2021 Final Year Project Definition Form

Project Title:

The Storage Location Assignment Problem for a Retail Distribution Warehouse

Company details:

DSV Solutions

1 Mann Rd Louwlardia

0157 Centurion

Gauteng

South Africa

Company background:

DSV is the fifth largest transport and logistics company in the world. For more information on DSV Globally please visit https://www.dsv.com/en. This project is for DSV Solutions in South Africa, which provides contract logistics services to its customers.

Project description:

Order picking is one of the most resource intensive activities in a warehouse, both in terms of personnel and equipment. For this reason, even small incremental improvements in picking efficiency can have a significant impact on overall operational efficiency. A key aspect to driving picking efficiency is *slotting*, or the allocation of products to the best locations within the warehouse. In a large retail warehouse, with thousands of products and thousands of potential locations, *slotting* (referred to in literature as the Storage Location Assignment Problem) can quickly become NP-Hard and difficult to solve. For this reason, linear programming techniques are often used in literature to solve *slotting* problems. For this project a student will need to solve a problem variant called the Storage Location Order Picking Problem (SLOPP), which takes into account the path taken by pickers through the warehouse when picking orders. The Student will be required to investigate the problem environment, mathematically formulate the problem, solve the problem using Python's PuLP package and evaluate the quality of potential solutions.

Industry mentorship:

Llewellyn Steyn

Industry mentor contact details:	Steyn, Llewellyn, Mr	llewellyn.steyn@za.dsv.com	*(Phone/ mobile)* 079 695 7634

Project topic application process:

Interested students must please send a CV, as well as a short motivation on why their particular skill set and interests will make them a suitable candidate for the project, to llewellyn.steyn@za.dsv.com by no later than **Friday 19 February.**

Any other relevant information:

N.a