Developing Inventory Control software on a modern platform

• Introduction
PromoSoft AB is looking for students for a Master Thesis on our software SOLO Inventory Control.

SOLO is an inventory optimization and purchasing system intended for wholesalers and chains with large flows of goods and many inventory locations that acts as a complement to existing business systems. The objective of SOLO is to achieve the chosen service level at the lowest costs, or expressed somewhat differently, to be at the right place at the right time.

Our software has been on the market since 2002. The development environment has mainly been Microsoft Visual Basic.Net and Windows Forms. Now we see a highly demand for re-writing the system with a more modern user interface.

We want our students to find out suitable platforms to develop this kind of system, compare possible platforms and choose the best one in order to give the product the longest and best life cycle in the future. Then we want the students to evaluate the chosen platform by migrating certain parts of the system. An important part is to get performance and speed enough considering there is a lot of calculations and huge volumes of data to be processed.

We welcome several students for this Master Thesis. The work are going to be supervised by an experienced solution architect.

• About us
PromoSoft is a software company with 100 % focus on inventory and purchase located in Sävedalen 10 min outside of Gothenburg. We have long, extensive experience of business processes of wholesalers, distribution centres and chain stores. We understand inventory management, automatic replenishment and allocation of goods, and we know how these processes should look if they are to achieve an efficient and profitable flow of goods.

We offer professional inventory control software developed together with customers and Professor Sven Axståer of the Department of Industrial Management and Logistics, a part of the Faculty of Engineering of Lund University.

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• **Context**

Use one or two relevant and high quality references for providing evidence from the literature that the proposed study indeed includes scientific and engineering challenges, or is related to existing ones. Convince the reader that the problem addressed in this thesis has not been solved prior to this project.

• **Goals and Challenges**

Describe your contribution with respect to concepts, theory and technical goals. Ensure that the scientific and engineering challenges stand out so that the reader can easily recognize that you are planning to solve an advanced problem.

• **Approach**

Various scientific approaches are appropriate for different challenges and project goals. Outline and justify the ones that you have selected. For example, when your project considers systematic data collection, you need to explain how you will analyse the data, in order to address your challenges and project goals.

One scientific approach is to use formal models and rigorous mathematical argumentation to address aspects like correctness and efficiency. If this is relevant, describe the related algorithmic subjects, and how you plan to address the studied problem. For example, if your plan is to study the problem from a computability aspect, address the relevant issues, such as algorithm and data structure design, complexity analysis, etc. If you plan to develop and evaluate a prototype, briefly describe your plans to design, implement, and evaluate your prototype by reviewing at most two relevant issues, such as key functionalities and their evaluation criteria.

• The design and implementation should specify prototype properties, such as functionalities and performance goals, e.g., scalability, memory, energy. Motivate key design selection, with respect to state of the art and existing platforms, libraries, etc.

• When discussing evaluation criteria, describe the testing environment, e.g., test-bed experiments, simulation, and user studies, which you plan to use when assessing your prototype. Specify key tools, and preliminary test-case scenarios. Explain how and why you plan to use the evaluation criteria in order to demonstrate the functionalities and design goals. Explain how you plan to compare your prototype to the state of the art using the proposed test-case evaluation scenarios and benchmarks.