Additional Questions

Completed on 17-June-2020

Attempt	Marks Obtained	Your score	Time Taken	Result
02	6 / 10	60%	00 H 01 M 09 S	Failed

Domains wise Quiz Performance Report

No	Domain	Total Question	Correct	Incorrect	Unattempted	Marked as Review
1	Implement data storage solutions	7	5	2	0	0
2	Monitor and optimize data solutions	3	1	2	0	0
Total	All Domain	10	6	4	0	0

Review the Answers

Sorting by All

Question 1 **Correct**

Domain :Implement data storage solutions

A cost sensitive organization wants to simplify deployment and management of their application and their objective is to ensure that application as a whole is never offline.

To satisfy the simplicity requirement

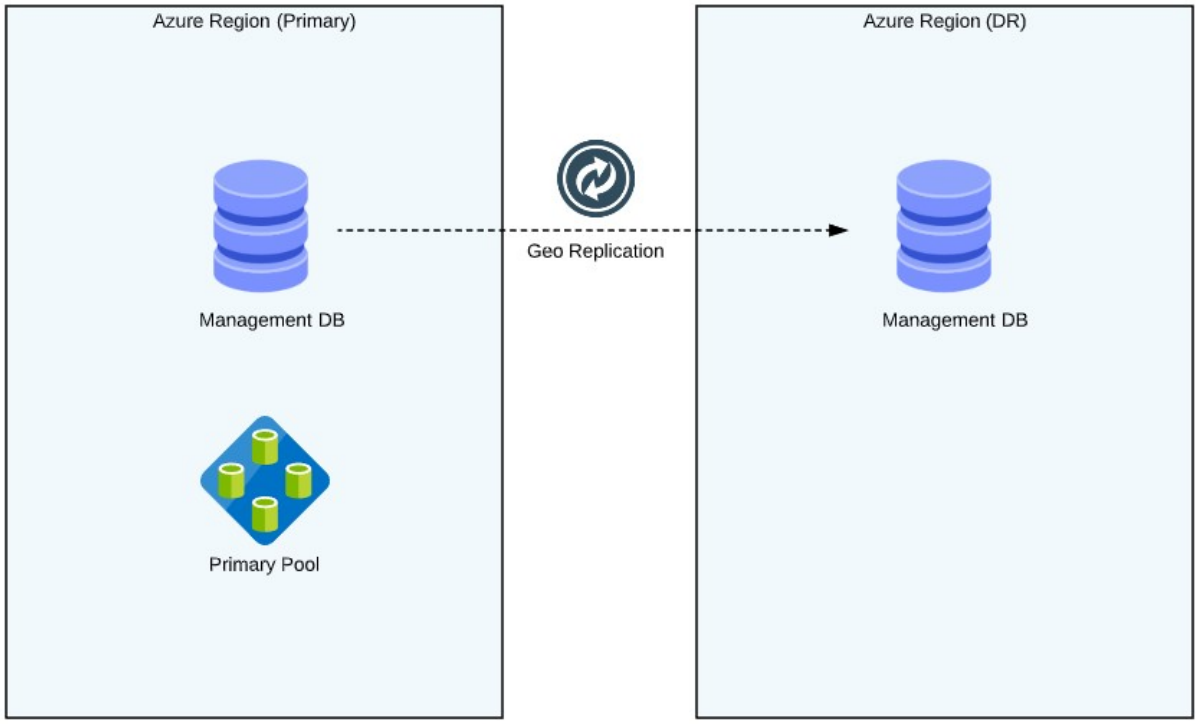
All tenant databases are deployed into one elastic pool in the Azure region

Management databases are deployed as geo-replicated single databases

With no additional cost geo-restore is used for the disaster recovery of tenants.

Availability of the management databases is ensured by geo-replicating them to another region using an auto-failover group

This configuration is illustrated in the next diagram given below:



Refer to the scenario given above and answer the following:

In case of a disaster in the Primary Azure Region, what recovery steps need to be performed in order to bring the application online?

Select three choices.

