



Microsoft Certification Day

อัปสกิลกับการติวสอบแบบเข้มข้น

วันที่ 21 – 22 กรกฎาคม 2565
เวลา 9:00 – 16:30 น.



วิทยากร:
ธีชนกนา ชานคลัง



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Microsoft Certification Day

อัปสกิลกับการติวสอบแบบเข้มข้น

พิธีเปิด



2



Microsoft Certification Day

อัปสกิลกับการติวสอบแบบเข้มข้น



เนื่องจากการเรียนนี้เป็นการเรียนผ่านระบบ Teams Meeting ดังนั้นจึงขออนุญาตในการที่แต่ละท่านจะเห็นข้อมูลส่วนบุคคลในระบบ และต้องขออภัยที่ทางทีมงานจะไม่มีการบันทึกการสอนได้ ผ่านระบบ

3

วันที่ 21 กรกฎาคม 2565
เวลา 09:00 – 12:00

Azure Fundamentals

เพื่อสอบ AZ-900



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วันที่ 21 กรกฎาคม 2565
เวลา 13:30 – 16:30

Data Fundamentals

เพื่อสอบ DP-900



5

วันที่ 22 กรกฎาคม 2565
เวลา 09:00 – 12:00

AI Fundamentals

เพื่อสอบ AI-900



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วันที่ 22 กรกฎาคม 2565
เวลา 13:30 – 16:30

Security Fundamentals

เพื่อสอบ SC-900



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แนะนำศูนย์สอบ ที่สามารถรับของที่ระลึก
เมื่อสอบผ่าน AZ-900 AI-900, DP-900, PL-900,
SC-900, MS-700, MB910, MB920
หมดเขต 30 กันยายน 2565



ศูนย์สอบ	ติดต่อ	เบอร์โทร	ที่ตั้ง	ช่วง Covid เปิดหรือไม่
ERT	Patthama	02-718-1599 ต่อ 1903	เลขที่ 2922/135-136 ชั้น 3 (இழப்பாசா) ห้อง 331-332 อาคารชาญอิสรภาพาณิช 2 ถนนเพชรบุรีตัดใหม่ แขวงบางจากปี เขตด้ำบขาง กรุงเทพฯ 10320	เปิดปกติ
Iverson	Siriwat	095-894-9191	อาคารวัน แปซิฟิค เพลส ชั้น 12 ห้อง 1208-1209 เลขที่ 140 ถนนสุขุมวิท แขวง คลองเตย เขตคลองเตย กรุงเทพมหานคร 10110 (ติด BTS สถานีนานา)	เปิดจีที, พุธ, ศุกร์*
Trainocate	Siriporn Nipa	080-669-1428 081-008-7991	999/9 The Offices at CentralWorld , 16F, Unit ML1606-1607, Pathumwan, Bangkok 10330 Thailand	เปิดปกติ

สำหรับผู้สอบ online
ตั้งแต่ 1 July 21

สามารถแลกติดต่อไปที่
phanwadee@iverson.co.th หรือ

siriporn@trainocate.com

โดย-แนบ Transcript อัปเดท
LinkedIn และ -แจ้งเบอร์ติดต่อกลับ

*ทุกศูนย์สอบปิดเสาร์-อาทิตย์

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ดูข้อมูลหลักสูตรต่างๆ ได้ที่นี่

<https://www.microsoft.com/apac/events/th-th>

เรียนรู้ภายใน 30 วันได้ที่นี่

<https://aka.ms/30dayslearnit>

เรียนรู้หลักสูตรต่างๆ

<https://aka.ms/mslearning>

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Microsoft Support



หลังจากเรียนจบประมาณ 5 วันทำการ ท่านจะได้รับเมลแจ้งลิงค์เพื่อทำการลงทะเบียนสอบ หาก

ไม่ได้รับเมล หรือได้รับแล้วไม่สามารถลงทะเบียนสอบได้ ให้เข้าลิงค์นี้เพื่อแจ้งได้ที่ **Certification support**

ที่นี่ <https://aka.ms/certificationsupportth>

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Join LINE OpenChat



You've been invited to join "**Microsoft Cloud Squad**" by Spark Tech Thailand. Visit the link below to join the OpenChat.

ข้อมูลข่าวสารทั้งหมดจะได้รับการแจ้งผ่านทาง
Line OpenChat
<https://line.me/ti/g2/cUJu4AdnVTyxN9GXCAXI5Q>

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Join LINE OpenChat by Spark Tech Thailand (ไลน์ OpenChat ของพันธมิตรในโครงการนี้ของเรา เพื่อเอาไว้สื่อสารรายละเอียดโครงการครับ)



You've been invited to join "**Microsoft Cloud Squad**" by Spark Tech Thailand. Visit the link below to join the OpenChat.

ข้อมูลข่าวสารทั้งหมดจะได้รับการแจ้งผ่านทาง **Line OpenChat** นี้ครับ
<https://line.me/ti/g2/cUJu4AdnVTyxN9GXCAXI5Q>



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Tissana Tanaklang

**Software and Solution Development Trainer
Iverson Training Center Co., Ltd.
tissana@iverson.co.th , tissana_t@hotmail.com**

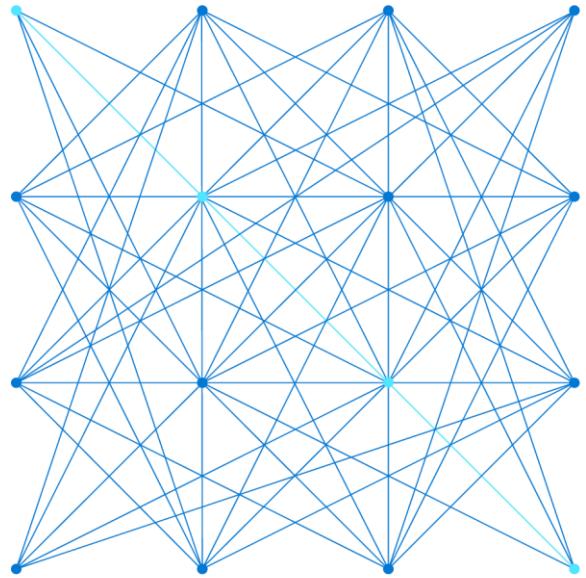
- Microsoft Certified Trainer (MCT)
- Microsoft Certified Azure Data Engineer Associate
- Microsoft Certified Azure Data Scientist Associate
- Microsoft Certified Power BI Data Analyst Associate
- Microsoft Certified Azure Data Fundamentals
- Microsoft Certified Azure AI Engineer Associate
- Microsoft Certified Azure AI Fundamentals
- Microsoft Certified Azure Fundamentals
- Microsoft Certified Power Platform Fundamentals



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Data Concept

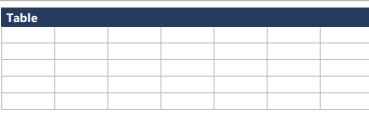
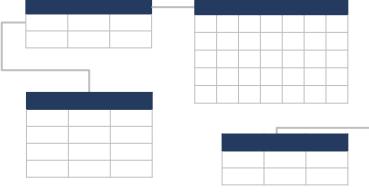


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What is data?

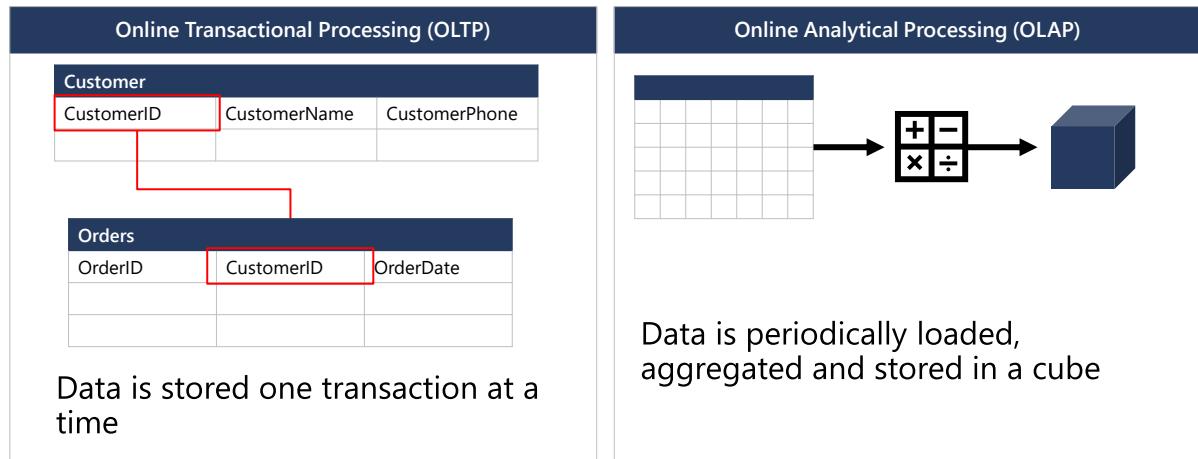
Collection of facts, numbers, descriptions, objects , stored in a structured, semi-structured, unstructured way

Structured	Semi-structured	Unstructured
Table  	Semi-structured <pre>## Document 1 ## "customerId": "103248", "name": { "first": "AAA", "last": "BBB" }, "address": { "street": "Main Street", "number": "101", "city": "Acity", "state": "NY" }, "ccOnFile": "yes", "firstOrder": "02/28/2003" } ## Document 2 ## "customerId": "103249", "name": { "title": "Mr", "forename": "AAA", "lastname": "BBB" }, "address": { "street": "Another Street", "number": "202", "city": "Bcity", "county": "Gloucestershire", "country-region": "UK" }, "ccOnFile": "yes" }</pre>	Unstructured    

