Ant colony optimisation

Ant colony optimisation is used to find the shortest path from nest to food we use it to calculate the shortest path

Procedure:

step 1: def func ACO

define a function ACO to calculate ant colony optimisation

step 2: distance = calculate distance (cities)

this is used to calculate distance between cities

step 3: Initially set the best route and length

best_route = None

best length = ∞

step 4: Repeat this process for a ten iterations and keep checking the route length take two arrays for variables

r = [ ]

l = [ ]

After each iteration append the routes to r and length to l

r.append(routes)

l.append(length)

step 5: Next check the length and route and update the values, we keep updating the length and route for each iteration

if length < best_length

best length = length

best route = route

step 6: update the values after very iteration and at the end display the best_route and best length

8/11/24

Application:

We can use it in supply chain management where we can optimise routes for delivery trucks

Output:

Iteration 1 is Best length : 23.2514076

Iteration 2 is Best length : 23.2514076 99

Iteration 3 is Best length : 23.2514076 99

Iteration 4 is Best length : 23.2514076 99

Iteration 5 is Best length : 23.2514076 99

Best Route : [4, 3, 2, 5, 1, 0, 4]

Best Route length : 23.2514076 99 3644 23