Abstract

The inventory theory is important for certain kinds of business. Using the models from the inventory theory, we can effectively lower the costs associated with ordering and storing the goods. In this thesis, we describe the basic algorithms and models that are used to determine the optimal inventory policy. We also present several different methods used for the demand forecast. Finally, we use these algorithms and methods with the real data to show the possible way to propose the best inventory policy.

Declaration of Authorship

I hereby proclaim that I wrote my bachelor thesis on my own under the leadership of my supervisor and that the references include all resources and literature I have used.

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Prague, July 22, 2014

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Signature

Acknowledgment

Bachelor Thesis Proposal

In the thesis, the author will describe models suitable for modeling utilization of inventory capacity, material consumption (demand) and system of purchase orders. First, the author will summarize model with known demand, fixed or variable. Then, based on several time-series prediction techniques, the author will generalize the model to incorporate also stochastic demand. In the last part, the author will illustrate described solution techniques on an academic or a practical example. The theoretical part of the thesis will be based primarily on [1] and [2] and references therein.

Preliminary structure of the thesis:

1. Introduction
2. Inventory Control Problem with Constant Demand
3. Inventory Control Problem with Variable Demand
4. Methods of Demand Estimation and Prediction

    4.1. Moving Averages

    4.2. Exponential Smoothing

5. Numerical Example - Simulation
6. Conclusion

Literature:

[1] I. Morgenstern: Introduction Theory of Inventory Control, Faculty of Physics, University of Regensburg, 2007.

[2] F.S. Hillier, G.J. Lieberman: Introduction to Operations Research, 9th edition, Prentice Hall, 2010.

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