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PECULIARITIES OF DATA PROCESSING METHODS IN A BUSINESS ORGANIZATION'S CRM SYSTEM

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In today's rapidly evolving business environment, effective customer relationship management plays a key role in the success of an organization. Customer relationship management systems have become indispensable tools for businesses to store and organize customer data and use this information to make strategic decisions and deliver personalized customer experiences. The ever-increasing volume and complexity of data generated in the digital age have led to a growing need for sophisticated data processing methods in CRM systems.

Researching and analyzing the various methods used to process data in CRM systems in business organizations is an important step towards studying and analyzing the various methods used to process data in business organizations. This qualification work aims to shed light on the current state of the art of data processing methodologies, evaluate their effectiveness, and identify opportunities for improvement in this critical area [1-4].

In today's business environment, the paramount need for effective use of data is becoming increasingly evident as organizations struggle with increasing competition. A critical success factor in this dynamic environment is the skillful use of data to make informed decisions. One of the most important tools in this endeavor is customer relationship management systems. Over the years, these systems have evolved into indispensable tools that play a key role in providing a seamless customer experience and formulating data-driven strategies that drive business success.

The analysis of modern data processing methods in CRM systems emphasizes their crucial role in today's data-driven world. These systems are not just repositories of customer information, but strategic tools that allow organizations to better understand their customers, make data-driven decisions, and ultimately thrive in a competitive market.

The object of research is data processing methods in the CRM system of a business organization.

The purpose of the research is to compare the methods of data processing in a CRM system of a business organization.

Modern customer relationship management systems have become strategic assets for businesses. They do an excellent job of collecting, storing, searching, and analyzing data, facilitating personalized customer interactions, and driving business growth. Challenges such as data security and integration complexity remain, but CRM systems continue to evolve, using artificial intelligence, machine intelligence, and the latest technologies to improve the customer experience. In a world where everything is data-driven, CRM systems are key tools that enable organizations to thrive and succeed.

In today's fast-paced, data-driven business environment, the role of customer relationship management systems has undergone a profound transformation. Once viewed primarily as tools for storing basic data, these systems have now evolved into dynamic and strategic assets for organizations across industries. They have evolved from passive repositories of customer information to proactive and intelligent tools that drive customer-centric strategies, optimize operational efficiency, and contribute to business growth.

To provide a comprehensive view of the CRM ecosystem, we use a visual representation that carefully categorizes the data processing methods in CRM systems. These methods cover a wide range of areas, including data collection, storage, retrieval, and analysis. This visual categorization offers a structured panorama of how these methods integrate seamlessly to support the multifaceted needs of organizations, regardless of their industry or size.

CRM systems rely on databases for storage. Relational databases like MySQL provide structured storage, while NoSQL databases like MongoDB handle unstructured data. Data warehouses consolidate data for sophisticated analytics.

Effective data collection is the foundation on which CRM systems are built. Several sophisticated methods are used to accumulate a wealth of customer data from a variety of sources, including websites, social media, email, and face-to-face communication. This process is not just about collecting data; it is a continuous, multifaceted effort to ensure that the CRM system remains a dynamic repository of accurate, relevant, and up-to-date customer information.

CRM systems retrieve data through SQL queries, which allow users to retrieve specific data based on certain criteria.

Indexing and caching mechanisms increase the performance and availability of queries (Fig. 1).

Efficient storage and organization of data in CRM systems is crucial to ensure that information is easily retrieved.

A well-structured and carefully organized database is the foundation of personalized and efficient customer service. At its core, data warehousing goes beyond simple storage; it's about systematic organization to facilitate optimal use, providing a solid foundation for data-driven decision-making.

However, as the business landscape continues to evolve, the demand for innovative approaches to data processing in CRM systems is becoming more and more pressing. These approaches should not only ensure the sustainable competitiveness of organizations but also contribute to improved business results.

