ACO:

1. Initialize the Cost Matrix: We generate a KxG matrix with value of Ci,j represented for the cost if candidate i chosen to group j by Formula:

Ci,j=

with

1. Initialize the Pheromone Matrix : We generate a KxG matrix with value of Pi,j represented for Pheromone in it :

Pi,j =

1. Initialize the ant colony:We generate population P is the set of π individuals
2. Solutions building: in an iteration of ACO each ant choosing points ( Zg point at column g) in Pheromone Matrix based on amount of pheromone at each point and its column as formula below:

1. Pheromone actualization :

* Elite ants: only ants that obtained the best solutions are chosen to update pheromone matrix with rate ϕ with formula:

with each point (i,j) on its path

1. Stop algorithm if after generations the best fitness value of the population did not change. Otherwise, comeback .