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- Ingeniero en Electrónica (UTN FRA)
- Post-Grado PM (UB)
- Certificaciones Microsoft (MCT, MCSA, MCSE, Azure Administrador, Azure Architect)
- Consultor Freelance
- Instructor en IT College ( Microsoft Gold Certified Partner de Microsoft )





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- Licenciado en Administración (UBA)
- Data Science Specialization (Johns Hopkins University)
- Microsoft Professional Program for Data Science
- Certificaciones Microsoft (MCSD/MCDBA/MCITP)
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- Instructor en DataCamp.com

# Consejos y Trucos para Ingenieros de Datos - Exámen de certificación DP-200 (Azure Data Engineer)

- Certificaciones Azure
- DP200 – Implementing an Azure Data Solution
- Estrategia y Planeamiento de Certificación
- Quiero rendir mi Exámen YA!



# Certificaciones Azure



AZ-103:  
Azure Administrator



DP-200 + DP-201:  
Azure Data Engineer



AZ-900:  
Azure Fundamentals



AI-100:  
Azure AI Engineer



AZ900:  
Azure Security Engineer



AZ-300 + AZ-301:  
Azure Solution Architect  
Expert

Microsoft  
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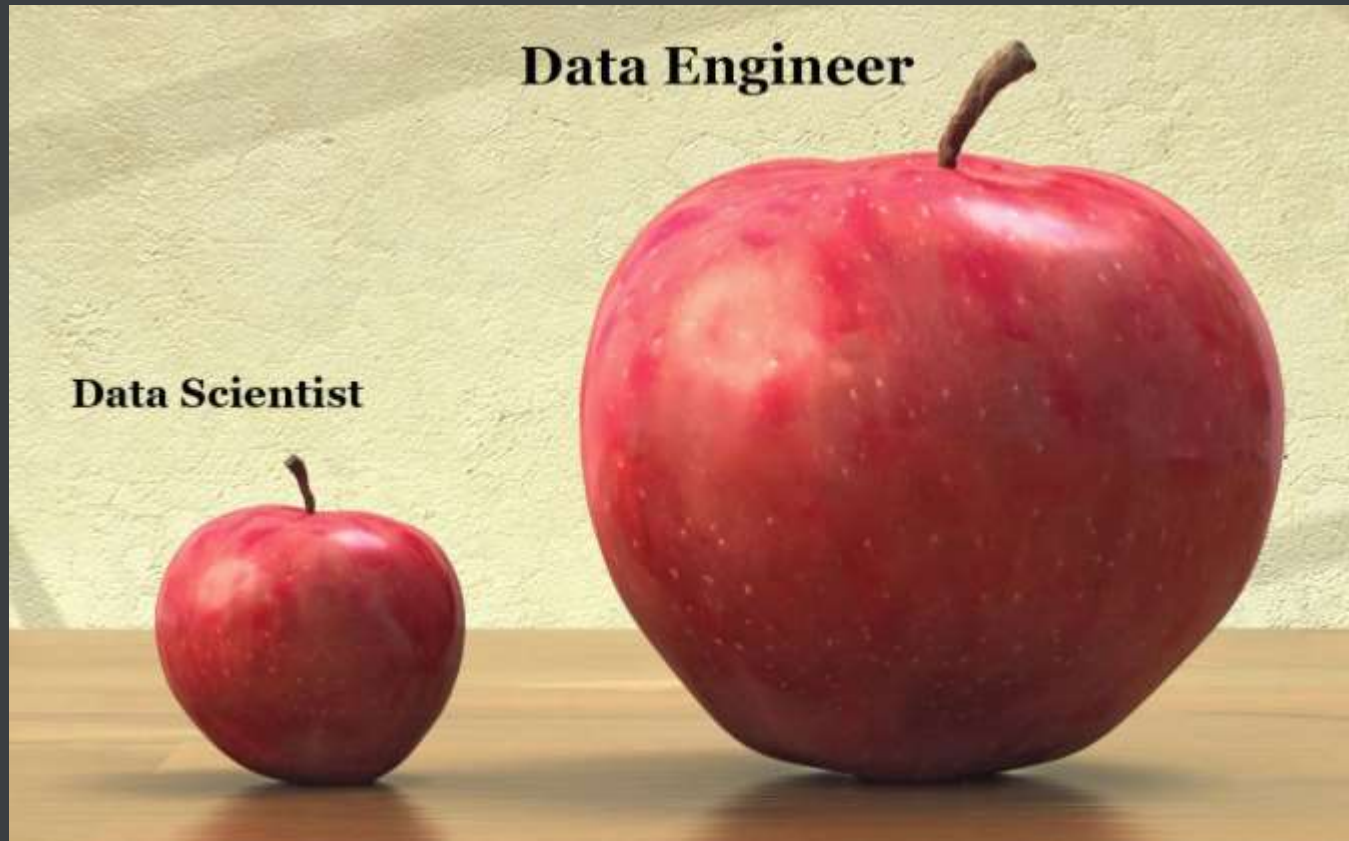


# DP200- Implementing an Azure Data Solution

- Data Engineers Vs. Data Scientists
- Alcance
- Objetivos
- Desarrollo de algunos Tópicos



# Data Engineers Vs. Data Scientists

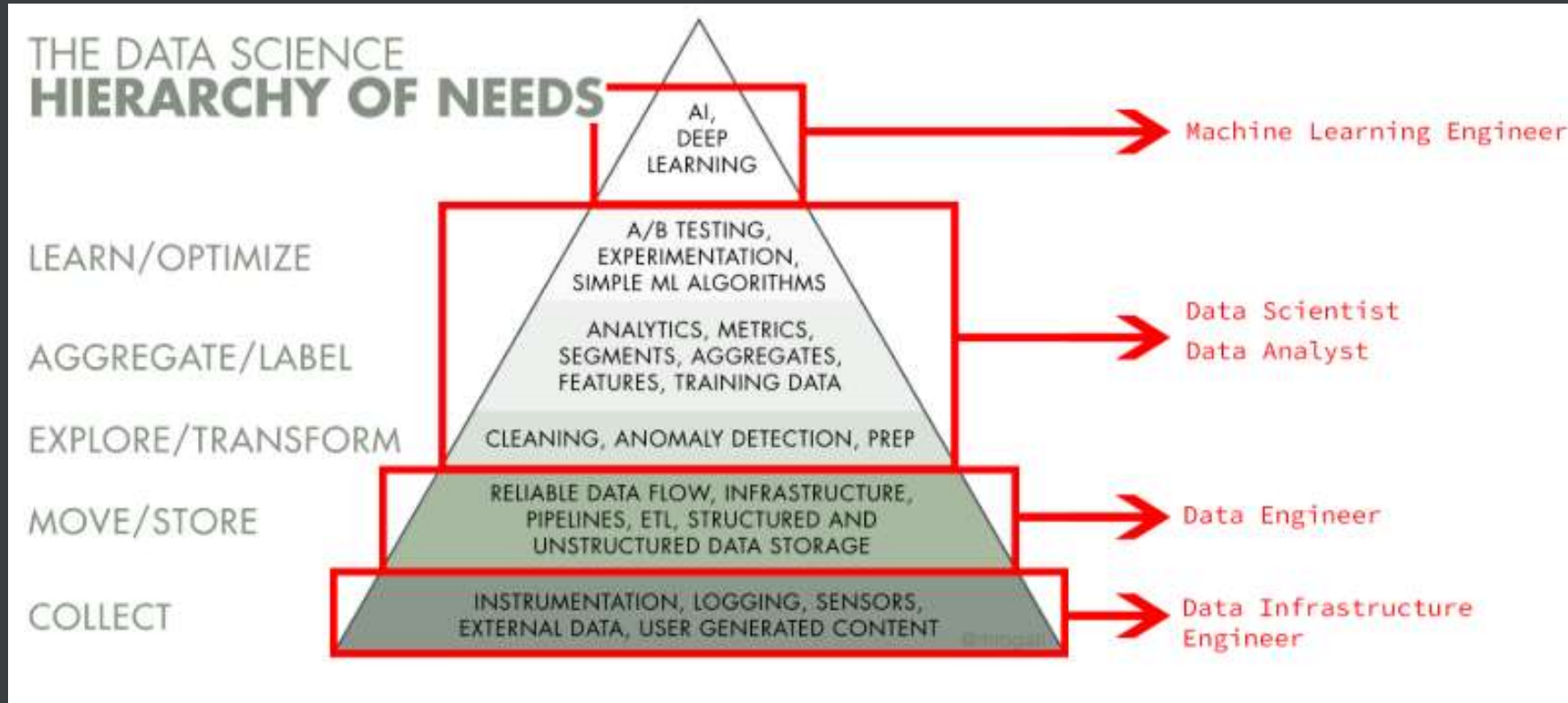


<https://towardsdatascience.com/data-engineer-vs-data-scientist-bc8dab5ac124>





# Data Engineers Vs. Data Scientists



<https://towardsdatascience.com/data-engineer-vs-data-scientist-bc8dab5ac124>





# Azure Data Engineers

- Azure data engineers are responsible for
  - Provisioning data storage services
  - Ingesting streaming and batch data
  - Transforming data
  - Implementing security requirements
  - Implementing data retention policies
  - Identifying performance bottlenecks
  - Accessing external data sources.



