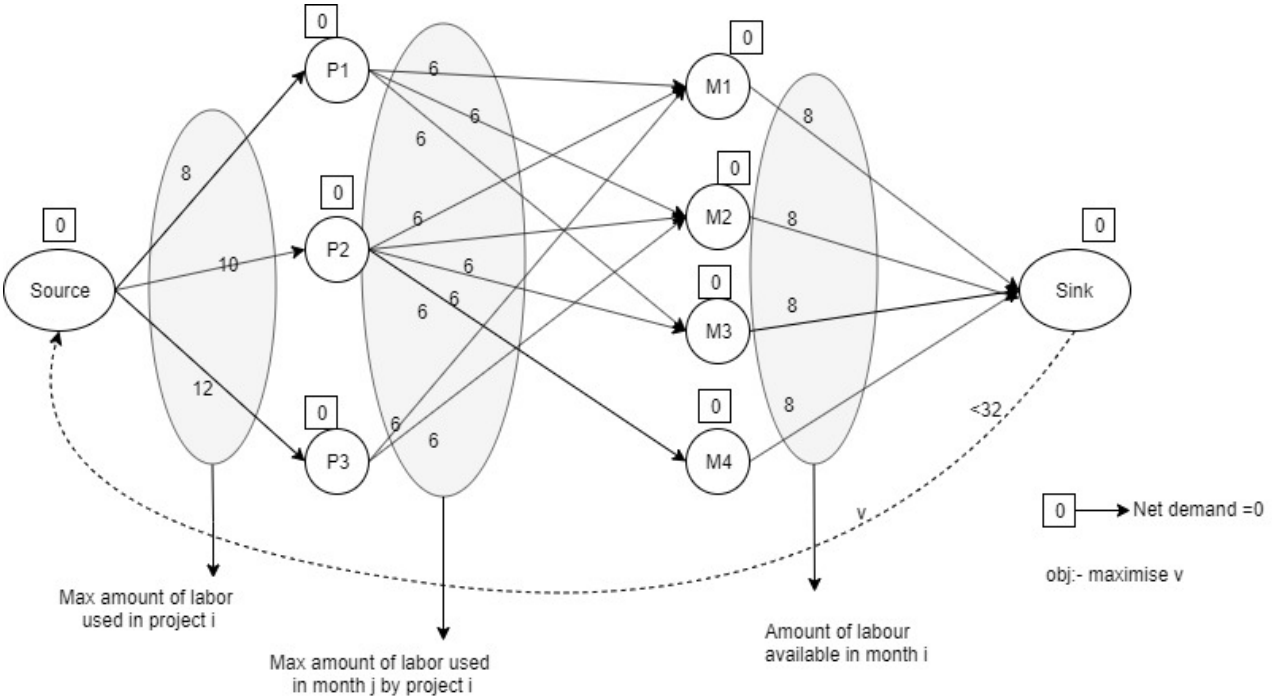
By Kevin George

PROJECT PLANNING: -

1) The network diagram is shown below:-



2) Pyomo formulation is attached.
3) The optimal solution and interpretation are :-
    - The amount of man month used in project 1 is 8 , project 2 is 10, project 3 is 12.
    - For the first month, 2 people worked for Project1 and 6 for project 3 ,therefore in total 8 people worked in month1
    - For the second month,2 people worked for project 2 and 6 people for project3, therefore in total 8 people worked in month2.
    - For the third month,6 people worked for project 1 and 2 people for project2, therefore in total 8 people worked in month3.
    - For the fourth month,6 people worked for project 2, therefore in total 6 people worked in month4.
    - Therefore total 30 labors used to complete all the 3 projects in 4 months. In other words the maximized man month (objective function) to complete all projects in 30

