

آموزش

طراحی و پیاده‌سازی بانک‌های اطلاعاتی در SQL SERVER

SQL Server Design and Implementation

SQL SERVER 2019

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جلسه یک (پیوست)



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مهندس نرم افزار، متخصص بانک‌های اطلاعاتی و سیستم‌های یکپارچه
طراح و تحلیل‌گر کسب و کار

بنیان‌گذار و مدیرعامل شرکت زمزم رایانه گستر www.zrgco.ir
نویسنده کتاب عمل‌گرایی

دارای بیش از ۲۰ سال سابقه مدیریت، مشاوره و اجرا در شرکت‌های دولتی و خصوصی
از جمله: شرکت شاتل، سازمان امور مالیاتی، گروه صنعتی گلرنگ، بهستان دارو، گروه
صنعتی مینو، شرکت گاز استان تهران

مدرس دوره‌های مهندسی میکروسافت MCSD

دارای مدرک Situational Leadership II

دارای مدرک The TAO of Coaching

دارای مدرک Auto Lisp (Cavendish College of England)

دارای مدرک Job Interview Skills



مقیاس Data بر اساس حجم

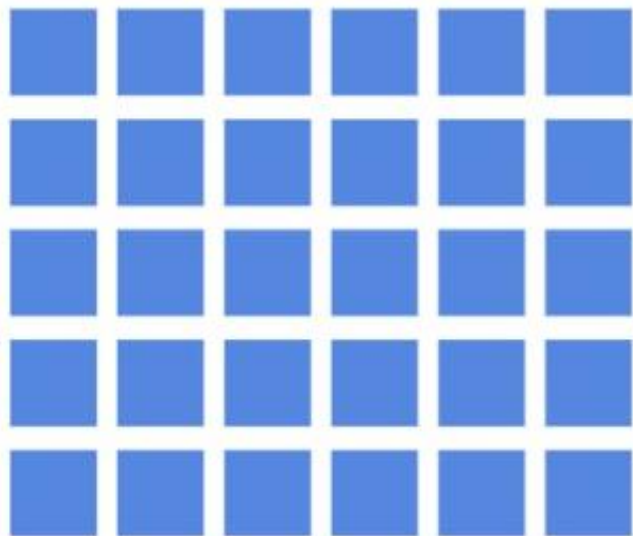
Multiple-byte units					V·T·E
Decimal			Binary		
Value	Metric		Value	IEC	Memory
1000	kB kilobyte		1024	KiB kibibyte	KB kilobyte
1000 ²	MB megabyte		1024 ²	MiB mebibyte	MB megabyte
1000 ³	GB gigabyte		1024 ³	GiB gibibyte	GB gigabyte
1000 ⁴	TB terabyte		1024 ⁴	TiB tebibyte	TB terabyte
1000 ⁵	PB petabyte		1024 ⁵	PiB pebibyte	–
1000 ⁶	EB exabyte		1024 ⁶	EiB exbibyte	–
1000 ⁷	ZB zettabyte		1024 ⁷	ZiB zebibyte	–
1000 ⁸	YB yottabyte		1024 ⁸	YiB yobibyte	–

نگاهی گذرا به Unstructured Data

- حجم بالا
- تنوع زیاد در فرمت‌های داده
- تجزیه و تحلیل نسبتاً دشوار
- جستجوهای ساده محتوایی را می‌توان در میان داده‌های متنی بدون ساختار با ابزار مناسب انجام داد.