# Azure Services

- Candidates for this exam must be able to implement data solutions using Azure services:
- Azure Cosmos DB
- Azure SQL Database / SQL Data Warehouse
- Azure Data Lake Storage
- Azure Data Factory
- Azure Stream Analytics
- Azure Databricks
- Azure Blob storage.

# DP200-Skills measured

- Implement data storage solutions (40-45%)
- Manage and develop data processing (25-30%)
- Monitor and optimize data solutions (30-35%)

- Full skills outline

<https://query.prod.cms.rt.microsoft.com/cms/api/am/binary/RE3Vzx2>





# Objective: Implement data storage solutions (40-45%)

- Implement ***non-relational*** data stores
  - Implement a solution that uses Cosmos DB, Data Lake Storage Gen2, or Blob storage
  - Implement data distribution and partitions
  - Implement a consistency model in CosmosDB
  - Provision a non-relational data store
  - Provide access to data to meet security requirements
  - Implement for high availability, disaster recovery, and global distribution



# CosmosDB

- Azure Cosmos DB is Microsoft's globally distributed, multi-model database service.
- Cosmos DB enables you to elastically and independently scale throughput and storage across any number of Azure's geographic regions.
- Scalability
  - Out of the box, automatically replicates data to other regions and as such guarantees data consistency across various regions where the data is replicated.
- Performance
  - Implements local caching of data for faster data access.
  - Automatic indexing also reduces the operational burden of maintaining indexes

# CosmosDB - Programming models

- SQL API: allows data access like relational models.
- Mongo API:
  - facilitate Mongo DB users to easily ramp up on the offering. Document based.
- Gremlin API:
  - Gremlin is a graph traversal language used to interact with graph databases. Cosmos DB exposes Gremlin API.
- Cassandra API:
  - enables interaction with the Cassandra Query Language (CQL), Cassandra-based tools and client drivers. Column-oriented.
- Table API:
  - Compatibility with Azure Tables

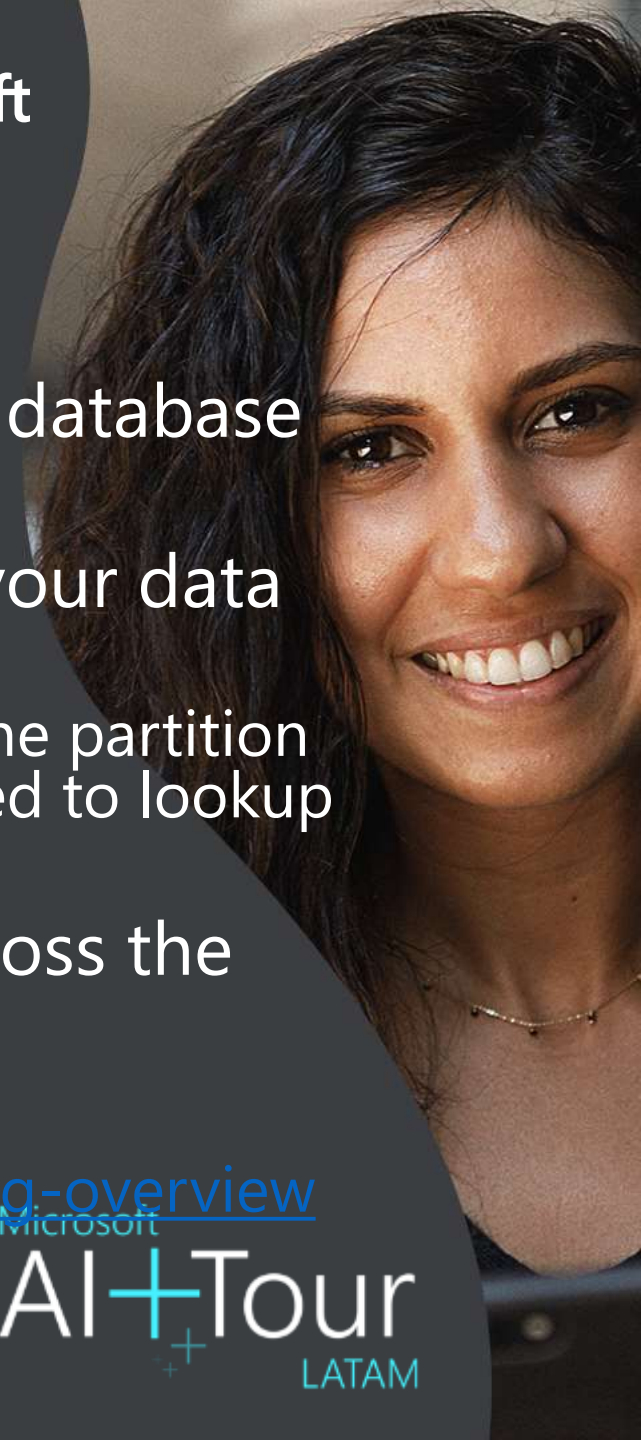


# CosmosDB - Request Unit

- Database throughput:
  - Number of reads and writes that your database can perform in a single second.
- Throughput requirements aren't always consistent.
- Request unit (RU) is measured per second (RU/s).
  - You must reserve the number of RU/s you want
- Number of request units used for an operation depends on:
  - Document size
  - Operation being performed
  - Consistency and indexing policy.
- Use Azure Cosmos DB Capacity Planner

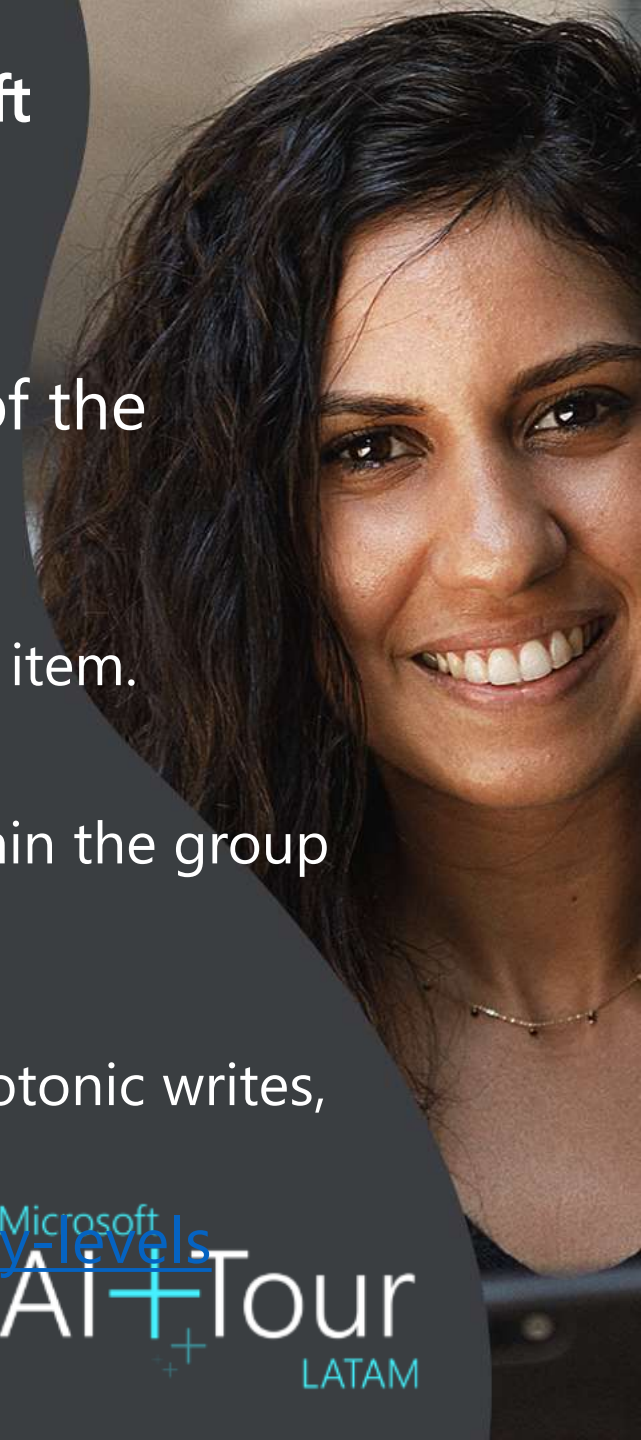
# CosmosDB – Partition Key

- Partition keys enable quick lookup of data, enable the database to autoscale when needed
- A partition key is the value by which Azure organizes your data into logical divisions.
  - In a retail scenario, using the userID or productId value as the partition key is a good choice because it will be unique and likely used to lookup records.
- A partition key should aim to distribute operations across the database.
  - You want to distribute requests to avoid hot partitions.
- <https://docs.microsoft.com/en-us/azure/cosmos-db/partitioning-overview>



