AQL Project Report

Frank Acquaye[*]
Faculty of Computer Science
National Research University Higher School of Economics
fakvey@edu.hse.ru

Abstract

In this paper we present a variant of the **Green Vehicle Routing Problem (GVRP)** with capacitated vehicles. In this variant of the GVRP, we present a situation in which distributors are faced with the daunting task of managing a fleet of both traditional fuelled vehicles and alternate fuelled vehicles all this while maximizing profitability and minimizing cost. We propose a solution which uses **branch and bound** to maximize distribution path when needed and minimize distribution path when needed.

1 Introduction

More and more distributors are faced with the daunting task of moving towards green energy in all aspects of operations. This often involves switching distribution vehicles to vehicles that consume alternate fuel. The challenge with alternate fuel however is the limited travel distance, before the need for refueling. Hence these distributors often have vehicles that use traditional fuel and vehicles that use alternate fuel. Our goal is therefore to produce an optimisation algorithm that maximizes the distribution paths of green fueled vehicles and minimizing the distribution paths of traditional vehicles all this while ensuring that the total demand for services/products is met.

2 Problem Statement

[*] http://acquayefrank.github.io