- [ ] A. **Manually failover management database to Azure DR region**
- [x] B. **The elastic pool is created with the same configuration as the original pool.** ✓
- [x] C. **Automatic failover is initiated by failover groups of the management database to the Azure DR region.** ✓
- [x] D. **Geo-restore is used to create copies of the tenant databases.** ✓
- [ ] E. **Set all databases in the DR pool to read-only to ensure they cannot be modified in the DR region**

Explanation:

Answer: B, C and D

Option A is incorrect because management database are setup to failover automatically

Option B is CORRECT because management database is setup to failover automatically

Option C is CORRECT because elastic pool in DR region requires same configuration as in Primary region in order to handle load of all tenants

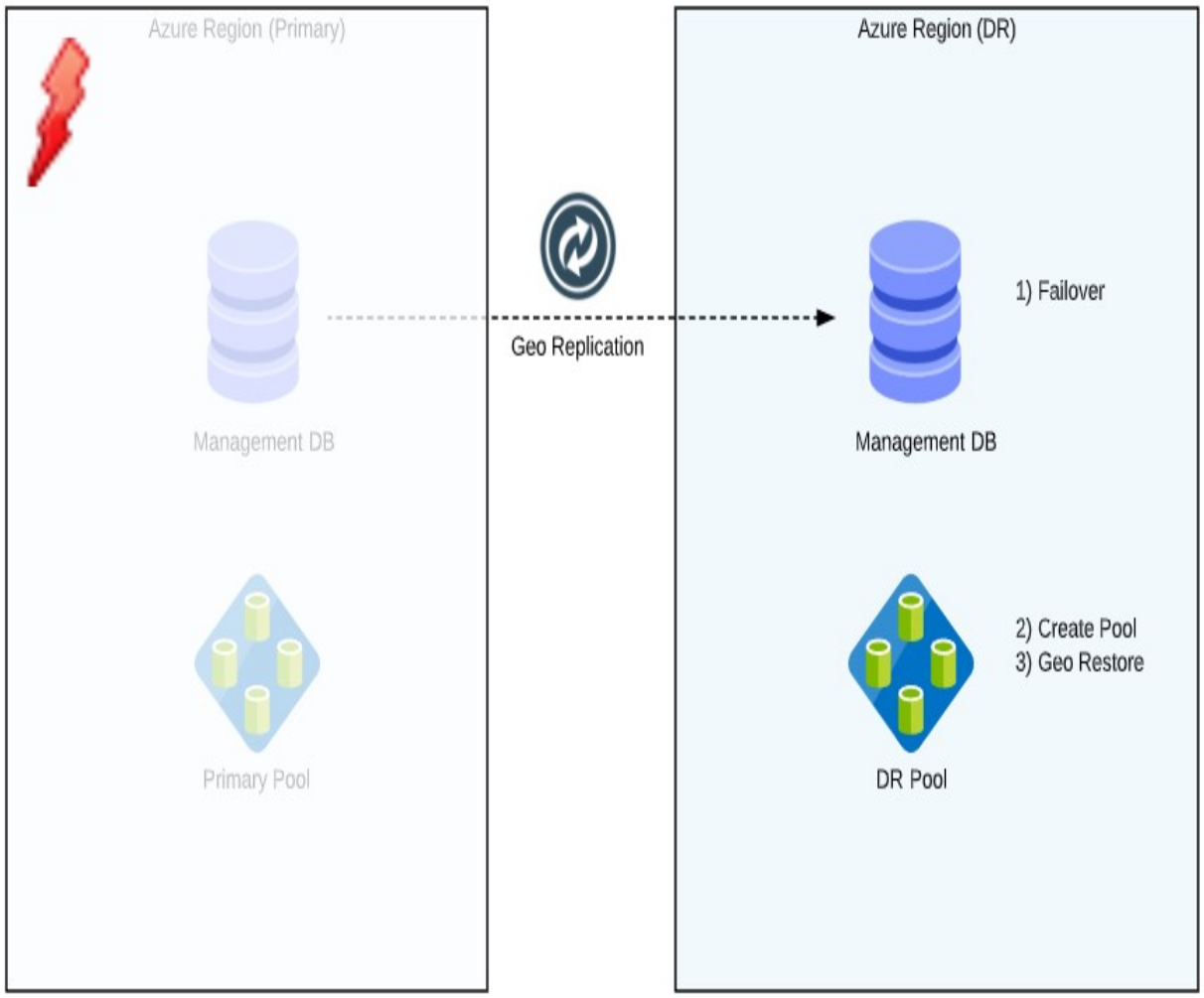
Option D is CORRECT as geo restore is required to recover tenants. Geo-restore comes at no extra cost.

Option E in incorrect as this is a step required to bring the application back to Primary Azure region

In case of a disaster in Primary Azure Region, following recovery steps are performed to bring the application online:

1. Automatic failover is initiated by failover groups of the management database to the Azure DR region. The application is automatically reconnected to the new primary and all new accounts and tenant databases are created in the DR region. The existing customers see their data temporarily unavailable.
2. The elastic pool is created with the same configuration as the original pool.
3. Geo-restore is used to create copies of the tenant databases.