# CosmosDB – Consistency Levels

- Enable you to maximize the availability and performance of the database
- Strong consistency
  - The reads are guaranteed to return the most recent version of an item.
- Eventual consistency
  - Guarantees that in absence of any further writes, the replicas within the group eventually converge.
- Session consistency
  - It's the most popular (73%). It guarantees monotonic reads, monotonic writes, and read your own writes (RYW) guarantees
- <https://docs.microsoft.com/en-us/azure/cosmos-db/consistency-levels>





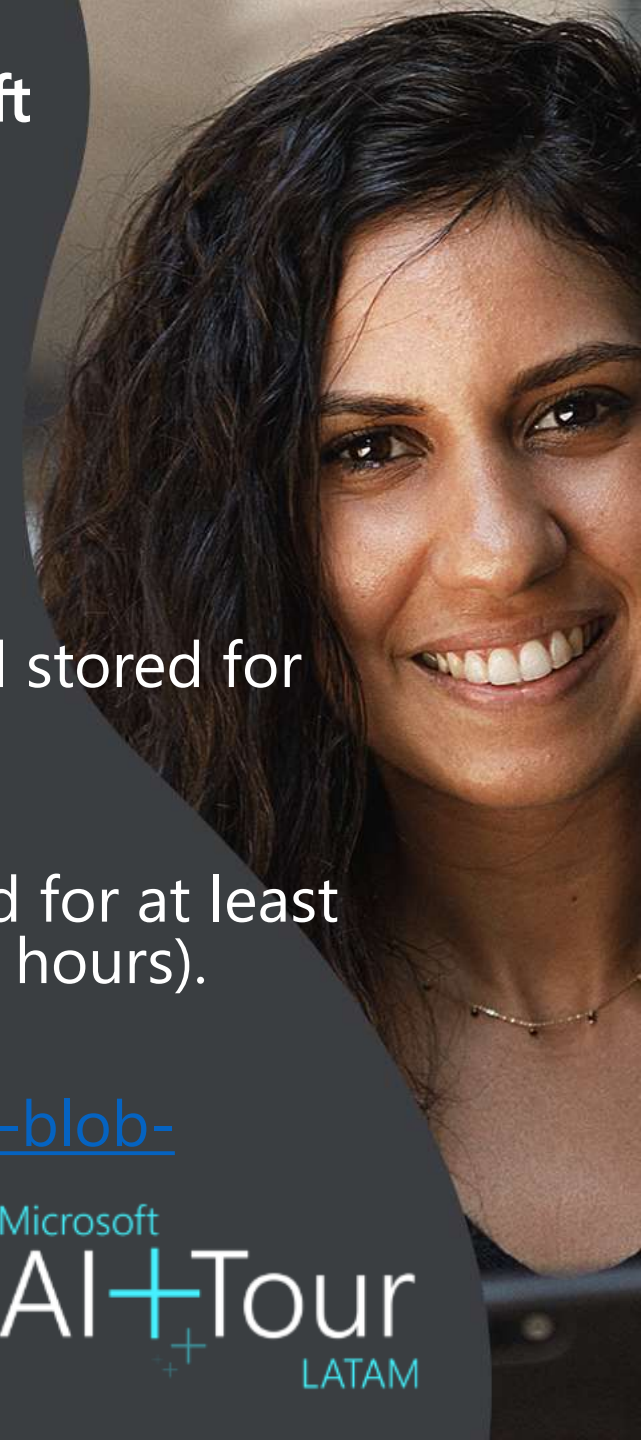
# CosmosDB – Useful Links

- <https://docs.microsoft.com/en-us/learn/paths/work-with-nosql-data-in-azure-cosmos-db/>
- <https://docs.microsoft.com/en-us/azure/architecture/data-guide/big-data/non-relational-data>
- <https://docs.microsoft.com/en-us/azure/cosmos-db/consistency-levels-tradeoffs>
- <https://docs.microsoft.com/en-us/azure/cosmos-db/time-to-live>
- <https://docs.microsoft.com/en-us/azure/cosmos-db/tutorial-query-graph>
- <https://docs.microsoft.com/en-us/azure/cosmos-db/tutorial-query-table>



# Azure Storage - Tiers

- Hot
  - Optimized for storing data that is accessed frequently.
- Cool
  - Optimized for storing data that is infrequently accessed and stored for at least 30 days.
- Archive
  - Optimized for storing data that is rarely accessed and stored for at least 180 days with flexible latency requirements (on the order of hours).
- <https://docs.microsoft.com/en-us/azure/storage/blobs/storage-blob-storage-tiers>



# Azure Storage - Lifecycle

- Data sets have unique lifecycles.
  - Early in the lifecycle, people access some data often.
  - The need for access drops drastically as the data ages.
  - Some data stays idle in the cloud and is rarely accessed once stored
  - Some data expires days or months after creation.
- Use Lifecycle management policy to:
  - Transition blobs to a cooler storage tier to optimize for performance and cost
  - Delete blobs at the end of their lifecycles
  - Define rules to be run once per day at the storage account level
  - Apply rules to containers or a subset of blobs (using prefixes as filters)
- <https://docs.microsoft.com/en-us/azure/storage/blobs/storage-lifecycle-management-concepts?tabs=azure-portal>