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16

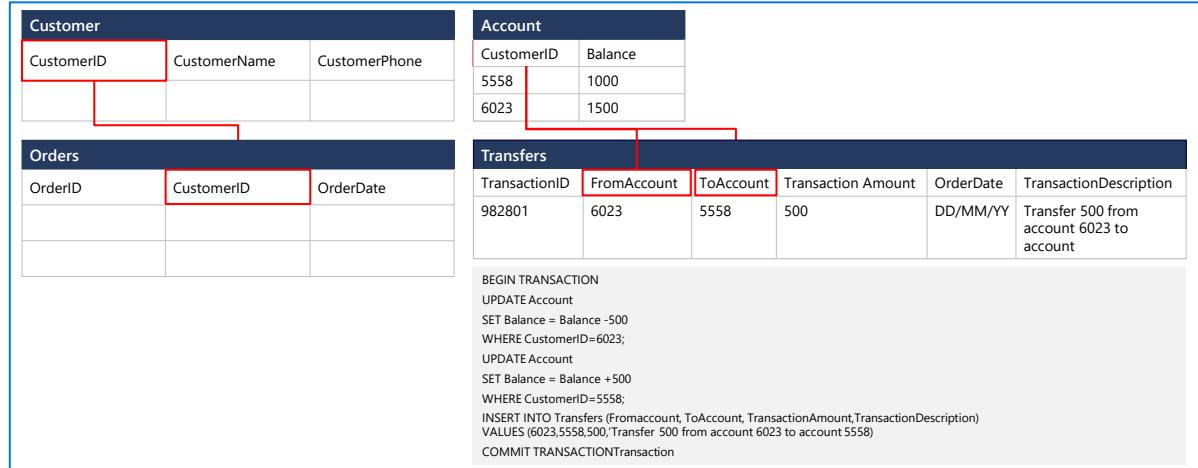
Transactional vs analytical data stores



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17

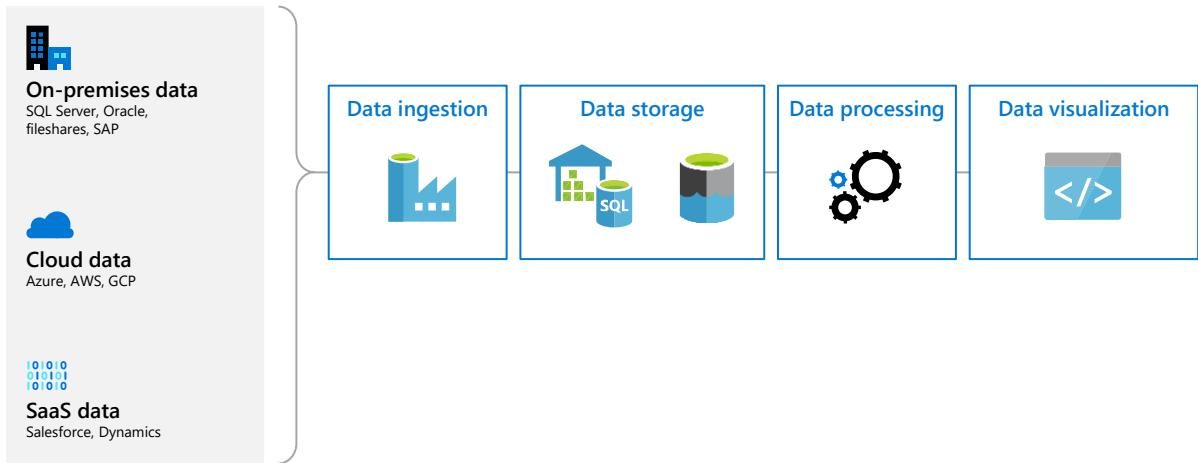
Transactional workloads



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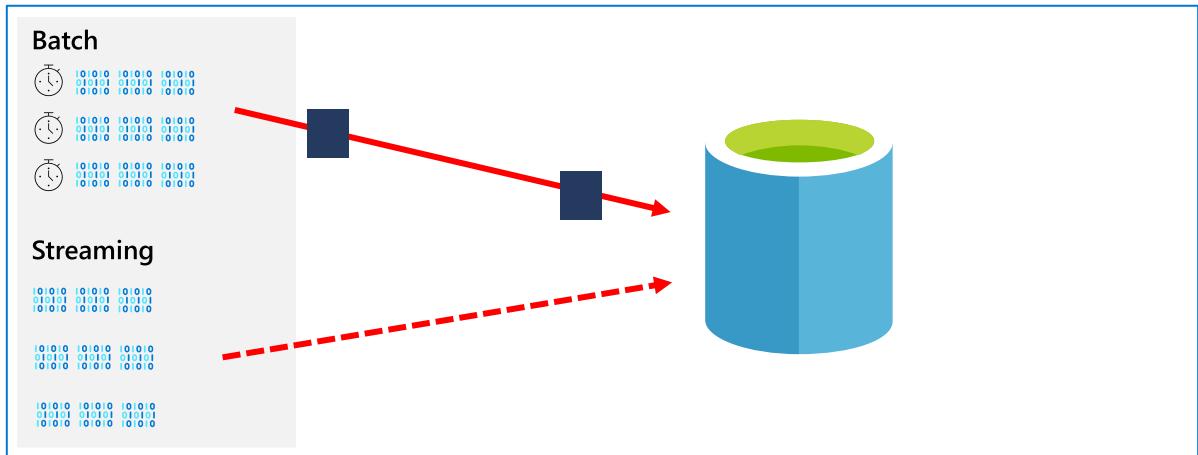
Analytical system



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Batch data/streaming data

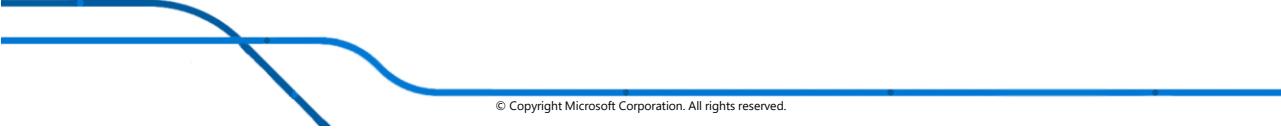


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Question

Workload Types	Answer Area
Batch	Workload type Data for a product catalog will be loaded every 12 hours to a data warehouse.
Streaming	Workload type Data for online purchases will be loaded to a data warehouse as the purchases occur.
	Workload type Updates to inventory data will be loaded to a data warehouse every 1,000 transactions.



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Answer

Batch	Data for a product catalog will be loaded every 12 hours to a data warehouse.
Streaming	Data for online purchases will be loaded to a data warehouse as the purchases occur.
Batch	Updates to inventory data will be loaded to a data warehouse every 1,000 transactions.



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Roles in data

Database Administrator	Data Engineer	Data Analyst
Database Management	Data Pipelines and processes	Provides insights into the data
Implements Data Security	Data Ingestion storage	Visual Reporting
Backups	Prepare data for Analytics	Modeling Data for Analysis
User Access	Prepare data for analytical processing	Combines data for visualization and analysis
Monitors performance		
		

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Common tools – Database administrator

Azure Data Studio	SQL Server Management Studio	Azure Portal/CLI
Graphical interface for managing on-premises and cloud-based data services	Graphical interface for managing on-premises and cloud-based data services	Tools for management and provisioning of Azure Data Services
Runs on Windows, macOS, Linux	Runs on Windows Comprehensive Database Administration tool	Manual and automation of scripts using Azure Resource Manager or Command Line Interface scripting

24

Common tools – Data engineering

Azure Synapse Studio	SQL Server Management Studio	Azure Portal/CLI
<ul style="list-style-type: none"> Azure Portal integrated to manage Azure Synapse Data Ingestion (Azure Data Factory) Management of Azure Synapse assets (SQL Pools/Spark Pool) 	<ul style="list-style-type: none"> Graphical interface for managing on-premises and cloud-based data services Runs on Windows Comprehensive Database Administration tool 	<ul style="list-style-type: none"> Tools for management and provisioning of Azure resources Manual and automation of scripts using Azure Resource Manager or Command Line Interface scripting

25

Common tools – Data analyst

Power BI Desktop	Power BI Portal/ Power BI Service	Power BI Report Builder
<ul style="list-style-type: none"> Data Visualization tool Model and Visualize Data Management of Azure Synapse assets (SQL Pools/Spark Pool) 	<ul style="list-style-type: none"> Authoring and management of Power BI reports Authoring of Power BI dashboards Share Reports/Datasets 	<ul style="list-style-type: none"> Data Visualization tool for paginated reports Model and Visualize paginated reports

26

Question

A relational database must be used when

a dynamic schema is required.
data will be stored as key/value pairs.
storing large images and videos.
strong consistency guarantees are required.

27

A decorative graphic consisting of several thick blue lines. One line starts at the top left, another from below it, and they both curve down and meet at a point. From this point, a single line continues straight across the bottom of the slide.

Answer

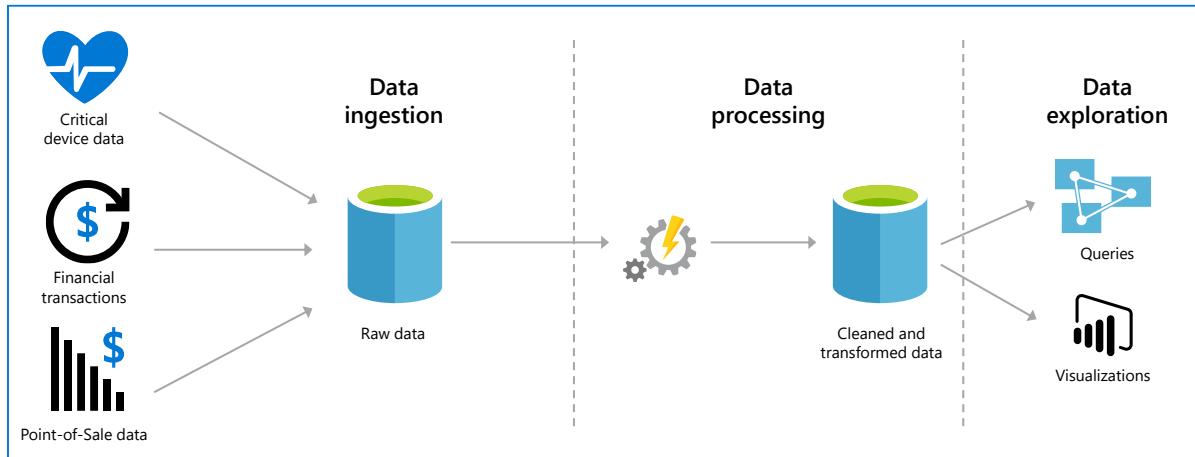
A relational database must be used when

a dynamic schema is required.
data will be stored as key/value pairs.
storing large images and videos.
strong consistency guarantees are required.

28

A decorative graphic consisting of several thick blue lines. One line starts at the top left, another from below it, and they both curve down and meet at a point. From this point, a single line continues straight across the bottom of the slide.

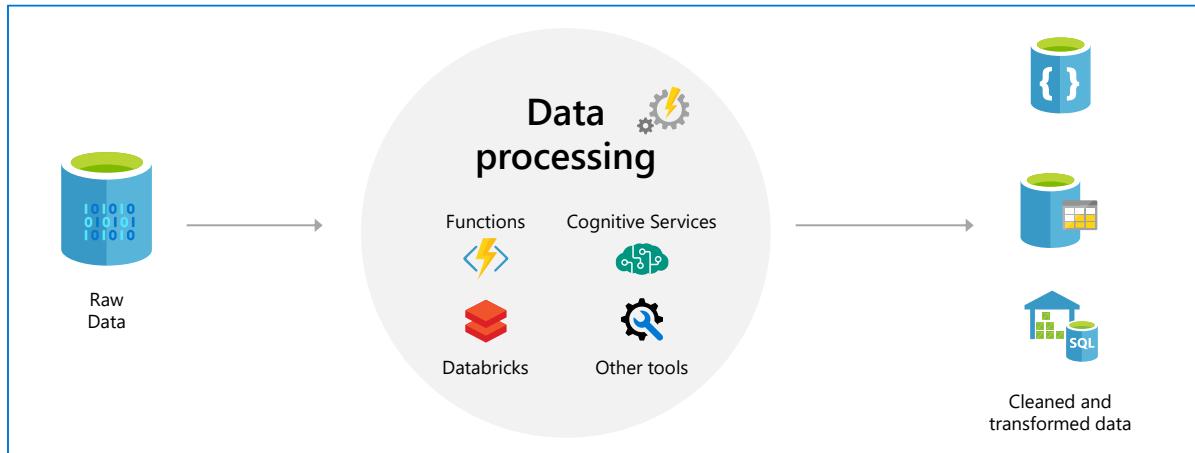
What is data ingestion?