Diagram:



Reference:

https://docs.microsoft.com/en-us/azure/sql-database/sql-database-disaster-recovery-strategies-for-applications-with-elastic-pool

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Question 2

Correct

Domain :Implement data storage solutions

An organization wants to limit exposure to sensitive data in a sql server to non-privileged users. Database users are allowed to connect to databases directly and execute queries that provide sensitive data. The developers should be able to query the Production environment and PII information for troubleshooting without violating controls for compliance.
The organization does not want to permanently replace sensitive data by altering it at rest within database copies. Instead they aim at temporarily hiding or replacing sensitive data in transit leaving the original at-rest data intact and unaltered.
Refer to scenario given above and answer the following:
Which data security feature should you use in this scenario?

- A. **Static Data Masking**
- B. **Row Level Security**
- C. **Dynamic Data Masking** ✓
- D. **Password Policy**

Explanation:

Answer: C

Option A is incorrect because it permanently replaces sensitive data by altering data at rest

Option B is incorrect because it enables to use execution context to control access to rows in a table

Option C is CORRECT because it aims to temporarily hide or replace sensitive data in transit leaving the original at-rest data intact and unaltered.

Option D is incorrect because password policies are designed to deter brute force attacks by increasing the number of possible passwords.

Diagram:

	ID	Email
1	1	nXXX@XXXX.com
2	2	lXXX@XXXX.com
3	3	gXXX@XXXX.com

	ID	Name	BirthDate	Social_Security
1	1	xxxx	1900-01-01	0
2	2	xxxx	1900-01-01	0
3	3	xxxx	1900-01-01	0

Reference:

https://docs.microsoft.com/en-us/sql/relational-databases/security/dynamic-data-masking?view=sql-server-ver15

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Question 3

Correct

Domain :Implement data storage solutions

Scenario:
In an organization, you track SQL Server encryption progress by querying 'percent_complete' and 'encryption_state' columns. 'encryption_state' column indicates the encryption status of the database and 'percent_complete' column tells percent complete of the DB encryption state change.
You, as a data engineer, are dealing with a very large database. A decision is made at your organization not to allow TDE encryption scanners to run during business hours. If you see any performance issues you would like to halt the process temporarily. You do not have an option to lower the priority of TDE scanner.
Refer to scenario given above and answer the following question:
While the workload on the system is heavy, or during business-critical hours, what query would you run to pause the scan that can be resumed later?

A. **ALTER DATABASE <db_name> SET ENCRYPTION ON;**

B. **ALTER DATABASE <db_name> SET ENCRYPTION PAUSE;**

C. ALTER DATABASE <db_name> SET ENCRYPTION OFF;

D. ALTER DATABASE <db_name> SET ENCRYPTION SUSPEND;

Explanation:

Answer: D

Option A is incorrect because objective is to pause the scan

Option B is incorrect because it will start decryption instead

Option C is incorrect because the correct syntax is to use SUSPEND

Option D is CORRECT because this is the correct syntax

Reference:

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

https://docs.microsoft.com/en-us/sql/relational-databases/system-dynamic-management-views/sys-dm-database-encryption-keys-transact-sql?view=sql-server-2017

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Question 4

Correct

Domain :Implement data storage solutions

Scenario: It is important that you secure your data using database encryption. Taking advantage of SQL Server database encryption can be a difficult task in a very large database but once it is configured it is also important to monitor it. SQL Server keeps track of the encryption progress and we can pull that information by querying database columns. As a data engineer, you are regularly checking database state that you expect

them to be in. During audits you run queries and produce artifacts to support data security and encryption.

Question Text: Refer to scenario given above and choose two options to complete the query given below:

```
SELECT DB_NAME(database_id), encryption_state,
encryption_state_desc =
CASE _____________________________
        WHEN '0'  THEN  'No database encryption key present, no encryption'
        WHEN '1'  THEN  'Unencrypted'
        WHEN '2'  THEN  'Encryption in progress'
        WHEN '3'  THEN  'Encrypted'
        WHEN '4'  THEN  'Key change in progress'
        WHEN '5'  THEN  'Decryption in progress'
        WHEN '6'  THEN  'Protection change in progress'
        ELSE 'Not Encrypted'
        END AS 'Desc',
percent_complete, encryptor_type  FROM _____________________________
```

- [x] A. **sys.dm_database_encryption_keys**
- [x] B. **encryption_state**
- [ ] C. **encryptor_type**
- [ ] D. **Encryption_scan_state**
- [ ] E. **encryption_scan_state_desc**

Explanation:

Answer: A, B

Option A is CORRECT. Refer to the complete query given below.