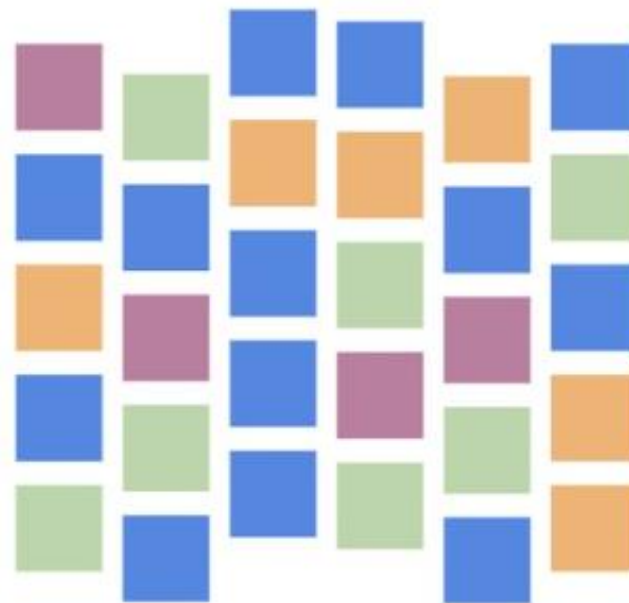
نگاهی گذرا به Unstructured Data

Structured data



Data stored in databases
and tables

Unstructured data



Images, text, audio, video,
documents

انواع Unstructured Data



Text files & Documents



Server, Website and Application Logs



Sensor Data



Image Files



Video Files



Audio Files



Emails



Social Media Data

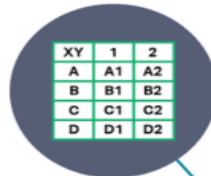
Structured Data vs Unstructured Data

Structured Data

VS

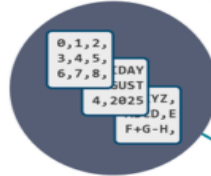
Unstructured Data

Can be displayed in rows, columns and relational databases



XY	1	2
A	A1	A2
B	B1	B2
C	C1	C2
D	D1	D2

Numbers, dates and strings



Estimated 20% of enterprise data (Gartner)



Requires less storage



Easier to manage and protect with legacy solutions



Cannot be displayed in rows, columns and relational databases



Images, audio, video, word processing files, e-mails, spreadsheets



Estimated 80% of enterprise data (Gartner)



