clc;

format short;

cost = [2 10 4 5 ; 6 12 8 11; 3 9 5 7];

supply = [ 12 25 20 ] ;

demand = [ 25 10 15 5 ] ;

[m,n] = size(cost) ;

if sum(demand)==sum(supply)

fprintf('stable');

elseif sum(supply) < sum(demand)

fprintf('unstable');

cost(end+1,:) = zeros(1,n);

supply(end+1) = sum(demand)-sum(supply);

disp('balanced');

else

fprintf('unstable \n')

cost(:,end+1) = zeros(m,1);

demand(end+1) = sum(supply)-sum(demand);

disp('balanced')

end

X = zeros(m,n);

icost = cost;

while any(supply ~= 0) || any(demand ~= 0)

mincost = min(cost(:));

[r,c] = find(cost == min(mincost));

y = min(supply(r),demand(c));

[value,index] = max(y);

pos\_row = r(index);

pos\_col = c(index);

X(pos\_row,pos\_col) = value;

supply(pos\_row) = supply(pos\_row)-value;

demand(pos\_col) = demand(pos\_col)-value;

cost(pos\_row,pos\_col) = inf;

end

C = icost.\*X;

sum(sum(C))

if nnz(X) == m+n-1

disp('non degenrate solution');

else

disp('degenrate solution');

end