Option B is CORRECT. Refer to the complete query given below.

Option C is incorrect. Refer to the complete query given below.

Option D is incorrect. Refer to the complete query given below.

Option E is incorrect. Refer to the complete query given below.

```
SELECT DB_NAME(database_id), encryption_state,
encryption_state_desc =
CASE encryption_state
    WHEN '0'  THEN  'No database encryption key present, no encryption'
    WHEN '1'  THEN  'Unencrypted'
    WHEN '2'  THEN  'Encryption in progress'
    WHEN '3'  THEN  'Encrypted'
    WHEN '4'  THEN  'Key change in progress'
    WHEN '5'  THEN  'Decryption in progress'
    WHEN '6'  THEN  'Protection change in progress'
    ELSE 'Not Encrypted'
    END AS 'Desc',
percent_complete, encryptor_type  FROM sys.dm_database_encryption_keys
```

Reference:

https://docs.microsoft.com/en-us/sql/relational-databases/system-dynamic-management-views/sys-dm-database-encryption-keys-transact-sql?view=sql-server-2017

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Question 5

Incorrect

Domain :Implement data storage solutions

Scenario: In your organization, you are tasked to achieve peak performance of Azure Cosmos DB by making client side optimizations. You do not have to make major architecture changes or write complex code.

You plan to reduce additional network hops

You are not limited on number of socket connections

You plan to avoid startup latency

You choose regions to avoid higher latency

Refer the scenario given above and answer the following:
How can you improve your Cosmos database performance? Choose three options.

- [ ] A. **Use direct connection mode** ✓
- [ ] B. **Avoid caching document URIs**
- [x] C. **Call OpenAsync() once during initialization** ✓
- [x] D. **Collocate clients in same Azure region** ✓
- [ ] E. **Do not increase number of threads**
- [x] F. **Tune for higher request units/second usage** ✗

Explanation:

Answer: A, C and D

Option A is CORRECT because direct mode reduced number of network hops

Option B is incorrect because caching will improve performance

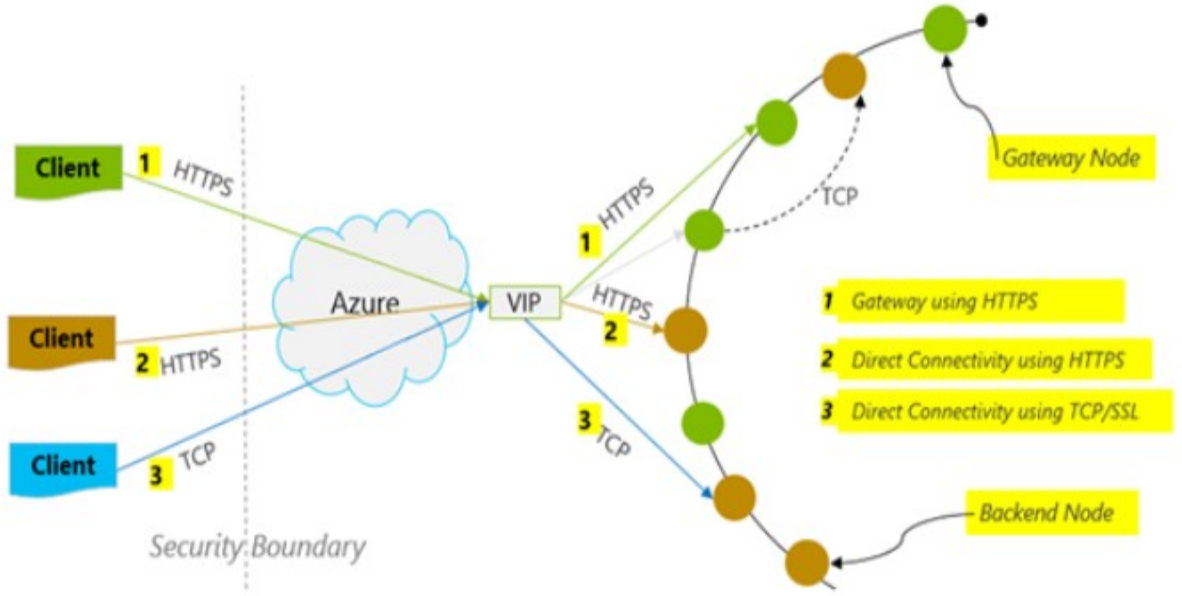
Option C is CORRECT because the first request has a higher latency, reason being, it has to fetch the address routing table.

