

# Optimize Warehouse Locations

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## Abstract

In order to grow from its origins in the US North East to the rest of the 47 continental states, Sports Gear Inc depends on the expansion and success of its online store. The success of this expansion depends on the availability of the seasonal goods at the right time, on the knowledge of the exact inventory of the goods, and the cost effective and timely shipment of the goods from the warehouses to customers' homes. In order to maximize item turnover in its brick-and-mortar and online stores, the company needs to be proactive in bringing the right products at the right time to address customer needs. This is especially important during the holiday season as customers will spend most of their discretionary income at that time. Since space in the distribution centers, warehouses, and stores is costly, inventory turnover must be maximized while keeping old inventory, which needs to be liquidated, to a minimum. Finally, as part of a program to keep delivery times to a minimum, the company has planned the locations of distribution centers near large population centers while minimizing the rental and shipping costs through the use of efficient transportation logistics.

## Keywords

Mathematics, Modeling, Inventory, Shipping, Delivery

## Acknowledgements

Dr. Charles Chen

## Biography

**Timothy Liu** is currently a student in the Lynbrook High School. He has been learning JAVA Programming and AP Statistics. He has certified IBM SPSS Statistics Certificate, IBM Modeler Data Analysis and Data Mining Certificates. He has also received a solid Six Sigma Yellow Belt Training this summer and familiar with DMAIC Six Sigma Problem Solving Methodology. Timothy got invited and presented his JAVA Project in the Local American Society for Quality (ASQ) Statistics and Reliability Group. He is a member of Lynbrook High School Wrestling team. He also won the 2<sup>nd</sup> place 2016 Shuai Jiao Teen open at the regional competition. At his spare time, he enjoys comic drawings. He is the co-author of 3 books: "Mindy: The Tropical Trio" ISBN 9781622280001, "Mindy: Friend or Foe?" ISBN 9781537301792, and "Spellbound Story" ISBN 9781492715856.