problem relates to problem where the objective is to assign a no of jobs to an equal no of persons so that the time is minimum or the cost is minimum or profit is maximum

Model of a assignment problem

		Jobs		
		I	II	III
Persons	A	8	19	7
	B	13	17	11
	C	21	3	18

- Check whether given assignment problem is balanced
- Subtract Steps in solving assignment problem
- lowest element in each row from every element of that row
- Subtract the lowest element in each column from every element of that column
- Check for '0' assignment
- If all the rows have '0' assignment then the solution is reached or else proceed with Hungarian method

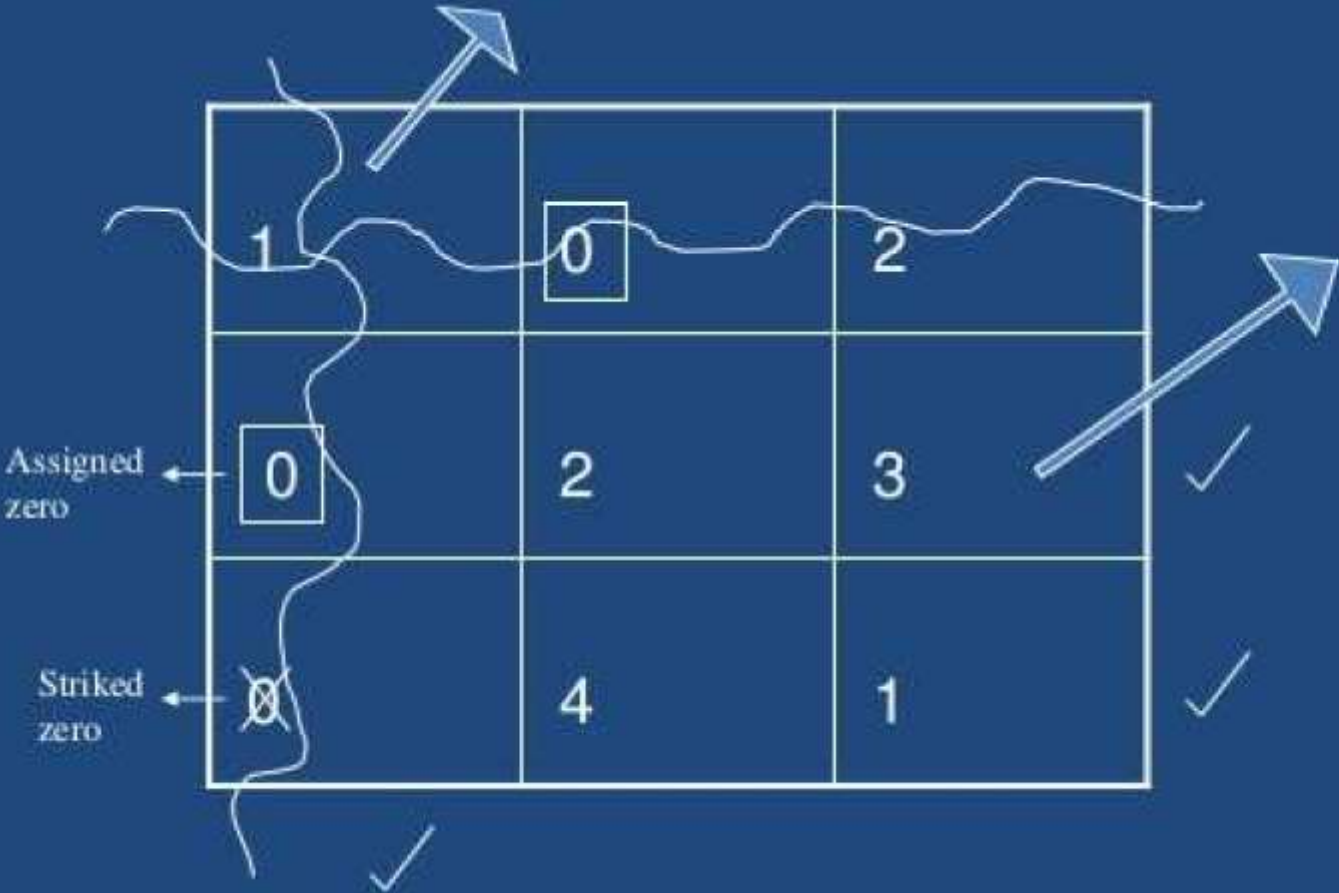
Hungarian method

- Tick mark the rows which does not have '0' assignment
- Tick mark the columns which has a striked zero
- Check whether any assigned zero is there in that particular column
- If there is assigned zero then tick mark that corresponding row
- Again check is there is any striked zero in that particular row
- If there is striked zero then follow the same procedure again
- Once tick marking is completed strike of marked column and unmarked row
- Where there is a intersection striked lines add minimum value of the matrix
- If there is any values where lines have not covered then subtract minimum value of the matrix from that value
- Redo zero assignment

Hungarian method

1+1 since value
Is covered by
both lines

3-1 since
Value is not
covered
By any lines and
1 being the min value
in the matrix



Types of Assignment problem

- Maximisation problem
- Unbalanced problem or non square matrix
 - Note: In both the cases same methods to be adopted which is used in the transportation problem
- Alternative solutions
- Restricted assignment

THANK YOU