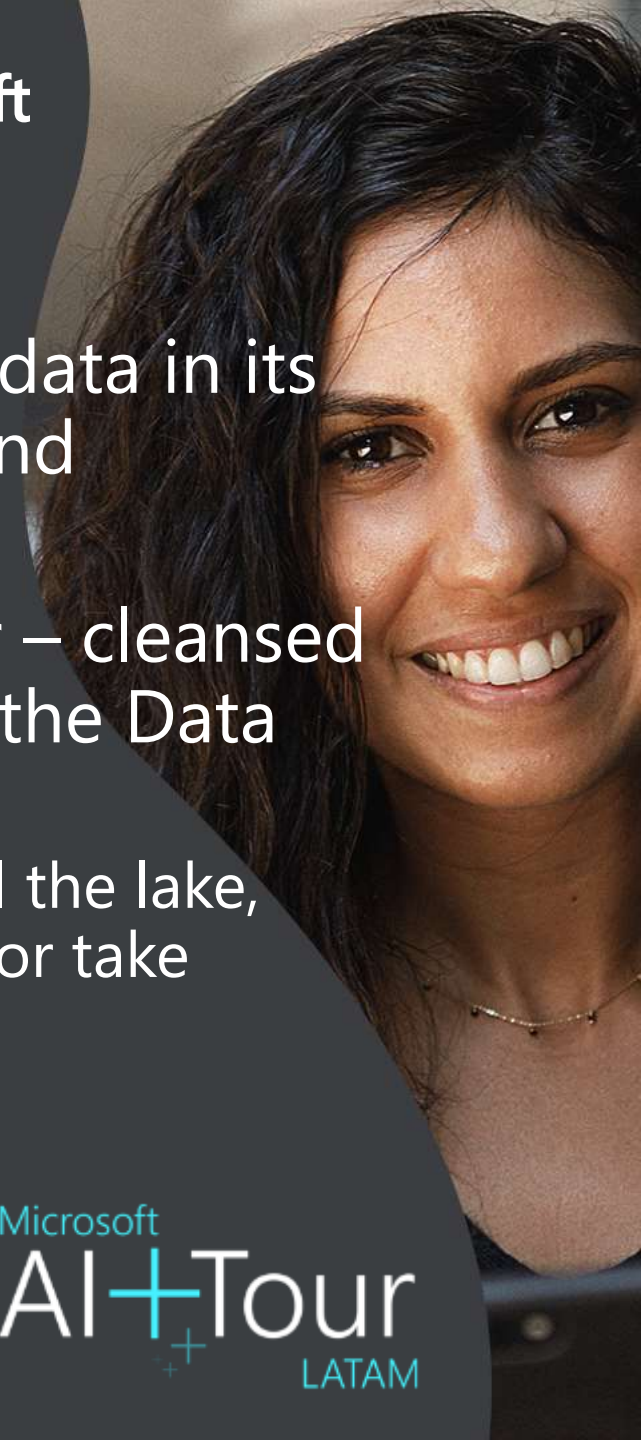
# Azure Storage – Useful Links

- <https://docs.microsoft.com/en-us/azure/storage/common/storage-introduction>
- <https://docs.microsoft.com/en-us/rest/api/storageservices/designing-a-scalable-partitioning-strategy-for-azure-table-storage>



# Data Lake

- “A storage repository that holds a vast amount of raw data in its native format, including structured, semi-structured, and unstructured data.” Tamara Dull
- “If you think of a Data Mart as a store of bottled water – cleansed and packaged and structured for easy consumption – the Data Lake is a large body of water in a more natural state.
  - The contents of the Data Lake stream in from a source to fill the lake, and various users of the lake can come to examine, dive in, or take samples.” James Dixon



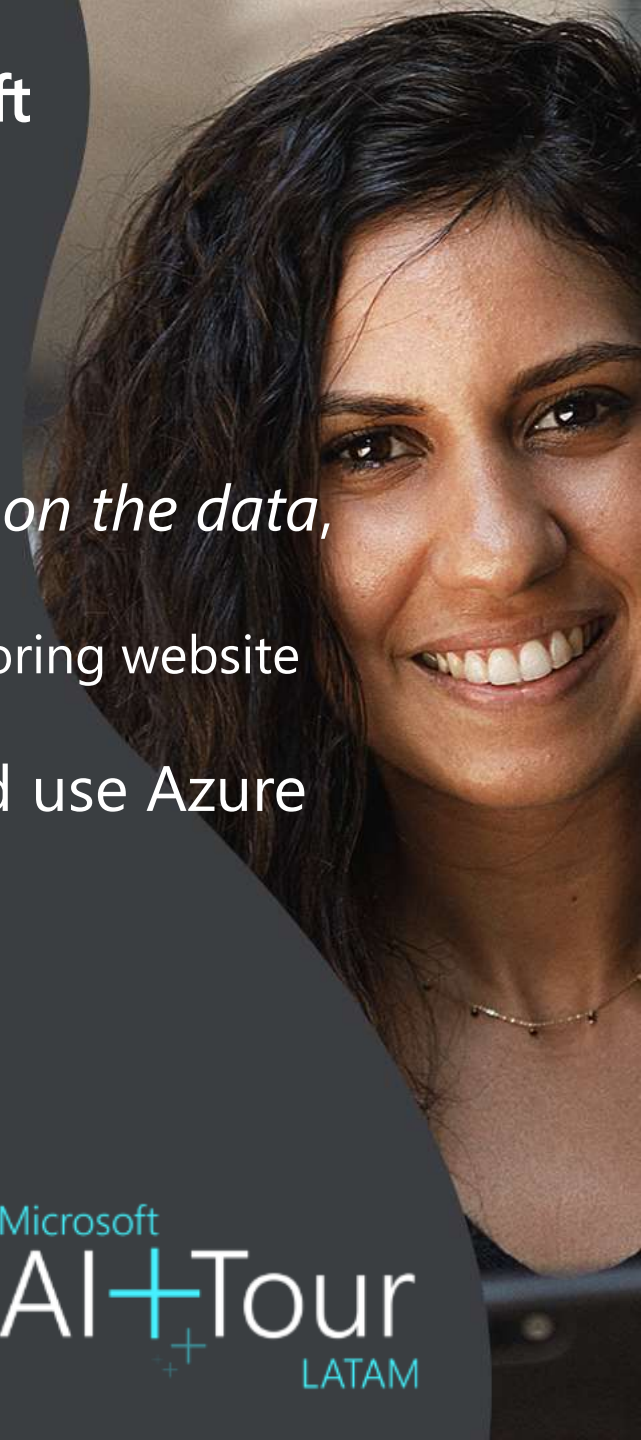
# Data Lake

- Great complement for a data warehouse. You may choose to implement a data lake **ALONGSIDE** your warehouse
- Lambda Architecture vs kappa Architecture
  - Batch layer
  - Speed Layer (Stream Layer)
  - Serving Layer
- Be aware of
  - Data of Governance
    - <https://devblogs.microsoft.com/azuregov/azure-data-lake-storage-gen2-on-azure-government/>
  - Data swamp / graveyard
    - <https://www.information-age.com/data-swamp-data-lake-123481597/>
    - <https://www.aiddata.org/blog/avoiding-data-graveyards-how-can-we-overcome-barriers-to-data-use>



# Data Lake

- Azure Blob Storage vs. Azure Data Lake Storage
  - If your use case is to store data *without performing analysis on the data*, then use Azure Blob Storage.
    - A great use case for blob storage is archiving rarely used data or storing website assets such as images and media.
  - If you are performing analytics on the data, then you should use Azure Data Lake Storage Gen2



# Data Lake - Stages for Processing Big Data

- Ingestion: acquire source data
  - Files, logs, and other types of unstructured data.
    - Batch movement: Azure Data Factory
    - Real-time ingestion: Apache Kafka for HDInsight, Stream Analytics, etc.
- Store: Azure Data Lake Storage Gen 2.
- Prep & Train: perform data preparation and model training
  - Azure Databricks
  - Machine Learning Services.
- Model & Serve
  - Involves the technologies that will present the data to users.

# Data Lake

- Optimize Azure Data Lake Storage Gen2 for performance
  - File size
    - Organize your data into larger sized files for better performance
    - Have a "cooking" process that generates larger files to use for downstream applications.
  - Organizing time series data in folders
    - Place their files structured by date:
    - \DataSet\YYYY\MM\DD\datafile\_YYYY\_MM\_DD.tsv
- Access control
  - Role-based access control
  - Shared Key and Shared Access Signature (SAS) authentication
  - Access control lists on files and directories