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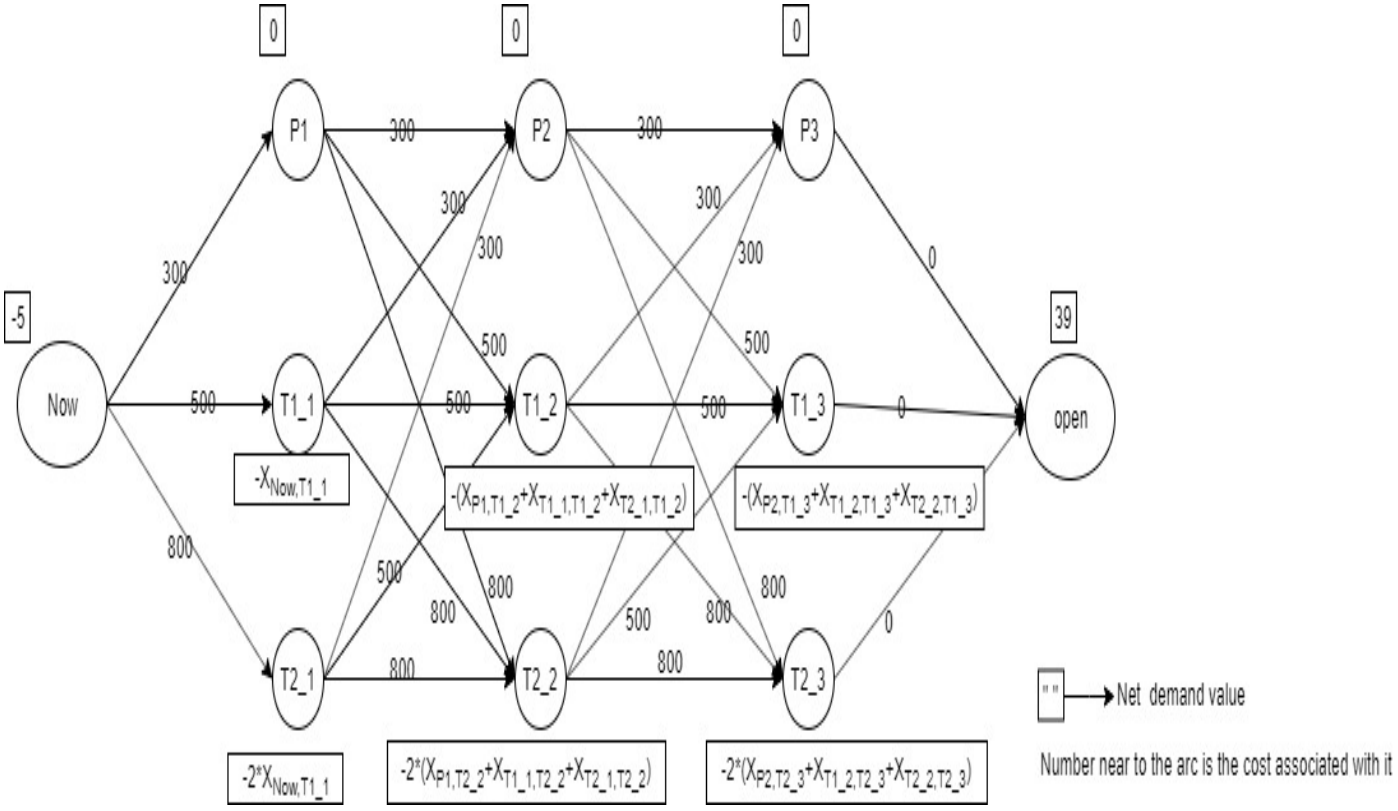
STORE OPENING: -

1) The network diagram is shown below:-



4) Pyomo formulation is attached.
5) The optimal solution and interpretation are:-

- In the first week, Number of employee assigned to preparation is 2, to train one is 1.11, to train two is 1.88 (the output is real because it is an LP problem and it doesn't signifies the proper meaning of having decimal number)
- In the second week, additional 3 people are added to preparation(total 5) from training 2 new employee session of previous week. Also 4.88 people were send to train 2 people from the previous session of training 1 new employee (2.22) and training 2 new employee (2.66).
- In the third week, 10 people were send to preparation from the previous weeks train 2 session. Moreover in total 9.66 people were send to the preparation from last week preparation session(5people) and last week train 2 session (4.66 people)
- At last while opening there are 39 employees- 10 in preparation and 29 in training 2 new employee session.
- The (minimized) cost incurred for the management (objective function) to meet all requirement is $18811.11.