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29

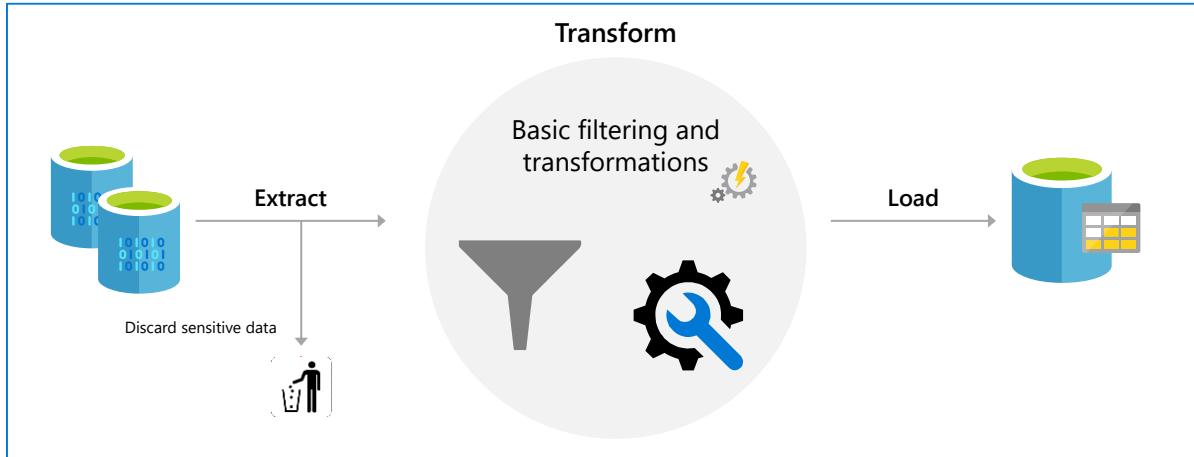
What is data processing?



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30

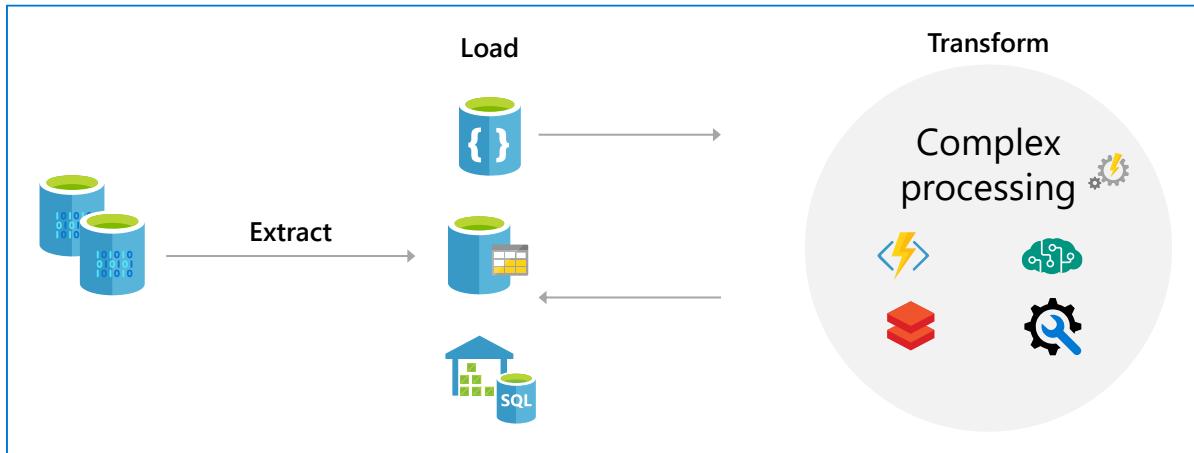
What is ETL?



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What is ELT?



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Question

Locations

- An in-memory data integration tool
- The CRM system
- The data warehouse

Answer Area

Extract: Location

Load: Location

Transform: Location

33



Answer

Extract:

The CRM system

Load:

The data warehouse

Transform:

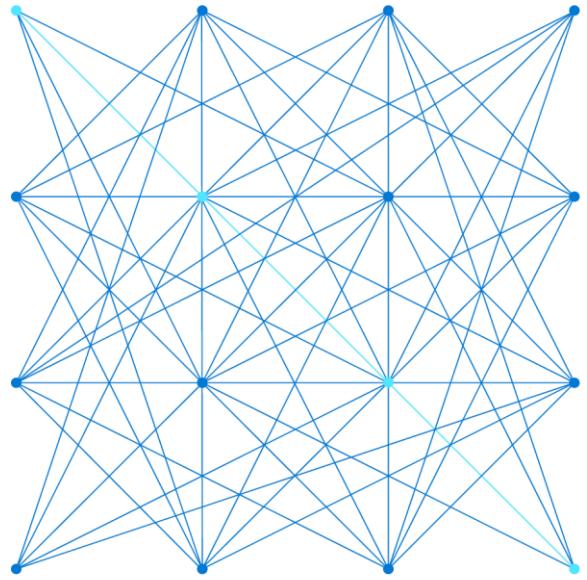
An in-memory data integration tool

34





Explore relational data in Azure



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35

Tables

Customers		
CustomerID	CustomerName	CustomerPhone
100	Muisto Linna	XXX-XXX-XXXX
101	Noam Maoz	XXX-XXX-XXXX
102	Vanja Matkovic	XXX-XXX-XXXX
103	Qamar Mounir	XXX-XXX-XXXX
104	Zhenis Omar	XXX-XXX-XXXX
105	Claude Paulet	XXX-XXX-XXXX
106	Alex Pettersen	XXX-XXX-XXXX
107	Francis Ribeiro	XXX-XXX-XXXX

Data is stored in a table

Table consists of rows and columns

All rows have same # of columns

Each column is defined by a datatype

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Question

Relational data uses

▼
collections
columns
keys
partitions

to enforce relationships between different tables.

37

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Answer

Relational data uses

▼
collections
columns
keys
partitions

to enforce relationships between different tables.

38

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Entities

Customers		
CustomerID	CustomerName	CustomerPhone
100	Muisto Linna	XXX-XXX-XXXX
101	Noam Maoz	XXX-XXX-XXXX
102	Vanja Matkovic	XXX-XXX-XXXX
103	Qamar Mounir	XXX-XXX-XXXX
104	Zhenis Omar	XXX-XXX-XXXX
105	Claude Paulet	XXX-XXX-XXXX
106	Alex Pettersen	XXX-XXX-XXXX

An entity is a representation of an item which can be physical (such as a customer or a product), or virtual (such as an order).

Entities are connected by relations enabling interaction. For example, a customer can place an order for a product

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Normalization

Customers		
CustomerID	CustomerName	CustomerPhone
100	Muisto Linna	XXX-XXX-XXXX
101	Noam Maoz	XXX-XXX-XXXX
102	Vanja Matkovic	XXX-XXX-XXXX
103	Qamar Mounir	XXX-XXX-XXXX
104	Zhenis Omar	XXX-XXX-XXXX
105	Claude Paulet	XXX-XXX-XXXX
106	Alex Pettersen	XXX-XXX-XXXX

Orders		
OrderID	CustomerName	CustomerPhone
AD100	Noam Maoz	XXX-XXX-XXXX
AD101	Noam Maoz	XXX-XXX-XXXX
AD102	Noam Maoz	XXX-XXX-XXXX
AX103	Qamar Mounir	XXX-XXX-XXXX
AS104	Qamar Mounir	XXX-XXX-XXXX
AR105	Claude Paulet	XXX-XXX-XXXX
MK106	Muisto Linna	XXX-XXX-XXXX

Data is normalized to:

Reduce storage

Avoid data duplication

Improve data quality

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Question

Statements	Yes	No
Normalization involves eliminating relationships between database tables.	<input type="radio"/>	<input type="radio"/>
Normalizing a database reduces data redundancy.	<input type="radio"/>	<input type="radio"/>
Normalization improves data integrity.	<input type="radio"/>	<input type="radio"/>

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Answer

Statements	Yes	No
Normalization involves eliminating relationships between database tables.	<input type="radio"/>	<input checked="" type="radio"/>
Normalizing a database reduces data redundancy.	<input checked="" type="radio"/>	<input type="radio"/>
Normalization improves data integrity.	<input checked="" type="radio"/>	<input type="radio"/>

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Relations

Customers			Orders		
CustomerID	CustomerName	CustomerPhone	OrderID	CustomerID	SalesPersonID
100	Muisto Linna	XXX-XXX-XXXX	AD100	101	200
101	Noam Maoz	XXX-XXX-XXXX	AD101	101	200
102	Vanja Matkovic	XXX-XXX-XXXX	AD102	101	200
103	Qamar Mounir	XXX-XXX-XXXX	AX103	103	201
104	Zhenis Omar	XXX-XXX-XXXX	AS104	103	201
105	Claude Paulet	XXX-XXX-XXXX	AR105	105	200
106	Alex Pettersen	XXX-XXX-XXXX	MK106	105	201

In a normalized database schema:

Primary Keys and Foreign keys are used to define relationships

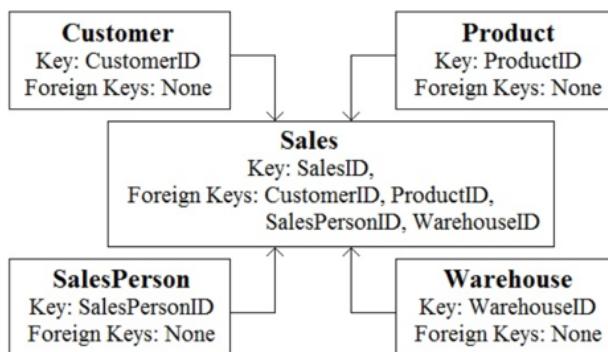
No data duplication exists (other than key values in 3rd Normal Form (3NF))

Data is retrieved by joining tables together in a query

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Question



The data model is a [answer choice].

transactional model
star schema
snowflake schema
fact
dimension
bridge

Customer is a [answer choice] table.

44

Answer

The data model is a [answer choice].

transactional model
star schema
snowflake schema

Customer is a [answer choice] table.

fact
dimension
bridge

45

Indexes

Customers		
CustomerID	CustomerName	CustomerPhone
100	Muisto Linna	XXX-XXX-XXXX
101	Noam Maoz	XXX-XXX-XXXX
102	Vanja Matkovic	XXX-XXX-XXXX
103	Qamar Mounir	XXX-XXX-XXXX
104	Zhenis Omar	XXX-XXX-XXXX
105	Claude Paulet	XXX-XXX-XXXX
106	Alex Pettersen	XXX-XXX-XXXX

IDX-CustomerRegion	
CustomerID	Region
100	France
101	Brazil
102	Croatia
103	Jordan
104	Spain
105	France
106	USA

An index:

Optimizes search queries for faster data retrieval

Reduces the amount of data pages that need to be read to retrieve the data in a SQL Statement

Data is retrieved by joining tables together in a query

View

Customers			Orders		
CustomerID	CustomerName	CustomerPhone	OrderID	CustomerID	SalesPersonID
100	Muisto Linna	XXX-XXX-XXXX	AD100	101	200
101	Noam Maoz	XXX-XXX-XXXX	AD101	101	200
102	Vanja Matkovic	XXX-XXX-XXXX	AD102	101	200
103	Qamar Mounir	XXX-XXX-XXXX	AX103	103	201
104	Zhenis Omar	XXX-XXX-XXXX	AS104	103	201
105	Claude Paulet	XXX-XXX-XXXX	AR105	105	200
106	Alex Pettersen	XXX-XXX-XXXX	MK106	105	201
			DB205	100	205

Create the definition of a view:

```
CREATE VIEW
vw_customerorders AS
SELECT Customers.CustomerID,
Customers.CustomerName,
Orders.OrderID FROM
Customers JOIN Orders on
Customers.CustomerID =
Orders.CustomerID
```

Retrieve the orders placed by customer 102 using the view:

```
SELECT CustomerName, OrderID
from vw_customerorders WHERE
CustomerID=102
```

A view is a virtual table based on the result set of query:

Views are created to simplify the query Combine relational data into a single pane view

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Question

▼	

is a virtual table that contains content defined by a query.

- A heap
- A stored procedure
- A view
- An index

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48

Answer

▼	is a virtual table that contains content defined by a query.
A heap	
A stored procedure	
A view	
An index	

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Question

You have a SQL query that combines customer data and order data. The query includes calculated columns.
You need to persist the SQL query so that other users can use the query.
What should you create?