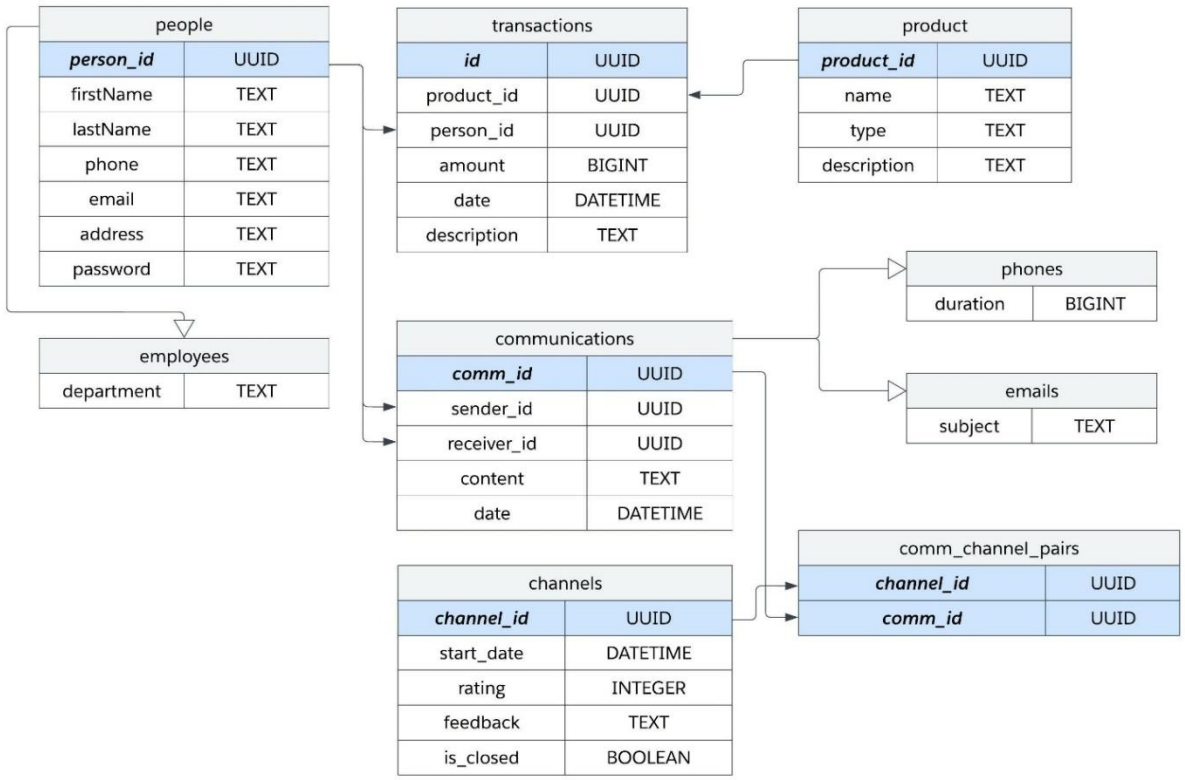

Figure 1 – An example of a CRM system database

Thus, there is an urgent and unequivocal need for a deep and exhaustive study and improvement of data processing methods in CRM systems.

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However, as the business landscape continues to evolve, the demand for innovative approaches to data processing in CRM systems is becoming more and more pressing. These approaches should not only ensure the sustainable competitiveness of organizations but also contribute to improved business results. Thus, there is an urgent and unequivocal need for a deep and exhaustive study and improvement of data processing methods in CRM systems.

Many researchers recommend benchmarking the effectiveness of a CRM system against industry standards and best practices. This involves comparing the system's data processing capabilities with recognized benchmarks to ensure that it meets or exceeds the established standards [5-7].

A/B testing or split testing is commonly used to evaluate the impact of data-driven decisions on business results. By comparing two versions of a CRM strategy (one with and one without the implemented methods), organizations can quantify the improvements achieved [8-11].

K-means is a universal and widely used unsupervised machine learning method for data segmentation. In CRM, its use opens up opportunities for customer segmentation, personalized marketing, and improved customer experience. At its core, *K*-means is an

unsupervised machine learning method used to cluster or group data. It works by dividing data points into "*K*" separate clusters based on similarity. The basic concept is to minimize intra-cluster variance and maximize inter-cluster variance [12-18].

One of the central aspects of this study is to provide empirical evidence that supports the evaluation of data processing methods in CRM systems. By collecting and analyzing data from a variety of organizations, the study aims to provide a basis for drawing tangible conclusions that can guide decision-makers.

Furthermore, this study aims to synthesize pragmatic recommendations. These recommendations will be carefully tailored to the unique needs and challenges faced by companies in the process of data processing in CRM systems. The goal is to offer practical ideas that organizations can implement to optimize the use of CRM data, thereby improving overall business processes.

Ultimately, this study aims to shed light on the critical link between CRM data processing and organizational competitiveness. It aims to highlight how effective data processing techniques can help businesses make informed decisions, tailor customer experiences, and gain a strategic advantage in the ever-changing landscape of modern commerce.

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