Requires more storage

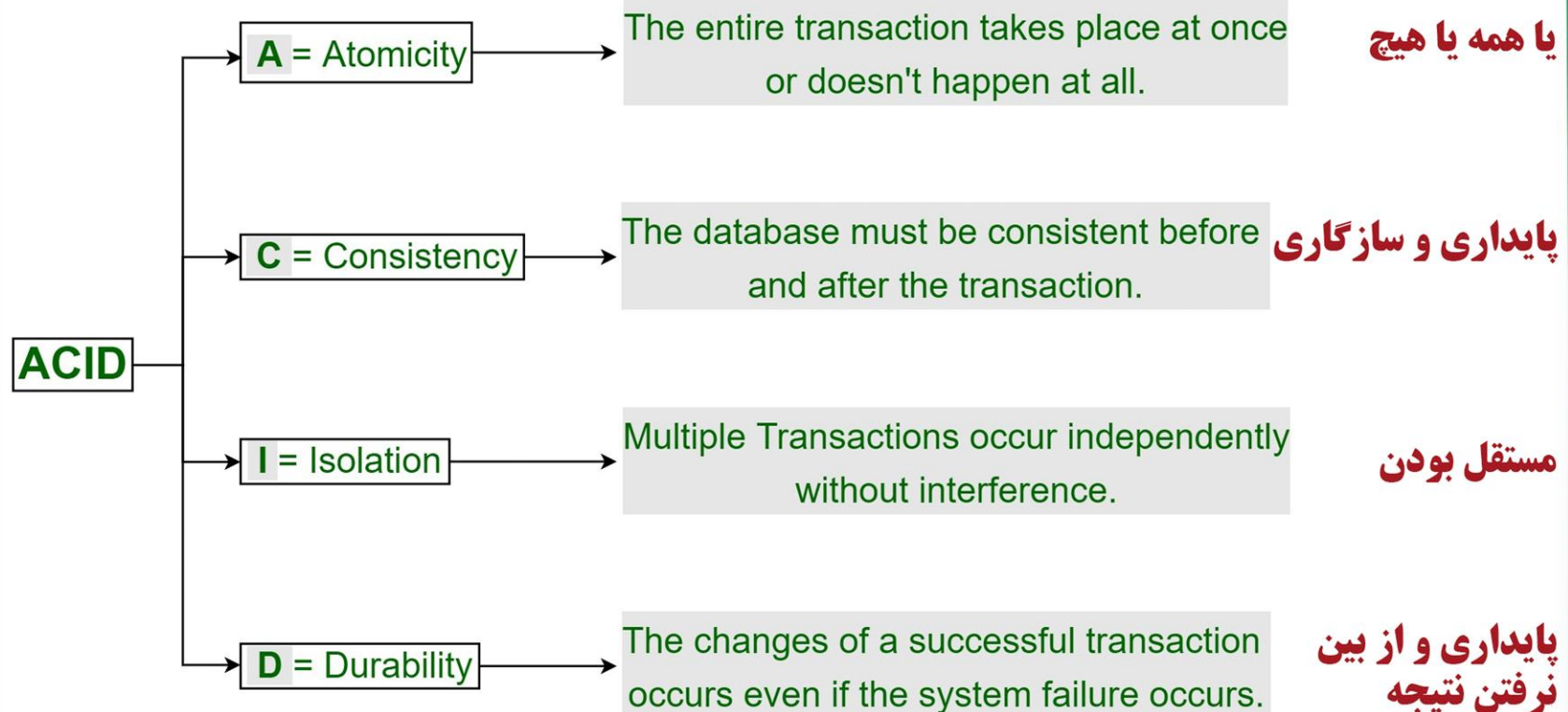


More difficult to manage and protect with legacy solutions



بررسی اجمالی ACID

ACID Properties in DBMS



چرا SQL Server

www.tpc.org

TPC-E Top Performance Results

Version 1 Results As of 20-Sept-2022 at 8:33 AM [GMT]








Note 1: The TPC believes it is not valid to compare prices or price/performance of results in different currencies.

All Active Results Active Clustered Results Active Non-Clustered Results

Currency:

Include Historical Results

Rank	Company	System	Performance (tpsE)	Price/tpsE	Watts/tpsE	System Availability	Database	Operating System	Processors / Cores / Threads	Date Submitted
1		Lenovo ThinkSystem SR860 V2	12,163	84.96 USD	NR	11/19/20	Microsoft SQL Server 2019 Enterprise Edition	Microsoft Windows Server 2016 Standard Edition	4 / 112 / 224	11/19/20
2		Lenovo ThinkSystem SR665	12,028	91.85 USD	NR	03/18/21	Microsoft SQL Server 2019 Enterprise Edition	Microsoft Windows Server 2019 Standard Edition	2 / 128 / 256	03/11/21
3		Lenovo ThinkSystem SR655	7,891	76.92 USD	NR	06/15/21	Microsoft SQL Server 2019 Enterprise Edition	Microsoft Windows Server 2016 Standard Edition	1 / 64 / 128	06/04/21
4		Fujitsu Server PRIMERGY RX2540 M5	6,844	85.13 USD	NR	10/24/19	Microsoft SQL Server 2017 Enterprise Edition	Microsoft Windows Server 2016 Standard Edition	2 / 56 / 112	10/23/19
5		Lenovo ThinkSystem SR665	2,579	68.62 USD	NR	08/17/21	Microsoft SQL Server 2019 Enterprise Edition	Microsoft Windows Server 2019 Standard Edition	2 / 16 / 32	08/12/21



چرا SQL Server

<https://www.gartner.com/reviews/market/data-masking/compare/microsoft-vs-oracle#>


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[PDF](#) [Email](#) [Filter By](#) Higher rated vendor in this comparison ⓘ [+ Add Vendors](#)

 **Microsoft** 308 ratings

Overall Rating **4.5/5** 87% willing to recommend

★★★★★ (308 Reviews)

5 Star	47%
4 Star	49%
3 Star	4%
2 Star	0%
1 Star	0%

 **Oracle** 122 ratings

Overall Rating **4.3/5** 81% willing to recommend

★★★★★ (122 Reviews)

5 Star	40%
4 Star	52%
3 Star	5%
2 Star	2%
1 Star	0%

SQL Server or Oracle

مربع جادویی گartner



As of December 2021 © Gartner, Inc
Gartner.