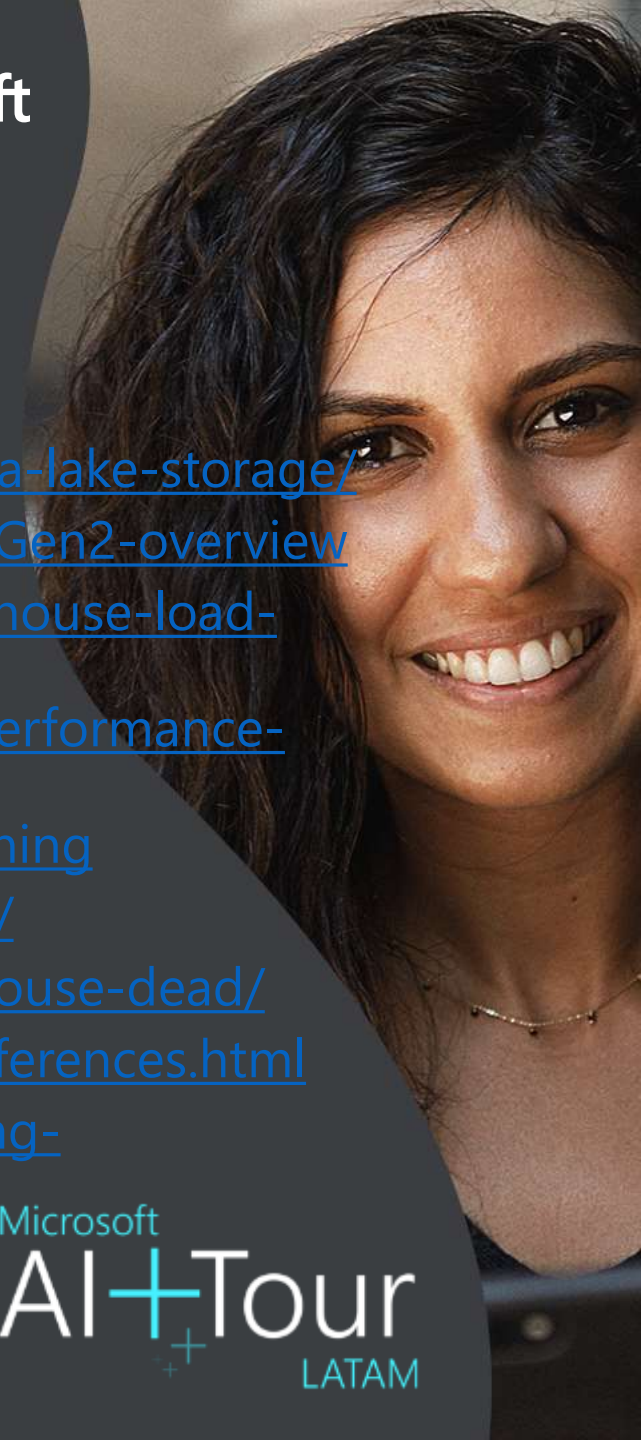


# Data Lake – Useful Links

- <https://docs.microsoft.com/en-gb/azure/storage/blobs/data-lake-storage-introduction>
- <https://docs.microsoft.com/en-gb/azure/storage/blobs/data-lake-storage-namespace>
- <https://docs.microsoft.com/en-us/azure/active-directory/hybrid/how-to-connect-sync-what-is>
- <https://docs.microsoft.com/en-us/azure/data-lake-analytics/data-lake-analytics-overview>
- <https://docs.microsoft.com/en-us/azure/data-lake-store/data-lake-store-diagnostic-logs>
- <https://docs.microsoft.com/en-us/azure/sql-data-warehouse/sql-data-warehouse-load-from-azure-data-lake-store>
- <https://docs.microsoft.com/en-us/azure/storage/blobs/data-lake-storage-access-control>
- <https://docs.microsoft.com/en-us/azure/storage/blobs/data-lake-storage-performance-tuning-guidance>

# Data Lake – Extra Advice

- <https://docs.microsoft.com/en-us/learn/modules/introduction-to-azure-data-lake-storage/>
- <https://channel9.msdn.com/Shows/Azure-Friday/Azure-Data-Lake-Storage-Gen2-overview>
- <https://docs.microsoft.com/en-us/azure/sql-data-warehouse/sql-data-warehouse-load-from-azure-data-lake-store>
- <https://docs.microsoft.com/en-us/azure/storage/blobs/data-lake-storage-performance-tuning-guidance>
- <https://www.sqlchick.com/entries/2016/7/31/data-lake-use-cases-and-planning>
- <https://www.jamesserra.com/archive/2014/12/the-modern-data-warehouse/>
- <https://www.jamesserra.com/archive/2017/12/is-the-traditional-data-warehouse-dead/>
- <https://www.kdnuggets.com/2015/09/data-lake-vs-data-warehouse-key-differences.html>
- <https://towardsdatascience.com/a-brief-introduction-to-two-data-processing-architectures-lambda-and-kappa-for-big-data-4f35c28005bb>



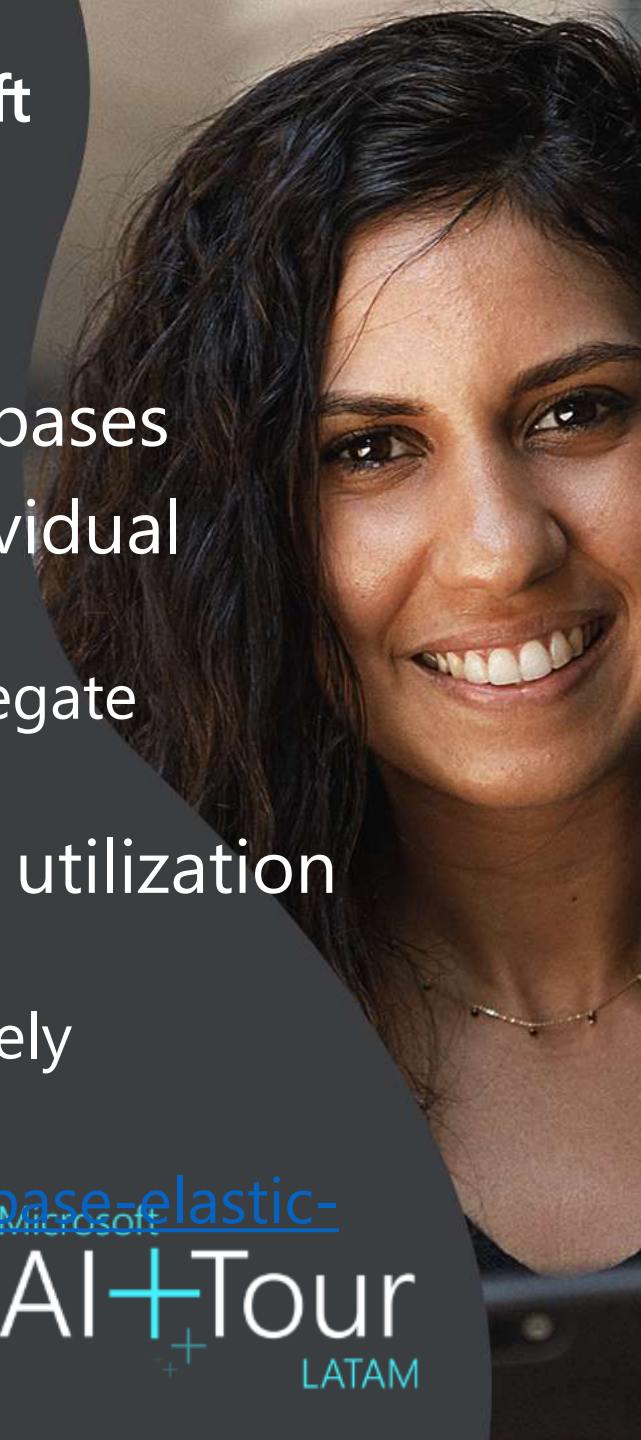
# Objective: Implement data storage solutions (40-45%)

- Implement ***relational*** data stores
  - Configure elastic pools
  - Configure geo-replication
  - Provide access to data to meet security requirements
  - Implement for high availability, disaster recovery, and global distribution
  - Implement data distribution and partitions for SQL Data Warehouse
  - Implement PolyBase
- Manage data security
  - Implement data masking
  - Encrypt data at rest and in motion



# SQL Database - Elastic Pools

- Purchase resources for a pool shared by multiple databases
- Accommodate unpredictable periods of usage by individual databases
  - Resource requirement for a pool is determined by the aggregate utilization of its databases.
- Consider Pools when different databases have specific utilization patterns.
  - IE, a given database with low average utilization with relatively infrequent utilization spikes.
- <https://docs.microsoft.com/en-us/azure/sql-database/sql-database-elastic-pool>



# SQL Database - Dynamic Data Masking

- Dynamic data masking limits sensitive data exposure by masking it to non-privileged users.

		XXX XXX X348	
		XXX XXX X692	
		XXX XXX X925	
		XXX XXX X099	

- Greatly simplify the design and coding of security in your application.
- It's complementary to other SQL Server security features (auditing, encryption, row level security, etc.)

# SQL Database - Dynamic Data Masking

- A masking rule may be defined on a column in a table, in order to obfuscate the data in that column.
- Four types of masks are available
  - Default
  - Email
  - Random
  - Custom String
- <https://docs.microsoft.com/en-us/sql/relational-databases/security/dynamic-data-masking?view=sql-server-ver15>
- <https://docs.microsoft.com/en-us/azure/sql-database/sql-database-dynamic-data-masking-get-started>





# SQL Database - IP firewall rules

- Server-level IP firewall rules
- Database-level IP firewall rules
- Use database-level IP firewall rules whenever possible
  - Makes your database more portable
- Use server-level IP firewall rules for administrators
  - Also use them when you have many databases that have the same access requirements
- <https://docs.microsoft.com/en-us/azure/sql-database/sql-database-firewall-configure->

# SQL Database - Transparent Data Encryption

- Encrypts SQL Server, Azure SQL Database, and Azure Synapse Analytics (SQL DW) data files, known as encrypting data at rest.
- Prevents restoring the physical media (such as drives or backup tapes) by a malicious party.
- TDE performs real-time I/O encryption and decryption of the data and log files.
  - The encryption uses a database encryption key (DEK), which is stored in the database boot record for availability during recovery.

