Microsoft® Windows Server System™

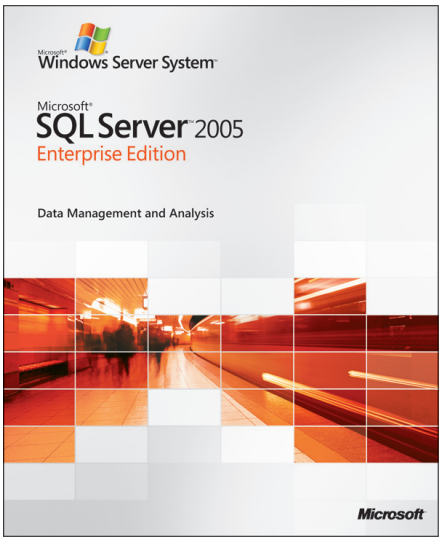
# Microsoft® SQL Server™ 2005 Analysis Services

*Data Mining*

### *The Platform for Intelligent Applications*

Throughout the past two decades, organizations have collected vast amounts of business data. However, having a large dataset doesn't mean having rich business knowledge. Data mining is the next step of business intelligence. Data mining is about exploring data, discovering patterns and applying these patterns to business operations.

Microsoft SQL Server 2005 Analysis Services establishes new ground for data mining. By creating an easy to use, extensible, accessible, and flexible platform, SQL Server 2005 Analysis Services' data mining capabilities introduces data mining to organizations that previously would never have considered a data mining solution.




Through an enterprise class architecture; a deep integration with the SQL Server family of Business Intelligencefeatures, and a rich set of tools, API's and algorithms, SQL Server enables the creation of a new breed of Intelligent Applications that enhance productivity, increase profits and reduce costs by providing customized data-driven solutions to a broad range of business problems such as:

- Market Basket Analysis. Determine items sold together and allow analysis on the results. Use the results in an application to create an online recommendation system, or to determine how combinations of products contribute to profits.
- Churn Analysis. Create reports showing customers at risk of canceling their service.
- Market Analysis. Define market segments by automatically grouping like customers together and use these segments for trend analysis for designing marketing campaigns.
- Forecasting. Forecast sales and inventory amounts and learn how they are interrelated.
- Data Exploration. Understand your customers by viewing patterns discovered by the data mining algorithms. Compare the differences between high profit and low profit customers, or between customers that prefer different brands of the same product.
- Web Site Analysis. Determine how people are using your web site and group similar usage patterns.
- Campaign Analysis. Spend marketing dollars more efficiently by targeting the people most likely to respond to a promotion.
- Data Quality. Determine missing values and anomalies in your data as it is entered or loaded into your data warehouse
- Text Analysis. Analyze feedback to find common themes and trends that concern your customers or employees.

### *Integration*

SQL Server Data Mining sits among a family of Business Intelligence technolgies that can be leveraged together to enhance and develop this new breed of Intelligent Applications.

- SQL Server 2005 Integration Services. Create a more powerful data pipeline by working with SQL Server 2005 Integration Services allowing your organization to flag outliers, separate data, and fill in missing values based on the predictive analytics of the data mining algorithms.
- SQL Server 2005 Analysis Services (OLAP). Create a richer Unified Dimensional Model by adding data mining dimensions that slice your data by the hidden patterns within.
- SQL Server 2005 Reporting Services. Create smarter, insightful reports that present the right information to large audiences, or select just the right people to receive the reports based on data mining queries.

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### *Ease of Use*

Using the built-in Data Mining Wizard and Designer, you can build very sophisticated models with only a few mouse clicks.

Integrated directly into Microsoft Visual Studio, the SQL Server Data Mining toolset allows you to explore and manipulate data as well as design and edit your models. SQL Server Data Mining provides over a **dozen interactive visualizations** to help you understand the patterns data mining can discover. Additionally, lift and profit charts are provided so you can compare and contrast the quality of your models before you commit to deployment.

### *Simple yet Rich API*

When it comes to applying models, SQL Server opens a new chapter in data mining. **Data Mining Extensions for SQL** (DMX) makes it easy for the developers and DBAs who know how to create data-aware applications to now create data mining-aware applications. A prediction against a data mining model is simply a join in a familiar SQL query. For the first time, those responsible for creating applications and handling data are empowered to leverage data mining technology using tools they already understand.

### *Algorithms*

With joint development from Microsoft Research and the SQL Server Product Team, SQL Server Data Mining contains state of the art data mining algorithms including decision and regression trees, time series, clustering and sequence clustering, association rules, Naïve Bayes, neural networks and text mining.

### *Extensibility*

SQL Server Data Mining is fully extensible through .NET stored procedures and **plug-in algorithms and viewers** that embed seamlessly to take advantage of all the platform abilities and integration. Adopting SQL Server Data Mining as your platform means that you will never be limited by the inherent functionality of your data mining system as it can always be extended to meet your needs.

### *Architecture*

Providing data mining to organizations of any size introduces new challenges. Deployment, scalability, manageability and security all become important factors. SQL Server Data Mining is part of the Analysis Services server which provides all the enterprise-class server features you would expect.

- Deployment. SQL Server Data Mining is based on a client-server architec ture allowing you to access your models from your LAN, WAN or on the Internet. Standard API's such as OLE DB, ADOMD.Net, and even XML for Analysis (XML/A) provide access to your models regardless of location or client platform. Once processed, models are always available, even during updates, due to the server's transactional system.
- Scalability. SQL Server Data Mining is designed from the ground up with a parallel architecture to scale to enterprise class data sets and thousands of concurrent users and can respond to millions of queries per day.
- Manageability. SQL Server Data Mining is integrated into the new SQL Management Studio providing a one-stop tool for managing all your SQL Server family properties.
- Security. SQL Server Data Mining provides fine-grained role-based security to ensure that your intellectual property will be protected.

### *Additional Information*

SQL Server Data Mining is part of SQL Server and the Windows Server System—a comprehensive and integrated server infrastructure that simplifies the development, deployment and operations of a flexible business solution.

For more information on SQL Server 2005 Analysis Services, visit http://www.microsoft.com/sql/2005.

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Windows Server System is comprehensive, integrated, and interoperable server infrastructure that simplifies the development, deployment, and management of flexible business solutions.
**www.microsoft.com/windowsserversystem**



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