MATH 7207 – Algorithms for Optimization
Mini-project Proposal Form

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Project description.

Read this paper, then implement one of the algorithms presented in it:

https://www.researchgate.net/publication/381998222_A_comprehensive_study_on_modern_optimization_techniques_for_engineering_applications. Most of the methods presented in this paper are population methods, so in your presentation please include plots of how the populations evolve as they iterate to a solution.

Inputs and outputs

Input: a function to optimize and a group of points in the feasible region.

Output: the optimal point of the function.

Solution algorithm.

There's 11 algorithm in the paper. Almost all of them are population method. Show how the population evolves then get to the optimal point.

Corner cases

Sometimes to keep the population in the feasible region, we need to derive a way to handle those who are not inside the feasible region. Also, there will be a lot of local minimum in the functions, we need to see how the method handles the local minimum.

Testing

Use some of the known function to test its efficiency also, I am quite interested in how the method handles the local minimum.