- A.** an index
- B.** a view
- C.** a scalar function
- D.** a table

50

Answer

You have a SQL query that combines customer data and order data. The query includes calculated columns.

You need to persist the SQL query so that other users can use the query.

What should you create?

- A. an index
- B. a view**
- C. a scalar function
- D. a table

51

Question

Terms

Index
View
Table

Answer Area

A database object that holds data

A database object whose content is defined by a query

A database object that helps improve the speed of data retrieval

52

Answer

Terms	Answer Area
Index	Table A database object that holds data
View	View A database object whose content is defined by a query
Table	Index A database object that helps improve the speed of data retrieval

53

Question

Statements	Yes	No
Relational database tables contain columns and rows	<input type="radio"/>	<input type="radio"/>
Indexes in a relational database describe the data types in a table	<input type="radio"/>	<input type="radio"/>
A database view is a virtual table whose content is defined by a query	<input type="radio"/>	<input type="radio"/>

54

Answer

Statements	Yes	No
Relational database tables contain columns and rows	<input checked="" type="radio"/>	<input type="radio"/>
Indexes in a relational database describe the data types in a table	<input type="radio"/>	<input checked="" type="radio"/>
A database view is a virtual table whose content is defined by a query	<input checked="" type="radio"/>	<input type="radio"/>

55

What are Azure Data Services?



SQL Server on Azure Virtual Machines

Best for re-hosting and apps requiring OS-level access and control
Automated manageability features and OS-level access



Azure SQL Managed Instance

Best for modernizing existing apps
Offers high compatibility with SQL Server and native VNET support



Azure SQL Database

Best for building new apps in the cloud
Pre-provisioned or serverless compute and Hyperscale storage to meet demanding workload requirements

— Infrastructure as a Service —

Platform as a Service —

Create an Azure SQL database

[Home](#) > [New](#) > [SQL Database](#) > [Create SQL Database](#)

Create SQL Database

[Basics](#) [Networking](#) [Additional settings](#) [Tags](#) [Review + create](#)

Create a SQL database with your preferred configurations. Complete the Basics tab then go to Review + Create to provision with smart defaults, or visit each tab to customize. [Learn more](#)

Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription * [cthestao](#)

Resource group * [Select existing...](#) [Create new](#)

Database details

Enter required settings for this database, including picking a logical server and configuring the compute and storage resources.

Database name * [Enter database name](#)

Server * [Select a server](#) [Create new](#)

The value must not be empty.

Want to use SQL elastic pool? * [Yes](#) [No](#)

Compute + storage * [Please select a server first.](#) [Configure database](#)

[Dashboard](#) > [New](#) > [Create SQL Database](#)

Create SQL Database

[1 Basics](#) [2 Additional settings](#) [Tags](#) [Review + create](#)

Customize additional configuration parameters including collation & sample data.

Data source

Start with a blank database, restore from a backup or select sample data to populate your new database.

* Use existing data [None](#) [Backup](#) [Sample](#)

* Backup [Select a backup](#)

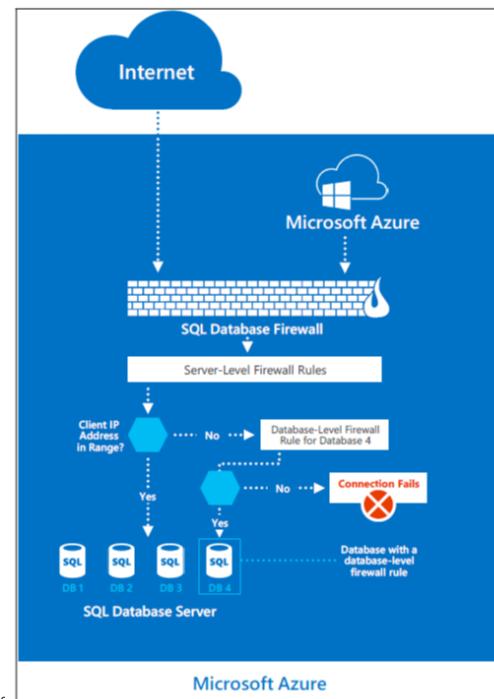
You can also restore a database to a server blade. [Learn more](#)

Database Collation

Database collation defines the rules that sort and compare data, and cannot be changed after database creation. The default database collation is SQL_Latin1_General_CI_AS. [Learn more](#)

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Server-Level Firewall Rules



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PostgreSQL, MySQL, MariaDB



PostgreSQL is the most popular and wanted database for modern apps



MySQL is a leading open source relational database for LAMP stack apps



MariaDB is a community-developed fork of MySQL with strong focus on the user community

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59

Question

Your company needs to implement a relational database in Azure. The solution must minimize ongoing maintenance. Which Azure service should you use?

- A. Azure HDInsight
- B. Azure SQL Database
- C. Azure Cosmos DB
- D. SQL Server on Azure virtual machines



60

Answer

Your company needs to implement a relational database in Azure. The solution must minimize ongoing maintenance. Which Azure service should you use?

- A. Azure HDInsight
- B. Azure SQL Database**
- C. Azure Cosmos DB
- D. SQL Server on Azure virtual machines

61

Question

Statements	Yes	No
Platform as a service (PaaS) database offerings in Azure provide built-in high availability.	<input type="radio"/>	<input checked="" type="radio"/>
Platform as a service (PaaS) database offerings in Azure provide configurable scaling options.	<input checked="" type="radio"/>	<input type="radio"/>
Platform as a service (PaaS) database offerings in Azure reduce the administrative overhead for managing hardware.	<input type="radio"/>	<input checked="" type="radio"/>

62

Answer

Statements	Yes	No
Platform as a service (PaaS) database offerings in Azure provide built-in high availability.	<input checked="" type="radio"/>	<input type="radio"/>
Platform as a service (PaaS) database offerings in Azure provide configurable scaling options.	<input checked="" type="radio"/>	<input type="radio"/>
Platform as a service (PaaS) database offerings in Azure reduce the administrative overhead for managing hardware.	<input checked="" type="radio"/>	<input type="radio"/>

63

Question

By default, each Azure SQL database is protected by

a network security group (NSG).
a server-level firewall.
Azure Firewall.
Azure Front Door.

64

Answer

By default, each Azure SQL database is protected by

a network security group (NSG).
a server-level firewall.
Azure Firewall.
Azure Front Door.

65



Question

You need to ensure that users use multi-factor authentication (MFA) when connecting to an Azure SQL database. Which type of authentication should you use?

- A.** service principal authentication
 - B.** Azure Active Directory (Azure AD) authentication
 - C.** SQL authentication
 - D.** certificate authentication
- 

66

Answer

You need to ensure that users use multi-factor authentication (MFA) when connecting to an Azure SQL database.
Which type of authentication should you use?

- A. service principal authentication
- B. Azure Active Directory (Azure AD) authentication**
- C. SQL authentication
- D. certificate authentication



67

Introduction to SQL



SQL is a standard language for use with relational databases



SQL standards are maintained by ANSI and ISO



Proprietary RDBMS systems have their own extensions of SQL such as T-SQL, PL/SQL, pgSQL

SQL Statement types

DML	DDL	DCL
<p>Data Manipulation Language Used to query and manipulate data SELECT, INSERT, UPDATE, DELETE</p>	<p>Data Definition Language Used to define database objects CREATE, ALTER, DROP, RENAME</p>	<p>Data Control Language Used to manage security permissions GRANT, REVOKE, DENY</p>

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69

Use DML statements

Statement	Description
SELECT	Select/read from a table
INSERT	Insert new rows in a table
UPDATE	Edit/Update existing rows in a table
DELETE	Delete existing rows in a table

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70

Question

You have an inventory management database that contains the following table.

ProductName	Quantity
Product1	100
Product2	129
Product3	176

Which statement should you use in a SQL query to change the inventory quantity of Product1 to 270?

- A. INSERT
- B. MERGE
- C. UPDATE
- D. CREATE

71

Answer

You have an inventory management database that contains the following table.

ProductName	Quantity
Product1	100
Product2	129
Product3	176

Which statement should you use in a SQL query to change the inventory quantity of Product1 to 270?

- A. INSERT
- B. MERGE
- C. UPDATE
- D. CREATE

72

Question

You have the following SQL query.

```
INSERT INTO dbo.Products (ProductID, ProductName, Price, ProductDescription)
VALUES (1, 'Clamp', 12.48, 'Workbench clamp') ;
```

What are dbo.Products and ProductName? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.

Hot Area:

Answer Area

Dbo.Products :

A column
A database
A table
An index

ProductName :

A column
A database
A table
An index

73

Answer

Answer Area

Dbo.Products :

A column
A database
A table
An index

ProductName :

A column
A database
A table
An index

74

Use DDL statements

Statement	Description
CREATE	Create a new object in the database, such as a table or a view
ALTER	Modify the structure of an object. For instance, altering a table to add a new column.
DROP	Remove an object from the database.
RENAME	Rename an existing object.

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75

Question

Which statement is an example of Data Definition Language (DDL)?

- A. SELECT
- B. JOIN
- C. MERGE
- D. CREATE



76

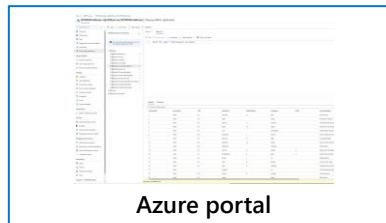
Answer

Which statement is an example of Data Definition Language (DDL)?

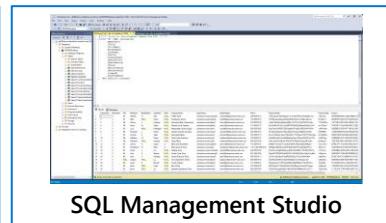
- A. SELECT
- B. JOIN
- C. MERGE
- D. CREATE

77

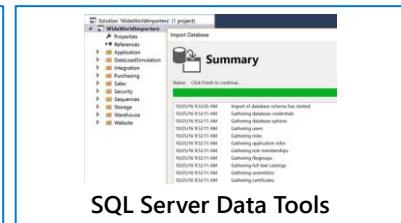
Query tools



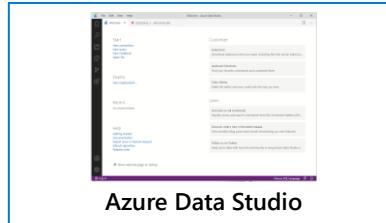
Azure portal



SQL Management Studio



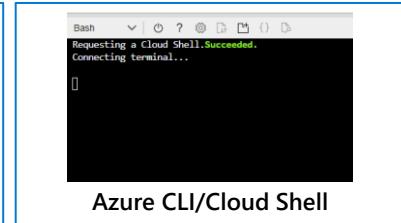
SQL Server Data Tools



Azure Data Studio



SQLCMD



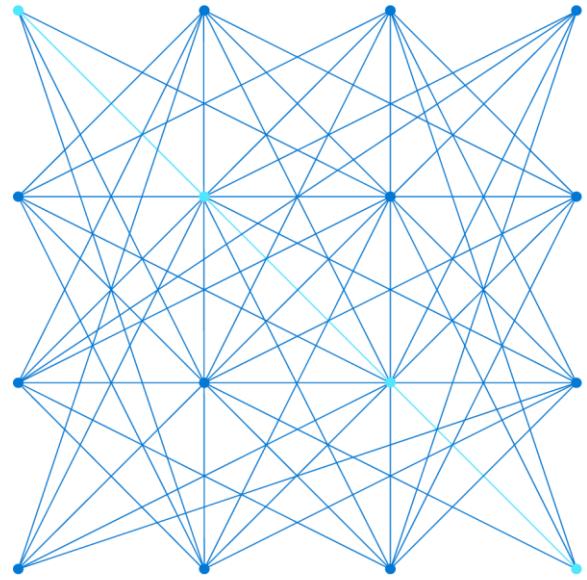
Azure CLI/Cloud Shell

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78



Explore non-relational data in Azure



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79

Explore characteristics of non-relational data

Entities

```
## Customer 1 ID: 1
Name: Mark Hanson
Telephone: [ Home: 1-999-9999999, Business: 1-888-8888888, Cell: 1-777- 7777777 ]
Address: [ Home: 121 Main Street, Some City, NY, 10110,
           Business: 87 Big Building, Some City, NY, 10111 ]
## Customer 2 ID: 2
Title: Mr
Name: Jeff Hay
Telephone: [ Home: 0044-1999-333333, Mobile: 0044-17545-444444 ]
Address: [ UK: 86 High Street, Some Town, A County, GL8888, UK,
           US: 777 7th Street, Another City, CA, 90111 ]
```

Non-relational collections can have:

Multiple entities in the same collection or container with different fields

Have a different, non-tabular schema

Are often defined by labeling each field with the name it represents

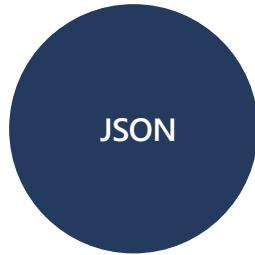
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80

Types of non-relational data

What is semi-structured data?

