**Project 2, Milestone 1**

**Team members :**

* **Sai Sri Harsha Chakravarthula (11547144)**
* **Narendar Reddy Nelakurthi (11554694)**

**Pseudo code versions of algorithms:**

1. **A temperature schedule:**

* Initialize, while taking the Temperature as a function.
* Set the starting temperature T0.
* The iteration value is K.
* The constant value set closer to 1 or ~0.99 is called alpha.
* The temperature at K is Tk. The formula Tk = alpha\* k T0.
* Return the result of multiplying the current iteration's value.

1. **A nearest neighbor of an already existing solution (i.e., the nearest neighbor of the solution in the previous iteration)**

* Taking the Nearest Neighbor into Account as a Function
* Establish, N as the initial temperature and the current point as the source point, Next or closest point N’.
* Determine the distance between points N and N’.
* Verify that the N’ is the intended destination point.
  + If found Returning location as identified else Go back to the closest location.
* The shortest distance between the two points on the graph will be returned by the function D = NearestNeighbor(N, N’).

1. **A VALUE function that evaluates the quality of a solution.**

* Taking the Value into Account as a Function
* Initialize with ‘v’ equal to 0, so the initial flow value is 0, v=0.
* Change the value of ‘v’ to reflect the incoming point flow value.
* The function returns the Value 'v', which represents the maximum flow, after adding up all the inflow values and updating the v, Value(N ,capacity).

1. **A function SA that drives the annealing process and calls functions that you specified in parts a), b) and c) above.**

* Initialize S as the source point.
* Initial temp = 0.
* Final temp = 1,
* S is the current node.
* D is the destination node
* Alpha value is 0.9 and K = 1,
* For Each value of i (range(intial\_temp , Final\_temp)):
* Find the D = NearestNeighbor(N, N’)
* Determine the DeltaE Value, which is the difference between the present node and the next node.
* If the DeltaE value > 0, the Nodes are updated by assigning the new state to the current State.
* elseIf (DeltaE /T) > 90% and DeltaE = 0 then the new state should be assigned as the exiting state otherwise.
* Else, The current node should be designated as the updated node.
* Update the Temperature ,updates the temperature value (K, Alpha, T0)
* Function soln = SA (S, Source, Destination, Alpha, Initial\_temp, Final\_Temp).
* Return, the answer to the maximum flow that was seen during the whole source-to-destination process.