Algorithm for Natural convection in square cavity:

1. Assume initial values for Ω, Ψ, θ as follows:  
    Ωi, j = 0, Ψ i, j = 0, θ i, j = 1-X i, j
2. Apply the boundary condition for the domains of stream function, vorticity and energy transport equations as follows,  
    Ψ 1, j = 0   
    Ψ M,j = 0 0   
    Ψ i,1 = 0   
    Ψ i,N = 0
3. Vorticity transport equation is applied at all internal nodes to calculate the values of Ωi, j.
4. Under relaxation is used to recalculate the values of Ωi, j.
5. Stream function transport equation is applied at all internal nodes to calculate the values of Ψ i, j.
6. Under relaxation is used to recalculate the values of Ψ i, j.
7. Vorticity boundary conditions are recalculated.
8. Under relaxation is used to recalculate the boundary conditions of Ωi, j.
9. Energy transport equation is applied at all internal nodes to calculate the values of θ i, j.
10. Under relaxation is used to recalculate the values of θ i, j.
11. Energy boundary conditions are recalculated.
12. Under relaxation is used to recalculate the boundary conditions of θ i, j.