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Optimizing business intelligence extraction speed from an ERP-system's database

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Goal document

Master Thesis in Computer Science

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Stakeholders

Stakeholder	Name	Mail
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Table 1: Thesis stakeholders

Background

PerfectIT BeX AB has three products distributed as SaaS-solutions. The three products are:

- BeX Online - a cloud based ERP-system specialized for retail and e-commerce businesses. BeX Online has features for finance, sales orders, purchase orders, inventory/warehousing, business intelligence-reporting and more.
- BeX Retail - a desktop retail application connected to BeX Online.
- BeX B2B - a cloud based system for order handling inbetween businesses.

BeX Online has a module for creating business intelligence reports (refered to as BI-reports) but generating what is considered as large reports is slow and puts a high demand on the system. The company believes that this process could be faster and more effective.

Goal

PerfectIt BeX AB wants the process behind generating these reports analyzed and optimised to improve the speed of the generation and lessen the demands it puts on the system.

Overall objectives and issues/research questions

The current processes behind generation of the BI-reports must be identified and mapped. This mapping will be analyzed for bottle-necks and innefficiencies. Research will be performed to learn of approaches to solve the problems identified in the analysis. The research will consider as many options as possible to find a long-term solution. These approaches will be analyzed to decide which of them are a best fit and should be used to reach the goal. This will then be implemented in BeX Online and a final analysis should be performed to determine if the goal was met. It is important that the new solution does not affect the front-end interface of the system.

Approach / Methodology and activities

The nature of this thesis is problem solving. Because of this, the Action Research methodology will be used. The different activities in this methodology will be:

Steps	Activities
Plan	The company's employees will help with setting up a developing environment complete with a copy of a real database. Using this environment a mapping of the processes behind the producing of BI-reports will be made.
Do	Analyze this process to identify bottlenecks and innefficiencies. Research will be done to find relevant solutions to these problems. These solutions should then be applied to the system.
Study	The new process of producing BI-reports should be verified and validated to determine if the goal was met.
Learn	Using the results of this thesis more effective and better business intelligence data visualisation can be created. This is however out of scope for this thesis.

Research in the field

This thesis's field is a thoroughly researched area and the resources available is almost infinite. Finding the right information and solution will therefore be crucial. The research will spread across different platforms, such as web based, articles, books, forums etc. In the current state it's hard to point out the right resources, but some examples are given in the table below (The examples are links).

Web articles	Database Optimization Techniques You Can Actually Use Top 10 steps to optimize data access in SQL Server: Part I (use indexing) Introducing Oracle Database Cache Query Optimization
Books	Baron Schwartz, 2012. High Performance MySQL: Optimization, Backups, and Replication. Third Edition. O'Reilly Media
Forums	Database -What is caching?

Table 2: Example of resources