<https://docs.microsoft.com/en-us/sql/relational-databases/security/encryption/transparent-data-encryption?view=sql-server-ver15>

<https://docs.microsoft.com/en-us/azure/sql-database/transparent-data-encryption-byok-azure-sql>

# Azure SQL DW - Distributed tables

- SQL Data Warehouse supports three methods for distributing data
- Hash-distributed tables
  - Distributes rows based on the value in the distribution column
  - Is designed to achieve high performance for queries on large tables
- Replicated tables
  - A replicated table has a full copy of the table available on every Compute node
  - Queries run fast on replicated tables since joins on replicated tables do not require data movement
  - Replication requires extra storage, though, and is not practical for large tables.
- Round-robin tables
  - Distributes table rows evenly across all distributions, randomly
  - Loading data into a round-robin table is fast.
  - However, queries can require more data movement than the other distribution methods.
- <https://docs.microsoft.com/en-us/azure/sql-data-warehouse/sql-data-warehouse-tables-overview>



# Azure SQL DW - Distributed tables

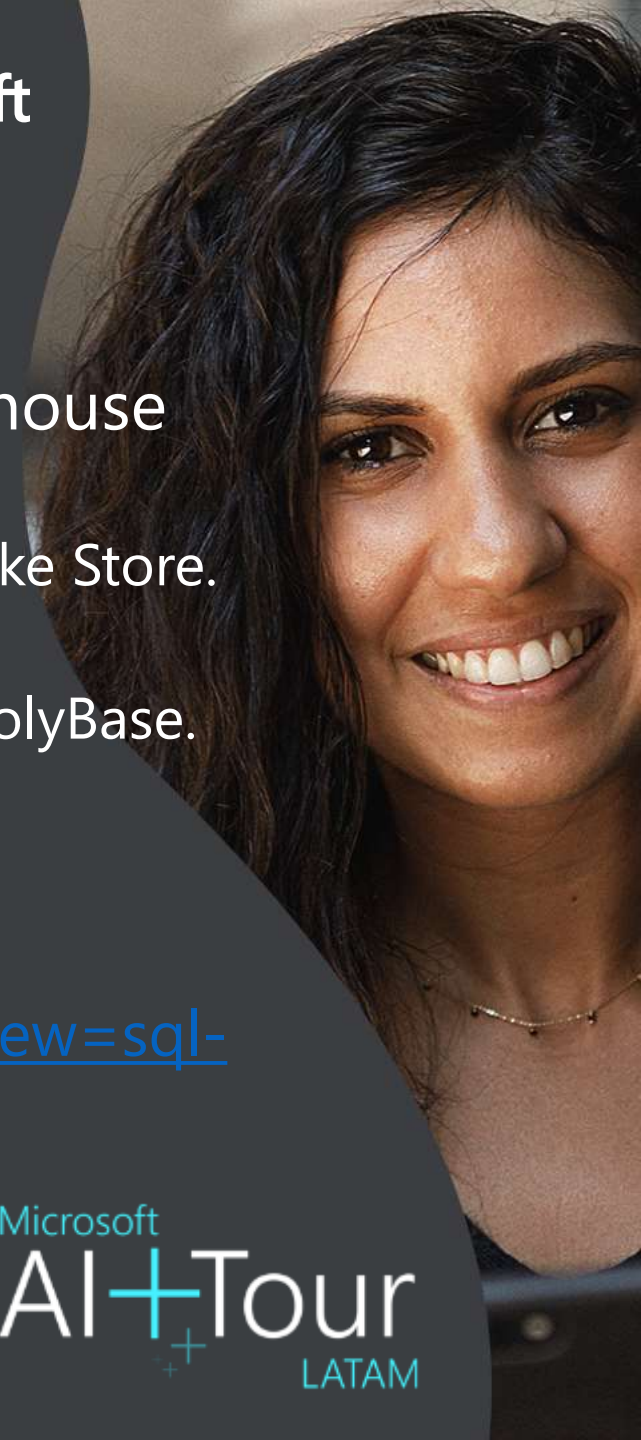
Type	Great fit for...	Watch out if...
Replicated	<ul style="list-style-type: none"><li>• Small dimension tables in a star schema with less than 2 GB of storage after compression (~5x compression)</li></ul>	<ul style="list-style-type: none"><li>• Many write transactions are on table (such as insert, insert, delete, update)</li><li>• You change Data Warehouse Units (DWU) provisioning frequently</li><li>• You only use 2-3 columns, but your table has many columns</li><li>• You index a replicated table</li></ul>
Round Robin (default)	<ul style="list-style-type: none"><li>• Temporary/staging table</li><li>• No obvious joining key or good candidate column</li></ul>	<ul style="list-style-type: none"><li>• Performance is slow due to data movement</li></ul>
Hash	<ul style="list-style-type: none"><li>• Fact tables</li><li>• Large dimension tables</li></ul>	<ul style="list-style-type: none"><li>• The distribution key cannot be updated</li></ul>

# PolyBase – Data Virtualization

- Azure SQL Data Warehouse supports many loading methods including non-PolyBase options such as BCP and the SQL Bulk Copy API.
- However, the fastest and most scalable way to load data is through PolyBase.
- PolyBase is a technology that uses Transact-SQL to access external data stored in
  - Azure Blob storage
  - Hadoop
  - Azure Data Lake Store

# PolyBase

- Steps for implementing a PolyBase ELT for SQL Data Warehouse
  - Extract the source data into text files.
  - Load the data into Azure Blob storage, Hadoop, or Azure Data Lake Store.
  - *Configure PolyBase connectivity, Storage URL and Key*
  - Import the data into SQL Data Warehouse staging tables using PolyBase.
  - Transform the data (optional).
  - Insert the data into production tables.
- <https://docs.microsoft.com/en-us/sql/relational-databases/polybase/polybase-configure-azure-blob-storage?view=sql-server-2017>
- <https://docs.microsoft.com/en-us/sql/relational-databases/polybase/polybase-queries?view=sql-server-2017>





# Objective: Manage and develop data processing (25-30%)

- Develop batch processing solutions
  - Using Data Factory and Azure Databricks
  - Ingest data by using PolyBase
  - Implement the integration runtime for Data Factory
  - Create linked services and datasets
  - Create pipelines and activities
  - Create and schedule triggers
  - Implement Azure Databricks clusters, notebooks, jobs, and autoscaling
  - Ingest data into Azure Databricks



# Data Factory

- A data factory can have one or more pipelines.
  - A logical grouping of activities that together perform a task.
- The activities in a pipeline define actions to perform on your data.
- A dataset is a named view of data that simply points or references the data you want to use in your activities as inputs and outputs.
  - Identify data within different data stores, such as tables, files, folders
- Before you create a dataset, you must create a linked service to link your data store to the data factory.
  - Linked services are much like connection strings, which define the connection information needed for Data Factory to connect to external resources.

