

Data Mesh Architecture

Tạ Ngọc Minh - Sophomore in Data Science & AI @ HUST

Mini-project Report

Data Engineering Specialization

Supervisor: Mr. **Nguyễn Chí Thanh**

viettel

Theo cách của bạn

** Read my full report [here](#) to get further information*

Contents

viettel

1. Setting up problem

For further information about our project,
please scan the QR code on the screen:



Contents

The Viettel logo, consisting of the word "viettel" in a white, lowercase, sans-serif font.

1. Setting up problem

** Read my full report [here](#) to get further information*

3/7

The real-life problem

viettel

Let's imagine that we have to send many packages to several cities domestically and internationally.

The real-life problem



Let's imagine that we have to send many packages to several cities domestically and internationally.

Algorithmically, we need to solve two problems simultaneously (Traveling Salesman Problem and Bin Packing Problem). In particular:

The real-life problem

Let's imagine that we have to send many packages to several cities domestically and internationally.

Algorithmically, we need to solve two problems simultaneously (Traveling Salesman Problem and Bin Packing Problem). In particular:

- ▶ **State:** Any route of the ship and any numbers of used containers.

The real-life problem



Let's imagine that we have to send many packages to several cities domestically and internationally.

Algorithmically, we need to solve two problems simultaneously (Traveling Salesman Problem and Bin Packing Problem). In particular:

- ▶ **State:** Any route of the ship and any numbers of used containers.
- ▶ **Action:** Rearrange the packages from this container to another, and change the route of the ship.

The real-life problem

Let's imagine that we have to send many packages to several cities domestically and internationally.

Algorithmically, we need to solve two problems simultaneously (Traveling Salesman Problem and Bin Packing Problem). In particular:

- ▶ **State:** Any route of the ship and any numbers of used containers.
- ▶ **Action:** Rearrange the packages from this container to another, and change the route of the ship.
- ▶ **Goal:** Find the shortest route and the least number of used containers.

The real-life problem



Let's imagine that we have to send many packages to several cities domestically and internationally.

Algorithmically, we need to solve two problems simultaneously (Traveling Salesman Problem and Bin Packing Problem). In particular:

- ▶ **State:** Any route of the ship and any numbers of used containers.
- ▶ **Action:** Rearrange the packages from this container to another, and change the route of the ship.
- ▶ **Goal:** Find the shortest route and the least number of used containers.
- ▶ **Path cost:** Length of the route and number of containers.

Acknowledgments



- ▶ This work is supported and supervised by Mr. Nguyen Chi Thanh under the training program of Viettel Digital Talent 2023, Software & Data Engineering sector.
- ▶ Also, my research and project is partially supported by other mentors of the program, other professors and students at School of Information and Communication Technology, Hanoi University of Science and Technology.

References I



- ¹ T. Back, U. Hammel and H. . -P. Schwefel, "Evolutionary computation: comments on the history and current state,"in IEEE Transactions on Evolutionary Computation, vol. 1, no. 1, pp. 3-17, April 1997, doi: 10.1109/4235.585888.
- ² J. Yin, A. Zhu, Z. Zhu, Y. Yu and X. Ma, "Multifactorial Evolutionary Algorithm Enhanced with Cross-task Search Direction,"2019 IEEE Congress on Evolutionary Computation (CEC), 2019, pp. 2244-2251, doi: 10.1109/CEC.2019.8789959.

Data Mesh Architecture

Tạ Ngọc Minh - Sophomore in Data Science & AI @ HUST

Mini-project Report

Data Engineering Specialization

Supervisor: Mr. **Nguyễn Chí Thanh**

viettel

Theo cách của bạn

(●'v'●) Thank you for your attention! (●'v'●)

** Read my full report [here](#) to get further information*