Data structure is defined within the actual data by fields. Format/file types include:



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81

Question

```

"customer" : {
    "first name" : "Ben",
    "last name" : "Smith",
    "address" : {
        "line 1" : "161 Azure Ln",
        "line 2" : "Palo Alto",
        "ZIP code" : "54762"
    },
    "social media": [
        {
            "service" : "twitter",
            "handle" : "@bensmith"
        },
        {
            "service" : "linkedin",
            "handle" : "bensmith"
        }
    ],
    "phone numbers": [
        {
            "type" : "mobile",
            "number" : "555-555-5555"
        }
    ]
}

```

Answer Area

Customer is [answer choice].

a nested array
a nested object
a root object

Address is [answer choice].

a nested array
a nested object
a root object

Social media is [answer choice].

a nested array
a nested object
a root object

82

Answer

Customer is [answer choice].

a nested array
a nested object
a root object

Address is [answer choice].

a nested array
a nested object
a root object

Social media is [answer choice].

a nested array
a nested object
a root object

83



What is unstructured data?



Does not naturally contain fields:

Examples: video, audio, media streams, documents



Often used to extract data organization and categorize or identify "structures"



Frequently used in combination with Machine Learning or Cognitive Services capabilities to "extract data" by using:

Text Analytics

Sentiment Analysis with Cognitive APIs

Vision API

What is NoSQL?

Loose term, to describe non-relational



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85

Key-Value Stores

Key	Value
AAAAA	110100111010100110101111...
AABAB	1001100001011001101011110...
DFA766	0000000000101010110101010...
FABCC4	1110110110101010100101101...

Opaque to
data store

A key-value store is the simplest (and often quickest) type of NoSQL database for inserting and querying data.

86

Question

A key/value data store is optimized for

enforcing constraints
simple lookups
table joins
transactions

87



Answer

A key/value data store is optimized for

enforcing constraints
simple lookups
table joins
transactions

88



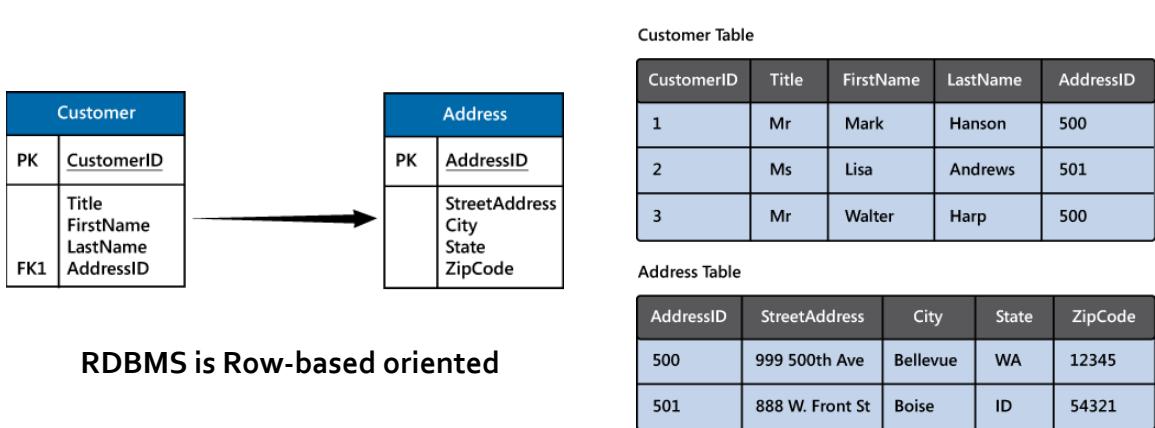
Document Databases

Key	Document
1001	{ "CustomerID": 99, "OrderItems": [{ "ProductID": 2010, "Quantity": 2, "Cost": 520 }, { "ProductID": 4365, "Quantity": 1, "Cost": 18 }], "OrderDate": "04/01/2017" }
1002	{ "CustomerID": 220, "OrderItems": [{ "ProductID": 1285, "Quantity": 1, "Cost": 120 }], "OrderDate": "05/08/2017" }

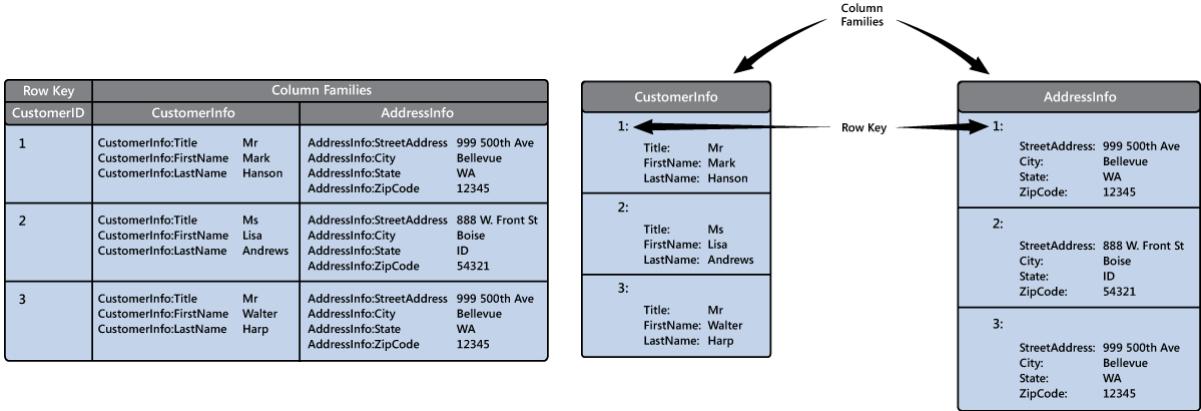
A document database represents the opposite end of the NoSQL spectrum from a key-value store. In a document database, each document has a unique ID, but the fields in the documents are transparent to the database management system. Document databases typically store data in JSON format,

89

Column Family Databases



90



91

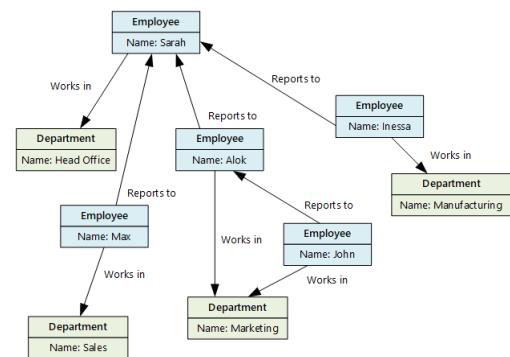
What is a graph database?



Stores entities centric around relationships



Enables applications to perform queries traversing a network of nodes and edges

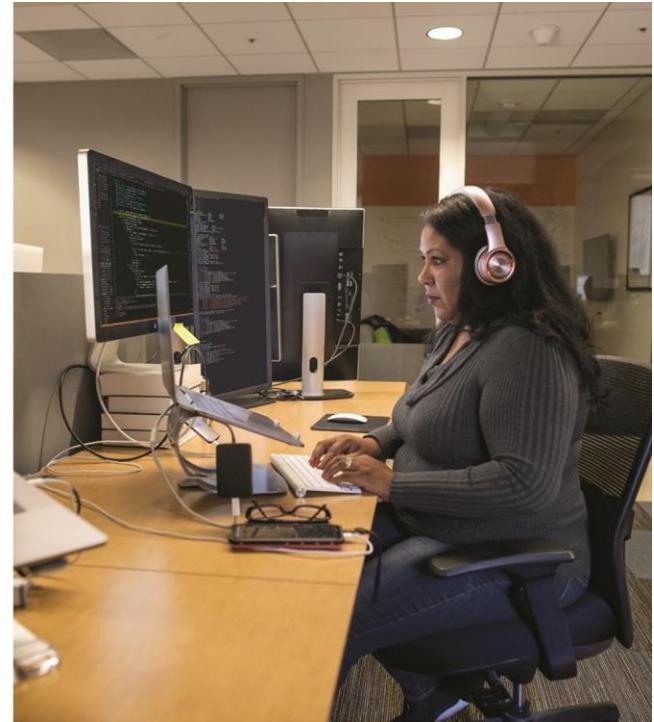


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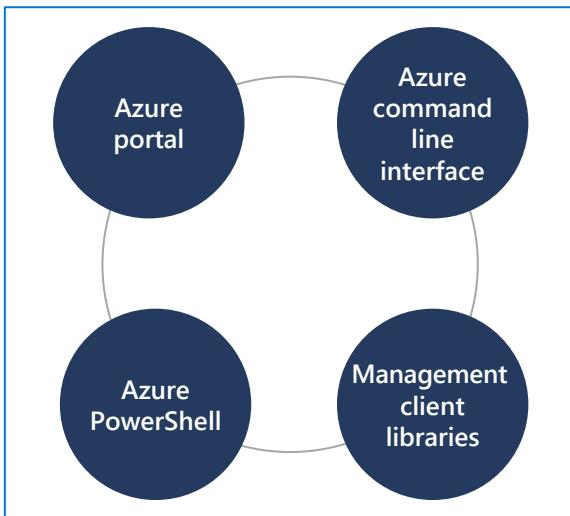
92

Create a storage account

93



Storage account creation tool



94



Storage account settings

[Home](#) > [New](#) > [Storage account](#) > Create storage account

Create storage account

Basics Networking Advanced Tags Review + create

Azure Storage is a Microsoft-managed service providing cloud storage that is highly available, secure, durable, scalable, and redundant. Azure Storage includes Azure Blobs (objects), Azure Data Lake Storage Gen2, Azure Files, Azure Queues, and Azure Tables. The cost of your storage account depends on the usage and the options you choose below.

[Learn more about Azure storage accounts](#)

Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription: dtestao

Resource group: Select existing... Create new

Instance details

The default deployment model is Resource Manager, which supports the latest Azure features. You may choose to deploy using the classic deployment model instead. [Choose classic deployment model](#)

Storage account name: stest

Location: (US) South Central US

Performance: Standard

Account kind: StorageV2 (general purpose v2)

Replication: Read-access geo-redundant storage (RA-GRS)

Access tier (default): Hot

95

Azure Blob storage

Overview Activity log Tags Diagnose and solve problems Access Control (IAM) Data transfer Events Storage Explorer (preview)

Classic alerts in Azure Monitor is announced to retire in 2021, it is recommended that you upgrade your classic alert rules to retain alerting functionality with the new alerting platform. For more information, see [Continue alerting with ARM storage accounts](#).

