

Mathematical Foundations of the Gale-Shapley Algorithm and its Applications

Abstract: The Gale-Shapley algorithm is a fundamental algorithm in mathematics and computer science for solving the stable matching problem. This project explores the mathematical foundations of the Gale-Shapley algorithm for solving stable matching problems. It examines key concepts such as stability, preference lists, and the deferred acceptance process, while highlighting diverse application areas. The project aims to demonstrate how the algorithm provides efficient and stable solutions to real-world matching problems.