# Data Factory

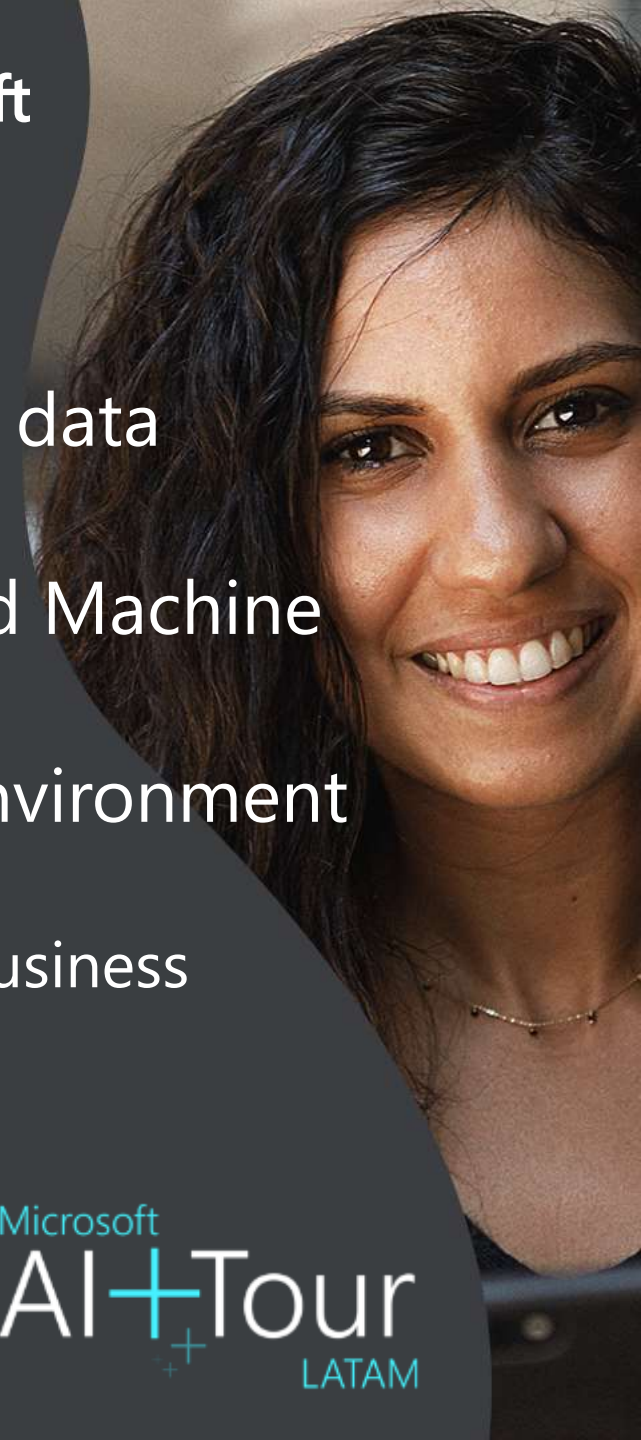
- <https://docs.microsoft.com/en-us/azure/sql-data-warehouse/sql-data-warehouse-load-from-azure-blob-storage-with-polybase>
- <https://docs.microsoft.com/en-us/azure/data-factory/concepts-integration-runtime>
- <https://docs.microsoft.com/en-us/azure/data-factory/concepts-datasets-linked-services>
- <https://docs.microsoft.com/en-us/azure/data-factory/concepts-pipelines-activities>





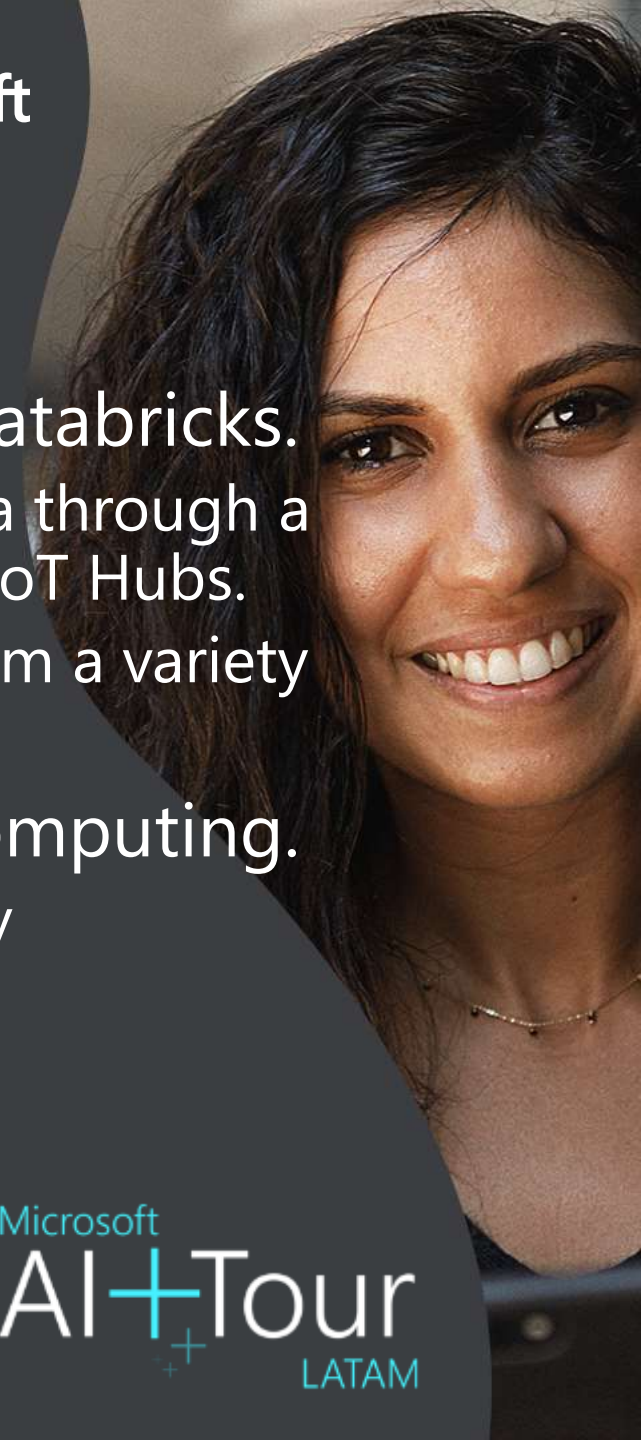
# Azure Databricks

- Databricks is a version of Apache Spark2 analytics and data processing engine.
- Enterprise-grade and secure cloud-based Big Data and Machine Learning platform.
- Ease of deploying a collaborative Machine Learning environment based on Spark
  - Can be used between data scientists, data engineers, and business analysts.



# Azure Databricks

- Data can be ingested in a variety of ways into Azure Databricks.
  - For real-time Machine learning projects, you can ingest data through a wide range of technologies including Kafka, Event Hubs or IoT Hubs.
  - You can ingest batches of data using Azure Data Factory from a variety of data stores including
- Spark provides the capability for in-memory cluster computing.
  - A Spark job loads data into memory and query it repeatedly



# Azure Databricks

- Spark SQL is the module for working with structured data.
  - A DataFrame is a distributed collection of data organized into named columns.
- Streaming
  - Integrates with HDFS, Flume, and Kafka.
- Mlib
  - Machine Learning library consisting of common learning algorithms and utilities classification, regression, clustering, dimensionality reduction
- GraphX
  - Graphs and graph computation for a broad scope of use cases from cognitive analytics to data exploration.
- Spark Core API
  - Includes support for R, SQL, Python, Scala, and Java.



# Azure Databricks

- Transformations
  - flatMapValues
  - groupByKey
  - reduceByKey
  - aggregateByKey
  - sortByKey
  - combineByKey

<https://training.databricks.com/visualapi.pdf>

- Spark SQL
  - RDDs and DataFrames

<https://data-flair.training/blogs/apache-spark-sql/>



# Azure Databricks

- <https://docs.microsoft.com/en-us/learn/paths/data-science/>
- <https://docs.microsoft.com/en-us/azure/data-factory/tutorial-transform-data-spark-portal>
- <https://spark.apache.org/docs/2.1.0/sql-programming-guide.html>
- <https://community.cloud.databricks.com/>
- <https://ogirardot.wordpress.com/2015/07/31/from-pandas-to-apache-sparks-dataframe/>



# Objective: Monitor and optimize data solutions (30-35%)

- Monitor data storage
  - Monitor relational and non-relational data sources
  - Implement BLOB storage monitoring
  - Implement Data Lake Store monitoring
  - Implement SQL Database monitoring
  - Implement SQL Data Warehouse monitoring
  - Implement Cosmos DB monitoring
  - Configure Azure Monitor alerts
  - Implement auditing by using Azure Log Analytics