Essentials

Resource group: DataFundamentals

Status: Primary Available, Secondary Available

Location: East US 2, Central US

Subscription: CM Azure Subscription

Subscription ID: 09c9876d-233f-4906-b0ac-d31970596a44

Tags: Click here to add tags

Performance/Access tier: Standard/Hot

Replication: Read-access geo-redundant storage (RA-GRS)

Account kind: StorageV2 (general purpose v2)

Containers Scalable, cost-effective storage for unstructured data [Learn more](#)

File shares Serverless SMB and NFS file shares [Learn more](#)

Tables Tabular data storage [Learn more](#)

Queues Effectively scale apps according to traffic [Learn more](#)

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96

Question

You need to create an Azure Storage account.

Data in the account must replicate outside the Azure region automatically.

Which two types of replication can you use for the storage account? Each correct answer presents a complete solution.

NOTE: Each correct selection is worth one point.

- A. zone-redundant storage (ZRS)
- B. read-access geo-redundant storage (RA-GRS)
- C. locally-redundant storage (LRS)
- D. geo-redundant storage (GRS)

97



Answer

You need to create an Azure Storage account.

Data in the account must replicate outside the Azure region automatically.

Which two types of replication can you use for the storage account? Each correct answer presents a complete solution.

NOTE: Each correct selection is worth one point.

- A. zone-redundant storage (ZRS)
- B. read-access geo-redundant storage (RA-GRS)**
- C. locally-redundant storage (LRS)**
- D. geo-redundant storage (GRS)**

98



Question

You manage an application that stores data in a shared folder on a Windows server.

You need to move the shared folder to Azure Storage.

Which type of Azure Storage should you use?

- A.** queue
- B.** blob
- C.** file
- D.** table

99

Answer

You manage an application that stores data in a shared folder on a Windows server.

You need to move the shared folder to Azure Storage.

Which type of Azure Storage should you use?

- A.** queue
- B.** blob
- C.** file
- D.** table

100

Question

You have an application that runs on Windows and requires access to a mapped drive.
Which Azure service should you use?

- A. Azure Files
- B. Azure Blob storage
- C. Azure Cosmos DB
- D. Azure Table storage

101

Answer

You have an application that runs on Windows and requires access to a mapped drive.
Which Azure service should you use?

- A. Azure Files**
- B. Azure Blob storage
- C. Azure Cosmos DB
- D. Azure Table storage

102

Question

Services	Answer Area
Azure Blob storage	Service
Azure Cosmos DB	Enables the use of SQL queries against data stored in JSON documents
Azure Files	Service
Azure Table storage	Enables users to access data by using the Server Message Block (SMB) version 3 protocol

103

Answer

Azure Cosmos DB	Enables the use of SQL queries against data stored in JSON documents
Azure Files	Enables users to access data by using the Server Message Block (SMB) version 3 protocol

104

Explore Azure Blob storage

Block blobs	Page blobs	Append blobs
<p>Has a maximum size of 4.7TB</p> <p>Best for storing large, discrete, binary objects that changes infrequently</p> <p>Each individual block can store up to 100MB of data</p> <p>A block blob can contain up to 50000 blocks</p>	<p>Can hold up to 8TB of data</p> <p>Is organized as a collection of fixed sized-512 byte pages</p> <p>Used to implement virtual disk storage for virtual machines</p>	<p>The maximum size is just over 195GB</p> <p>Is a block blob that is used to optimize append operations</p> <p>Each individual block can store up to 4MB of data</p>

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105

Provisioning Data Lake storage

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106

Question

Statements	Yes	No
When ingesting data from Azure Data Lake Storage across Azure regions, you will incur costs for bandwidth.	<input type="radio"/>	<input type="radio"/>
You can use blob, table, and file storage in the same Azure Storage account.	<input type="radio"/>	<input type="radio"/>
You implement Azure Data Lake Storage by creating an Azure Storage account.	<input type="radio"/>	<input type="radio"/>

107

Answer

Statements	Yes	No
When ingesting data from Azure Data Lake Storage across Azure regions, you will incur costs for bandwidth.	<input checked="" type="radio"/>	<input type="radio"/>
You can use blob, table, and file storage in the same Azure Storage account.	<input checked="" type="radio"/>	<input type="radio"/>
You implement Azure Data Lake Storage by creating an Azure Storage account.	<input checked="" type="radio"/>	<input type="radio"/>

108

Question

To configure an Azure Storage account to support both security at the folder level and atomic directory manipulation,

- | |
|--|
| enable the hierarchical namespace. |
| set Account kind to BlobStorage. |
| set Performance to Premium. |
| set Replication to Read-access geo-redundant storage (RA-GRS). |

109



Answer

To configure an Azure Storage account to support both security at the folder level and atomic directory manipulation,

- | |
|--|
| enable the hierarchical namespace. |
| set Account kind to BlobStorage. |
| set Performance to Premium. |
| set Replication to Read-access geo-redundant storage (RA-GRS). |

110



Explore Azure Cosmos DB



Scalability



Performance



Availability



Programming
model

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111

Cosmos DB APIs

SQL API	Table API	MongoDB API	Cassandra API	Gremlin API
<ul style="list-style-type: none">Supports SQL-like query language	<ul style="list-style-type: none">Compatible with Azure Table Storage	<ul style="list-style-type: none">Compatible with MongoDB	<ul style="list-style-type: none">Compatible with Cassandra	<ul style="list-style-type: none">A graph database

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Create an Azure Cosmos DB account

The screenshot shows the 'Create an Azure Cosmos DB account' wizard in progress. The current step is 'Basics'. At the top, there's a breadcrumb navigation: Home > New > Create Azure Cosmos DB Account. Below the title, it says 'Create Azure Cosmos DB Account'.

Project Details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription *: chtestao

Resource Group *: Select existing... or Create new

Instance Details

Account Name *: Enter account name

API *: Core (SQL)

Apache Spark: None

Location *: (US) West US

Geo-Redundancy: Enable

Multi-region Writes: Enable

*Up to 33% off multi-region writes is available to qualifying new accounts only. Accounts must be created between December 1, 2019 and February 29, 2020. Offer limited to accounts with both account locations and geo-redundancy, and applies only to multi-region writes in those same regions. Both Geo-Redundancy and Multi-region Writes must be enabled in account settings. Actual discount will vary based on number of qualifying regions selected.

113

Creating a Database and a Container in Cosmos DB

The screenshot shows the 'Add Container' dialog box. At the top left is a close button (X). The title bar says 'Add Container'.

Start at \$24/mo per database, multiple containers included

Database id: Create new (radio button selected) or Use existing (radio button unselected).

Type a new database id:

Provision database throughput

Throughput (400 - 100,000 RU/s): 400

Autopilot (preview): Unselected

Manual: Selected

Estimated spend (USD): **\$0.032 hourly / \$0.77 daily** (1 region, 400RU/s, \$0.00008/RU)

Container id: e.g., Container1

Partition key: e.g., /address/zipCode

My partition key is larger than 100 bytes

Unique keys: + Add unique key

114

Question

At which two levels can you set the throughput for an Azure Cosmos DB account? Each correct answer presents a complete solution. (Choose two.)
NOTE: Each correct selection is worth one point.

- A. database
- B. item
- C. container
- D. partition

115

Answer

At which two levels can you set the throughput for an Azure Cosmos DB account? Each correct answer presents a complete solution. (Choose two.)
NOTE: Each correct selection is worth one point.

- A. database
- B. item
- C. container
- D. partition

116

Question

You have an Azure Cosmos DB account that uses the Core (SQL) API.

Which two settings can you configure at the container level? Each correct answer presents a complete solution. (Choose two.)

NOTE: Each correct selection is worth one point.

- A. the throughput
- B. the read region
- C. the partition key
- D. the API

117

Answer

You have an Azure Cosmos DB account that uses the Core (SQL) API.

Which two settings can you configure at the container level? Each correct answer presents a complete solution. (Choose two.)

NOTE: Each correct selection is worth one point.

- A. the throughput**
- B. the read region**
- C. the partition key**
- D. the API

118

Query Azure Cosmos DB

Aggregation Function Basics

COUNT(<fields_to_count>)
 SUM(<numeric_fields>)
 AVG(<numeric_fields>)
 MAX(<numeric_fields>)
 MIN(<numeric_fields>)

SQL API examples

```
SELECT COUNT(*) FROM Products p
SELECT SUM(p.quantity) FROM Products p
WHERE p.expired = 0
SELECT AVG(p.price) AS 'Average Price'
FROM Products p
SELECT p1.ID, p.Name, p1.Description,
p1.Price FROM Products p1
WHERE p1.Price = (SELECT MIN(p2.Price) FROM
Product p2)
```

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119

Question

Data Types

Answer Area

Image files

Data type

Azure Blob storage

Key/value pairs

Data type

Azure Cosmos DB Gremlin API

Relationships between employees

Data type

Azure Table storage



120

Answer

Data Types	Answer Area
Image files	Image files Azure Blob storage
Key/value pairs	Relationships between employees Azure Cosmos DB Gremlin API
Relationships between employees	Key/value pairs Azure Table storage

121

Question

When using the Azure Cosmos DB Gremlin API, the container resource type is projected as a

▼
graph.
table.
partition key.
document.

122

Answer

When using the Azure Cosmos DB Gremlin API, the container resource type is projected as a

graph.	▼
table.	
partition key.	
document.	

123



Question

Which type of non-relational data store supports a flexible schema, stores data as JSON files, and stores all the data for an entity in the same document?

- A. document
 - B. columnar
 - C. graph
 - D. time series
- 

124

Answer

Which type of non-relational data store supports a flexible schema, stores data as JSON files, and stores all the data for an entity in the same document?