Difference between SQL Server and Oracle

Parameters	MS SQL Server	Oracle
Parent Company	It is owned by Microsoft Corporation.	It is owned by Oracle Corporation.
Syntax	Simpler and easier syntaxes.	Complex and more efficient syntaxes.
Download	120 or 180 days evaluation version are available from www.Microsoft.com/sqlserver	Opensource version can be download from otn.oracle.com
Platform support	Can install on Windows server only. But version 2017 onwards can be installed on Linux	Run on a wide variety of platforms
Language	MS-SQL uses transact SQL or T-SQL.	PL/SQL or is used by Oracle Corporation.
Job scheduling	Job Scheduling via the SQL Server Agent	Job scheduling via Oracle scheduler or OEM
Bit map indexes	No bitmap indexes base on reverse keys and functions.	Uses bitmap, indexes based on functions, and reverse keys.
Query optimization	No query optimization.	Uses Star query optimization.
Triggers	Mostly uses "after" triggers.	Uses both "after" and "before" Triggers.

<https://bit.ly/3BQGRtD>



Difference between SQL Server and Oracle

Parameters	MS SQL Server	Oracle
Support & Trouble Shooting	Provides technical notes, bug descriptions, scripts, patches, and download at a not additional charge.	Support call which is chargeable for each support case.
Roll back	Not allowed in the transaction process.	Rollback is allowed during the transaction process.
Concurrent accesses	Concurrent accesses are not allowed when a writer is in progress which increase the wait time.	Concurrent accesses are permitted and waits time are generally less.
Change of Value	Values are changed even before commit.	Values do not change before commit.
Method	Use Row or Page blocking method. It never allows a read while the page is blocked.	Use a copy of the record so while modifying it allows reads of original data while doing the modification.
Error handling	SQL Server executes each command separately, so it will be quite difficult to make changes if any errors are encountered during the process.	Oracle treats each new database connection as a new transaction.
Human Intervention	Follows Global memory allocation so less intrusion of Database admin. Therefore, very few chances of human errors.	Follows Dynamic memory allocation. DBA has to interrupt more. So higher chances or human errors.

<https://bit.ly/3BQGRtD>

Difference between SQL Server and Oracle

Parameters	MS SQL Server	Oracle
Parallel execution	In MS SQL server INSERT, UPDATE, DELETE statements are executed serially.	Oracle will execute INSERT, UPDATE, DELETE, and MERGE statement in parallel.
Automation support	SQL upgrade advisor is available for automation.	Database upgrade assistant available for automation.
Redo stream	Redo streams are unique to each user and database.	One redo stream at the database level.
Protection	Logins authenticated at the instance level and database level.	User authenticated via database credential and OS roles.
Backups	It allows full, partial and incremental backups	It allows Database, full, file level, incremental & differential backups.

SQL Server 2019 Features

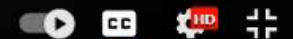
Introducing SQL Server 2019 | Data Exposed



[MUSIC].

0:00 / 13:04 • Introduction >

Scroll for details



Top 8 SQL Server 2021 Features

<https://mindmajix.com/sql-server-۲۰۱۹>

1. Big Data Clusters
2. UTF-8 Support
3. Resumable Online Index Create (CTP 2.0)
4. Intelligent Query Processing (CTP 2.0)
5. Always On Availability Groups
6. Machine Learning on Linux
7. SQL Server on Linux
8. Enhanced Security

Community Technology Preview (CTP):

مایکروسافت محصولات سازمانی خود را به صورت نسخه‌های

CTP یا همان پیش‌نمایش تکنیکی ارائه می‌دهد که یکی از مراحل

چرخه ارائه محصولات نرم‌افزاری است.

درس‌های گفته شده را عملی کنید تا حرفه‌ای تر شوید.

شما لایق بهترین‌ها هستید. از شما بی‌نهایت سپاس گزارم.

راه‌های ارتباطی



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