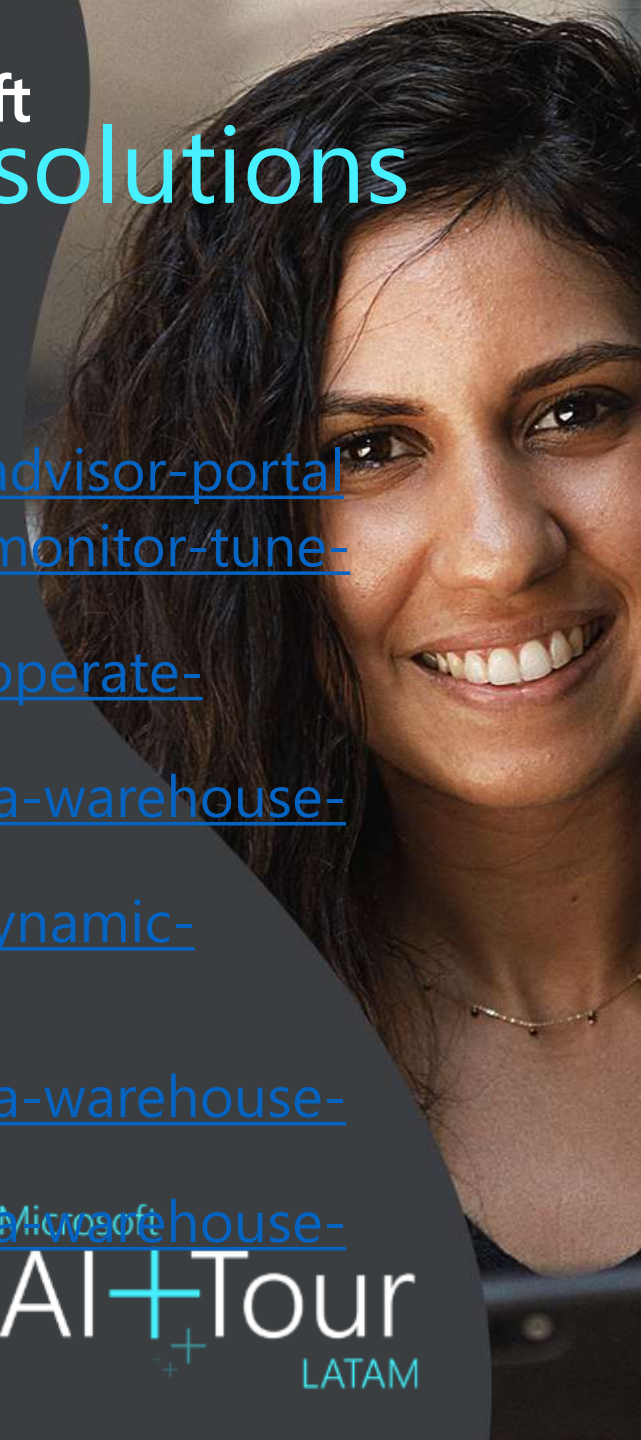
# Objective: Monitor and optimize data solutions (30-35%)

- Monitor data storage - Azure Monitor
- <https://docs.microsoft.com/en-us/azure/azure-monitor/insights/storage-insights-overview>
- <https://docs.microsoft.com/en-us/azure/advisor/advisor-overview>
- <https://docs.microsoft.com/en-us/azure/advisor/advisor-performance-recommendations>
- <https://docs.microsoft.com/en-us/azure/azure-monitor/log-query/get-started-portal>



# Objective: Monitor and optimize data solutions (30-35%)

- Monitor data storage – SQL Database and Data Warehouse
- <https://docs.microsoft.com/en-us/azure/sql-database/sql-database-advisor-portal>
- <https://docs.microsoft.com/en-us/azure/sql-database/sql-database-monitor-tune-overview>
- <https://docs.microsoft.com/en-us/azure/sql-database/sql-database-operate-query-store>
- <https://docs.microsoft.com/en-us/azure/sql-data-warehouse/sql-data-warehouse-manage-monitor>
- <https://docs.microsoft.com/en-us/sql/relational-databases/system-dynamic-management-views/sys-dm-db-resource-stats-azure-sql-database?view=azuresqldb-current>
- <https://docs.microsoft.com/en-us/azure/sql-data-warehouse/sql-data-warehouse-tables-overview>
- <https://docs.microsoft.com/en-us/azure/sql-data-warehouse/sql-data-warehouse-how-to-monitor-cache>



# Objective: Monitor and optimize data solutions (30-35%)

- Monitor data processing
  - Data Factory monitoring
    - <https://docs.microsoft.com/en-us/azure/data-factory/monitor-using-azure-monitor>
  - Monitor Azure Databricks
    - <https://docs.microsoft.com/en-us/azure/architecture/databricks-monitoring/>
    - <https://docs.microsoft.com/en-us/azure/architecture/databricks-monitoring/application-logs>
  - Monitor HDInsight processing
    - <https://docs.microsoft.com/en-us/azure/hdinsight/hdinsight-capacity-planning>
  - Monitor stream analytics
    - <https://docs.microsoft.com/en-us/azure/stream-analytics/stream-analytics-set-up-alerts>
    - <https://docs.microsoft.com/en-us/azure/stream-analytics/stream-analytics-streaming-unit-consumption>



# Objectives: Monitor and optimize data solutions (30-35%)

- Azure CLI

- <https://docs.microsoft.com/en-us/azure/cosmos-db/cli-samples>
- <https://docs.microsoft.com/en-us/cli/azure/cosmosdb>
- <https://docs.microsoft.com/en-us/cli/azure/sql/db/audit-policy>
- <https://docs.microsoft.com/en-us/cli/azure/sql/db>
- <https://docs.microsoft.com/en-us/cli/azure/sql/elastic-pool>
- <https://docs.microsoft.com/en-us/sql/t-sql/statements/create-external-data-source-transact-sql>



# Estrategia y Planeamiento de Certificación

- Planificar un Exámen de Certificación
  - Etapa I: Estudio, preparación
  - Etapa II: Autoevaluación/Entrenamiento
  - Etapa III: Evaluación
- Procedimiento de Subscripción
- Estructura de Exámenes



# Etapa I: Estudio, Preparación

- Planificar el estudio
  - Definir Tiempos: mínimo 2 semanas, 1h diaria
  - Bloquear su agenda
  - Orientado a Objetivos: a corto plazo y alcanzables
- Identificar tus Fortalezas y Debilidades
  - Fortalezas: Reforzarlas
  - Debilidades: Transformarlas
- Abordar un tema de estudio:
  - De manera dinámica (interactuar con el autor)
  - Lectura desde lo General a lo Particular



# Etapa II: Autoevaluación/Entrenamiento

- Ejercitar: SPRINT de Exámen
  - 10 / 15 preguntas máximo
  - 1' a 2' máximo por pregunta
- Identificar Debilidades y Transformarlas
  - Repasar SOLO preguntas/temas con dudas o incorrectas
- Volver a Ejercitar



# Etapa III: Evaluación



- Antes de la fecha de Examen
  - Descansar
  - Alimentación sana
  - Hidratarse
- Previo al Exámen
  - Ejercicios de relajación: Disminuir el STRESS/ANSIEDAD
  - Ingerir algún alimento rico en glucosa como fuente de energía mejora las actividades cognitivas
- Durante el Exámen
  - Disfrutar
  - Mantenerse calmo

# Procedimiento de Subscripción Microsoft

- Registración
  - Azure Portal Exam Certification:
  - <https://www.microsoft.com/en-us/learning/azure-exams.aspx>
  - Pearson / Vue
  - <https://home.pearsonvue.com/>
- Donde rindo?
  - Desde un Centro Autorizado Cercano
  - Desde Tu propia casa
    - Identificación personal
    - Entorno tranquilo y silencioso, cerrado
    - Libre de objetos
    - PC con Windows 10 / Webcam + Micrófono / Conexión estable de Internet
  - Idioma inglés



# Reglas de Juego: Estructura de Exámen

- Tiempo de Examen: 180'
- Cantidad de preguntas: 60 aprox
- Dividido en Módulos:
  - Pasado al siguiente, no se puede revisar preguntas del modulo anterior
- Contiene Labs
  - Cada LAB, presenta el portal Azure
  - Iniciar sesión con la cuenta generada
  - Realizar las tareas indicadas
  - Consejo: Una vez iniciado el DEPLOYMENT, no gastar tiempo a que finalice
- Escenarios
  - Leer primero la pregunta y luego buscar en el enunciado del escenario.
- Preguntas de respuesta:
  - Única
  - Múltiples respuestas
  - Drag & Drop
  - Ejercicios resueltos con PS / Azure Cli

# PROMO PARA EXÁMENES **40% DE DESCUENTO**

## CONDICIONES:



- + Todos los que asistan al AI Tour tienen un 40% de descuento en los exámenes
- + El descuento es válido para los siguientes exámenes:  
AZ900, AI100, DP200, DP201 y AZ103
- + El descuento es válido desde el 2/12/19 hasta el 2/3/2020



# Quiero mi Exámen YA!

- Official Practice Test (MeasureUp)
- Whizlabs





- <https://github.com/fsgp/ITCollege-AITour-2019>
- [info@itcollege.com.ar](mailto:info@itcollege.com.ar)

Q&A



GRACIAS!!!!