- A. document
- B. columnar
- C. graph
- D. time series

125

Question

APIs

- Cassandra API
- Gremlin API
- MongoDB API
- Table API

Answer Area

Graph data

JSON documents

Key/value data

126

Answer

APIs

- Cassandra API
- Gremlin API
- MongoDB API
- Table API

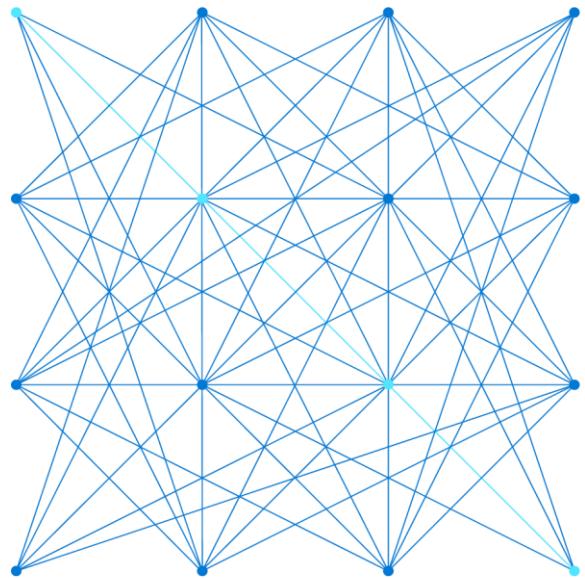
Answer Area

- Gremlin API Graph data
- MongoDB API JSON documents
- Table API Key/value data

127



Explore modern data
warehouse analytics



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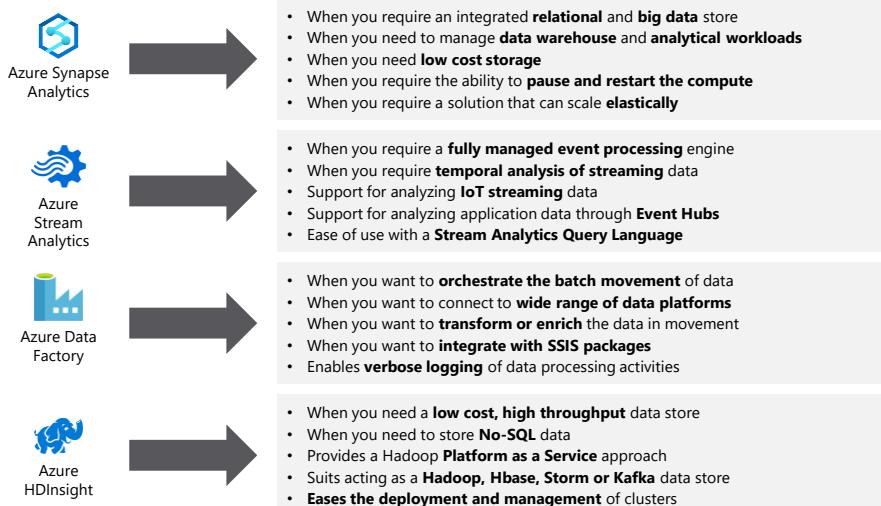
128

What to use for Data



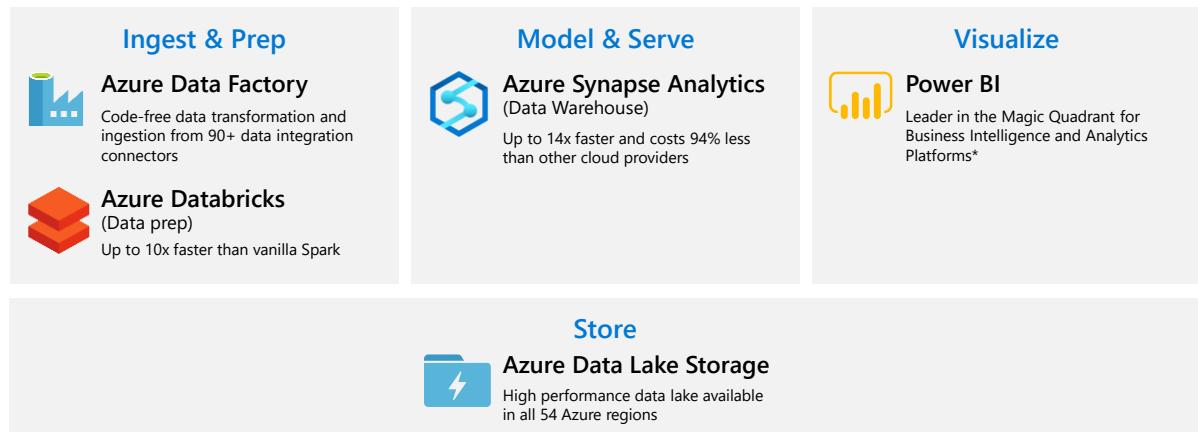
129

What to use for Data



130

What is modern data warehousing?



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131

Question

In a data warehousing workload, data

from a single source is distributed to multiple locations
from multiple sources is combined in a single location
is added to a queue for multiple systems to process
is used to train machine learning models

132

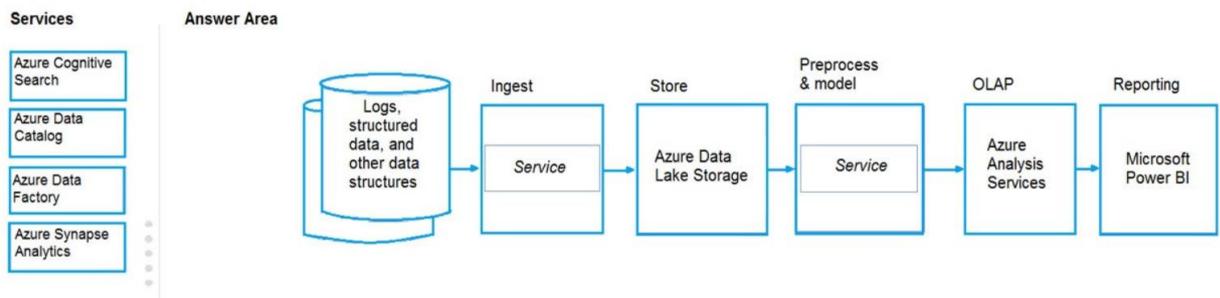
Answer

In a data warehousing workload, data

from a single source is distributed to multiple locations
from multiple sources is combined in a single location
is added to a queue for multiple systems to process
is used to train machine learning models

133

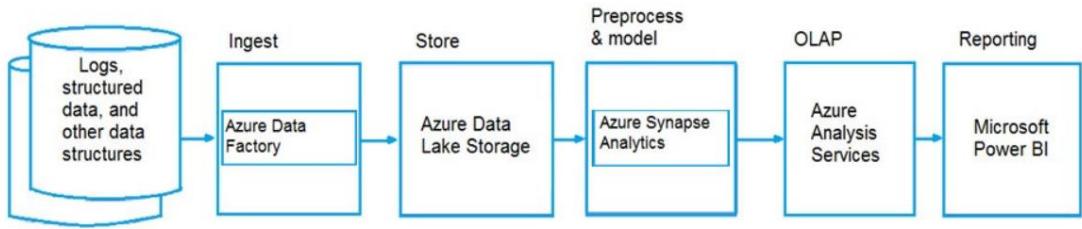
Question



134

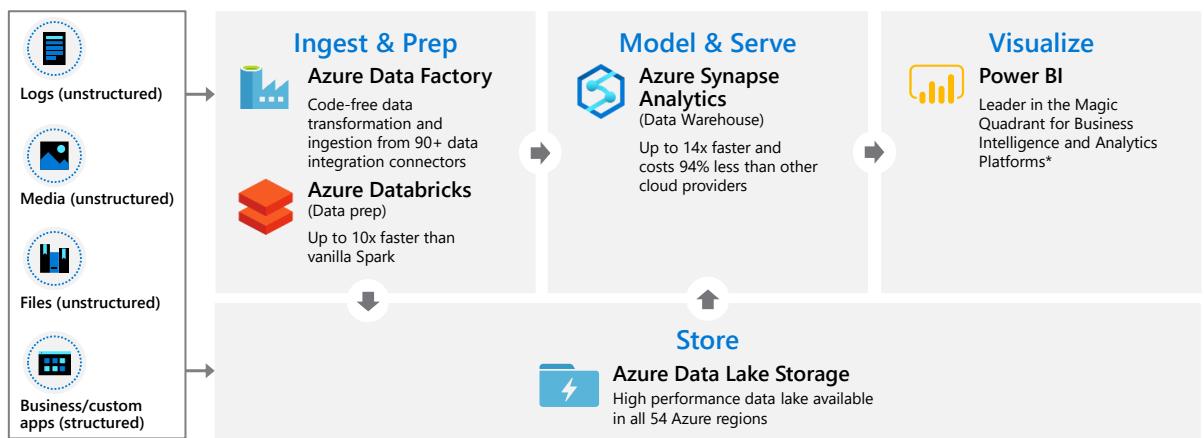
Answer

Answer Area



135

Combine batch and stream processing



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136

Question

You need to gather real-time telemetry data from a mobile application.
Which type of workload describes this scenario?

- A.** Online Transaction Processing (OLTP)
- B.** batch
- C.** massively parallel processing (MPP)
- D.** streaming

137

Answer

You need to gather real-time telemetry data from a mobile application.
Which type of workload describes this scenario?

- A.** Online Transaction Processing (OLTP)
- B.** batch
- C.** massively parallel processing (MPP)
- D.** streaming

138

Question

Components	Answer Area
Dataset	Component A representation of data structures within data stores
Linked service	Component The information used to connect to external resources
Mapping data flow	Component A logical grouping of activities that performs a unit of work and can be scheduled
Pipeline	

139

Answer

Dataset	A representation of data structures within data stores
Linked service	The information used to connect to external resources
Pipeline	A logical grouping of activities that performs a unit of work and can be scheduled

140

Question

Activity Types

Control
Data movement
Data transformation

Answer Area

Copy

Mapping data flow

Until

141

Answer

Activity Types

Control
Data movement
Data transformation

Answer Area

Data movement
Data transformation
Control

Copy

Mapping data flow

Until

142

Question

In Azure Data Factory, you can use

a control flow
a dataset
a linked service
an integration runtime

▼ to orchestrate pipeline

activities that depend on the output of other pipeline activities.

143

Answer

In Azure Data Factory, you can use

a control flow
a dataset
a linked service
an integration runtime

▼ to orchestrate pipeline

activities that depend on the output of other pipeline activities.

144

Question

Statements	Yes	No
Azure Databricks is an Apache Spark-based collaborative analytics platform.	<input type="radio"/>	<input type="radio"/>
Azure Analysis Services is used for transactional workloads.	<input type="radio"/>	<input type="radio"/>
Azure Data Factory orchestrates data integration workflows.	<input type="radio"/>	<input type="radio"/>

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145

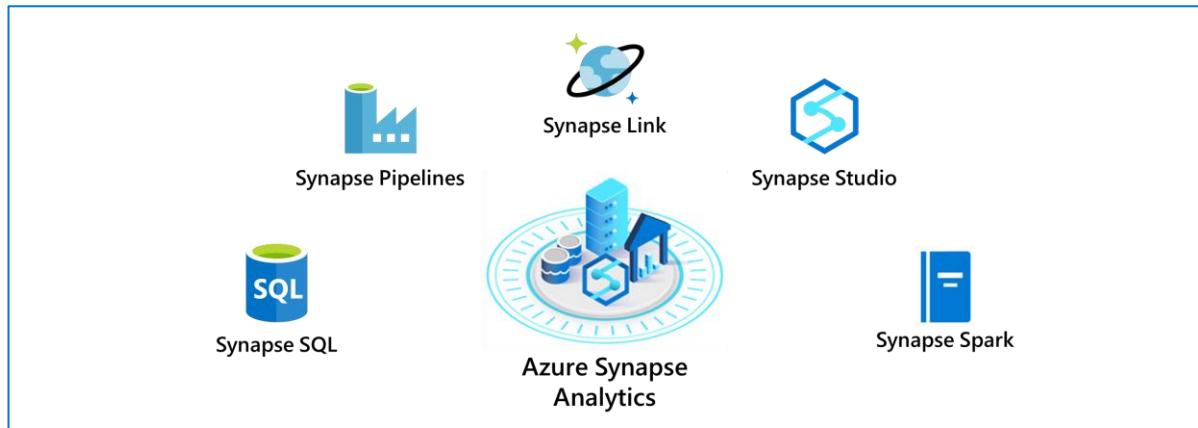
Answer

Statements	Yes	No
Azure Databricks is an Apache Spark-based collaborative analytics platform.	<input checked="" type="radio"/>	<input type="radio"/>
Azure Analysis Services is used for transactional workloads.	<input type="radio"/>	<input checked="" type="radio"/>
Azure Data Factory orchestrates data integration workflows.	<input checked="" type="radio"/>	<input type="radio"/>

