Travelling Salesperson Problem
Ant Colony Optimization

UML Class Diagram

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AntColony
- const pheromoneAddingRate : float - const distanceFactor : float - antsCount : unsigned int - nodeNum : size_t - setRuntime : unsigned long long - nodes : std::vector<Node> - nodesID : std::vector<unsigned short> - distances : std::vector<std::vector<float>> - edgeCosts : std::vector<std::vector<float>> - edgePheromones : std::vector<std::vector<float>> - ants : std::vector<Ant>
+ AntColony(std::vector<Node>, float) : AntColony + TspAnt() : TspResults - Initialize() : void

Node
+ x : int + y : int
+ static Distance(const Node& , const Node&) : float

Ant
+ currentNode : unsigned short + cumulativeDistance : float + visitedNodes : std:vector<unsigned short> + unvisitedNodes : std:vector<unsigned short>

TspResults
+ iterations : long + distance : float + path : std::vector<unsigned short>

Dependency:
AntColony → Node
AntColony → Ant
AntColony → TspResults