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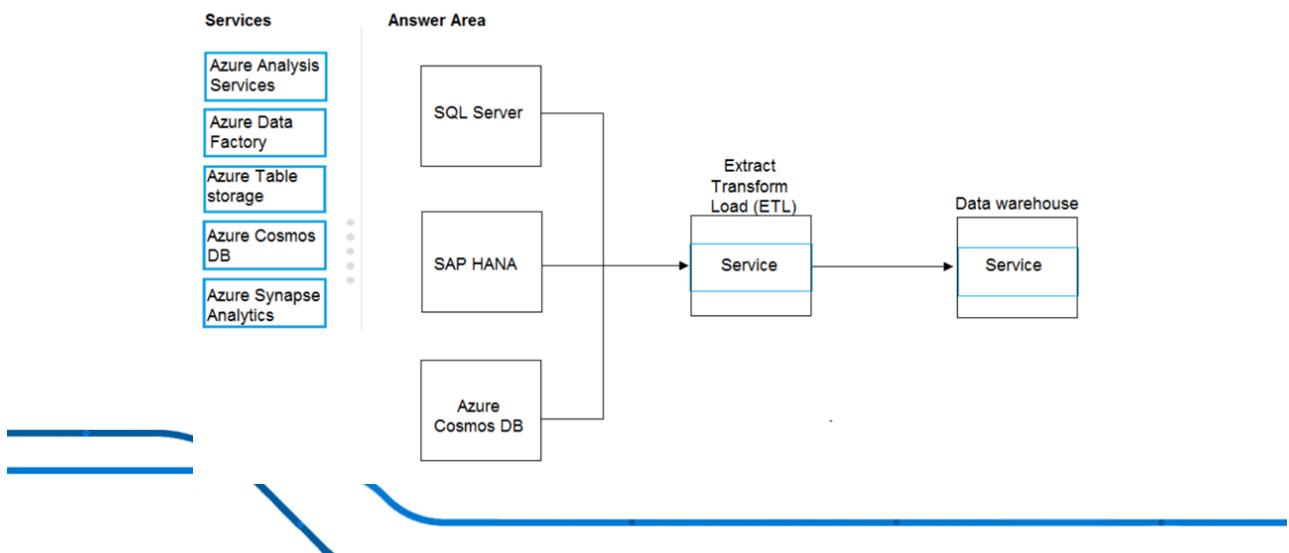
What is Azure Synapse Analytics?



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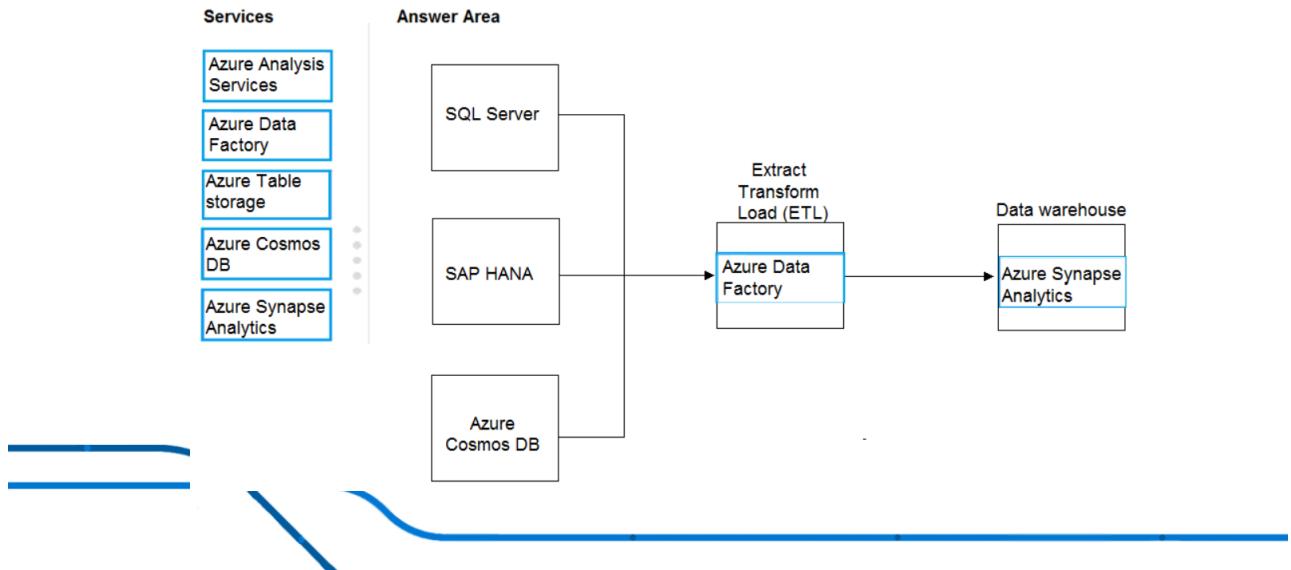
147

Question



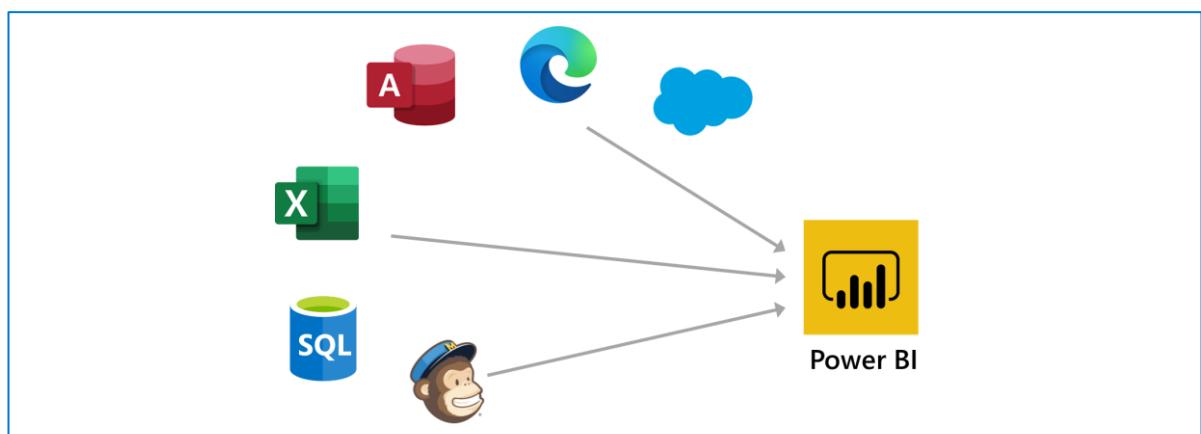
148

Answer



149

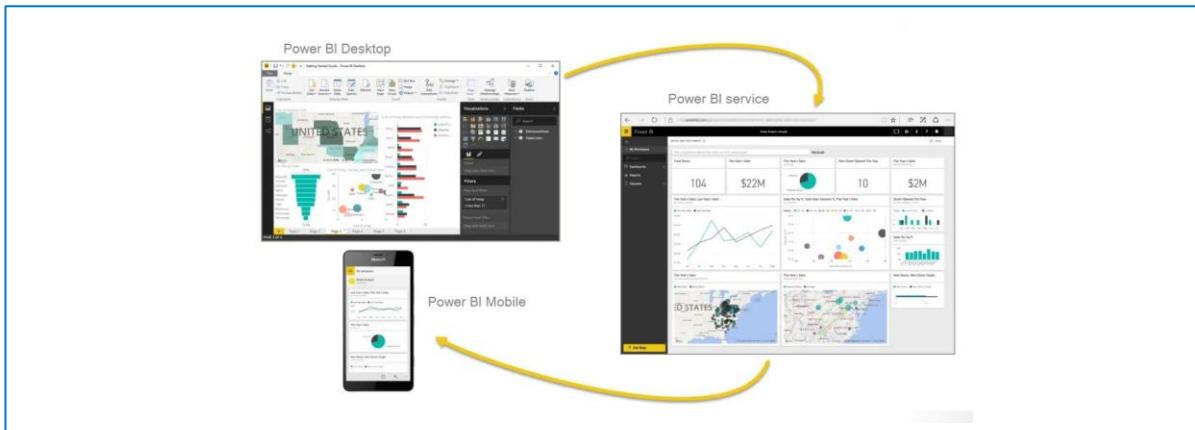
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150

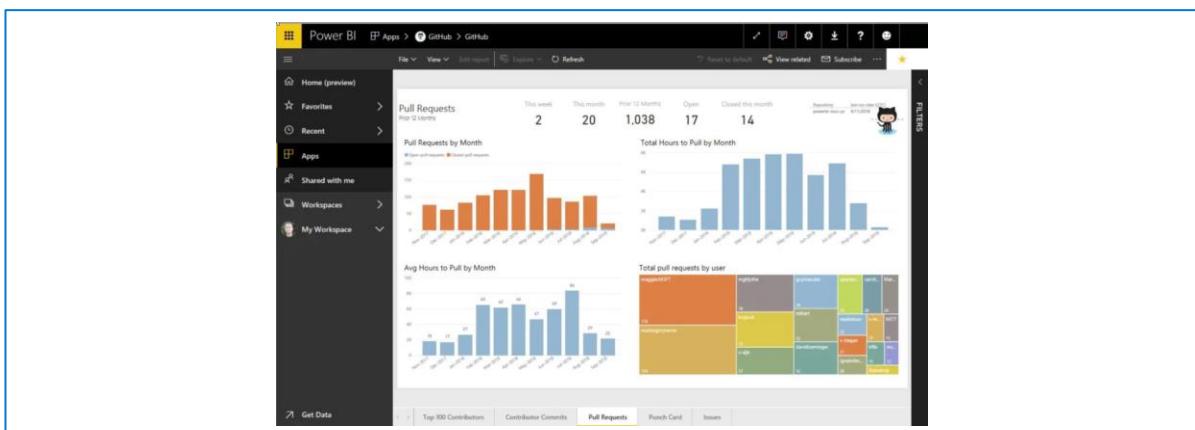
Explore how Power BI can make your business more efficient



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Learn how to create compelling visuals and reports



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Question

Which three objects can be added to a Microsoft Power BI dashboard? Each correct answer presents a complete solution. (Choose three.)
NOTE: Each correct selection is worth one point.

- A. a report page
- B. a Microsoft PowerPoint slide
- C. a visualization from a report
- D. a dataflow
- E. a text box

153

Answer

Which three objects can be added to a Microsoft Power BI dashboard? Each correct answer presents a complete solution. (Choose three.)
NOTE: Each correct selection is worth one point.

- A. a report page
- B. a Microsoft PowerPoint slide
- C. a visualization from a report
- D. a dataflow
- E. a text box

154

Question

What should you use to build a Microsoft Power BI paginated report?

- A.** Charticulator
- B.** Power BI Desktop
- C.** the Power BI service
- D.** Power BI Report Builder

155

Answer

What should you use to build a Microsoft Power BI paginated report?

- A.** Charticulator
- B.** Power BI Desktop
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156

Explore data analytics



Descriptive



Diagnostic



Predictive



Prescriptive



Cognitive

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Question

Descriptive analytics tells you

what is most likely to occur in the future.
what occurred in the past.
which actions you can perform to affect outcomes.
why something occurred in the past.

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Answer

Descriptive analytics tells you

what is most likely to occur in the future.
what occurred in the past.
which actions you can perform to affect outcomes.
why something occurred in the past.

159

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Question

Transcribing audio files is an example of

cognitive
descriptive
predictive
prescriptive

analytics.

160

Answer

Transcribing audio files is an example of

cognitive
descriptive
predictive
prescriptive

analytics.

161



Question

A visualization that shows a university's current student enrollment versus the maximum capacity is an example of

cognitive
descriptive
predictive
prescriptive

analytics.

162



Answer

A visualization that shows a university's current student enrollment versus the maximum capacity is an example of

cognitive
descriptive
predictive
prescriptive

analytics.



163



Thank You and Good Luck

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