Option D is CORRECT because collocating clients in the same Azure region will improve performance.

Option E is incorrect because increasing the number of threads will improve performance

Option F is incorrect because tuning for lower request units/second usage will improve performance

Diagram:



Reference:

https://docs.microsoft.com/en-us/azure/cosmos-db/performance-tips

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Question 6

Incorrect

Domain :Implement data storage solutions

Scenario: You have a global business model and you have deployed applications in different geographies as per "follow the sun" model. In this scenario,

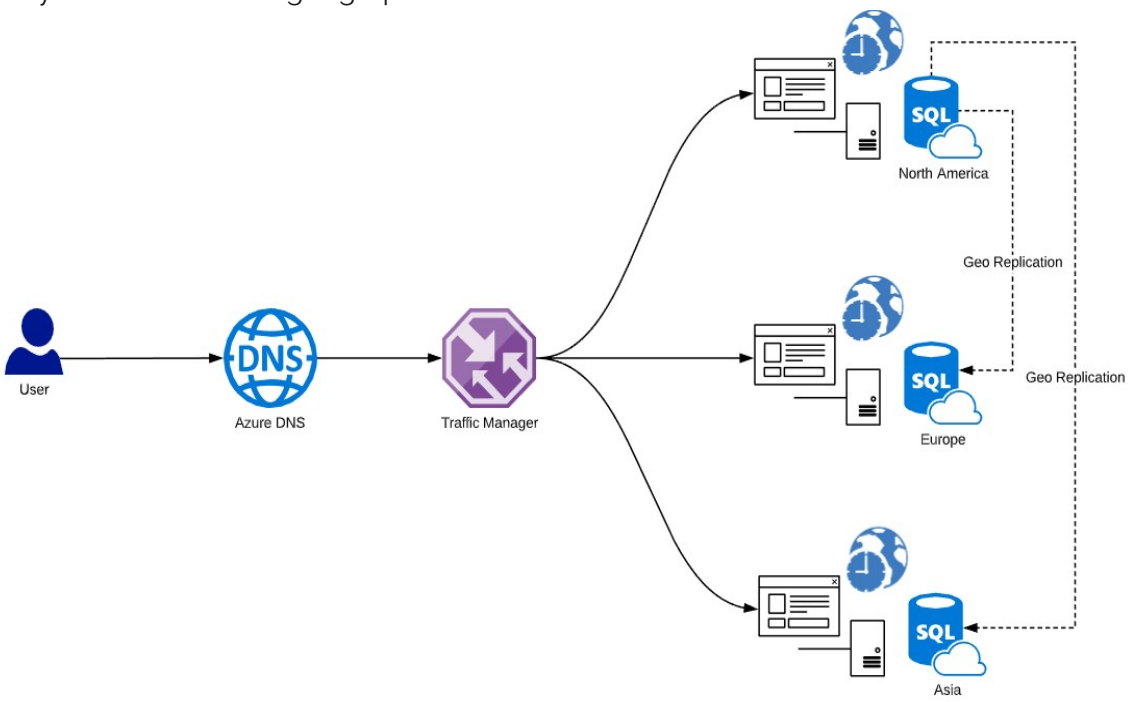
The end users access the application from different geographies.

The application includes read-only workloads that do not depend on full synchronization

Write access is supported in the same geography for regional users

Read latency is critical for the end user experience

You have designed the user device connectivity to the application deployed in the same geography for the analytical operations. However, transactional operations are processed in the same geography most of the time. The application resources should be deployed in each geography where you have substantial usage demand. For example, if your application is actively used in North America, Europe and Asia the application should be deployed to all of these geographies.



The primary database should be dynamically switched from one geography to the next at the end of the working hours. Geo-replication is setup between Azure SQL databases. Automation is achieved using Azure logic apps. Traffic manager is configured with the performance routing method. It ensures that the end user's device is connected to the web service in the closest region. Traffic manager should be set up with endpoint monitoring enabled for each web service endpoint. The failover group configuration defines which region is used for failover.
Given the scenario above, state three key benefits of this design:

- [ ] A. **The application can survive a loss of one of the regions without any significant downtime.** ✓
- [x] B. **The overall cost is reduced since only resources in local geographies are used during their working hours.** ✗
- [ ] C. **The design is simplified since each region gets servers in their local geography.**
- [x] D. **The read-only application workload accesses data in the closest region.** ✓

- [x] E. **The read-write application workload accesses data in the closest region during the period of the highest activity in each geography.**

Explanation:

Answer: A, D and E

Option A is CORRECT because failover will ensure application availability. There might be a higher latency

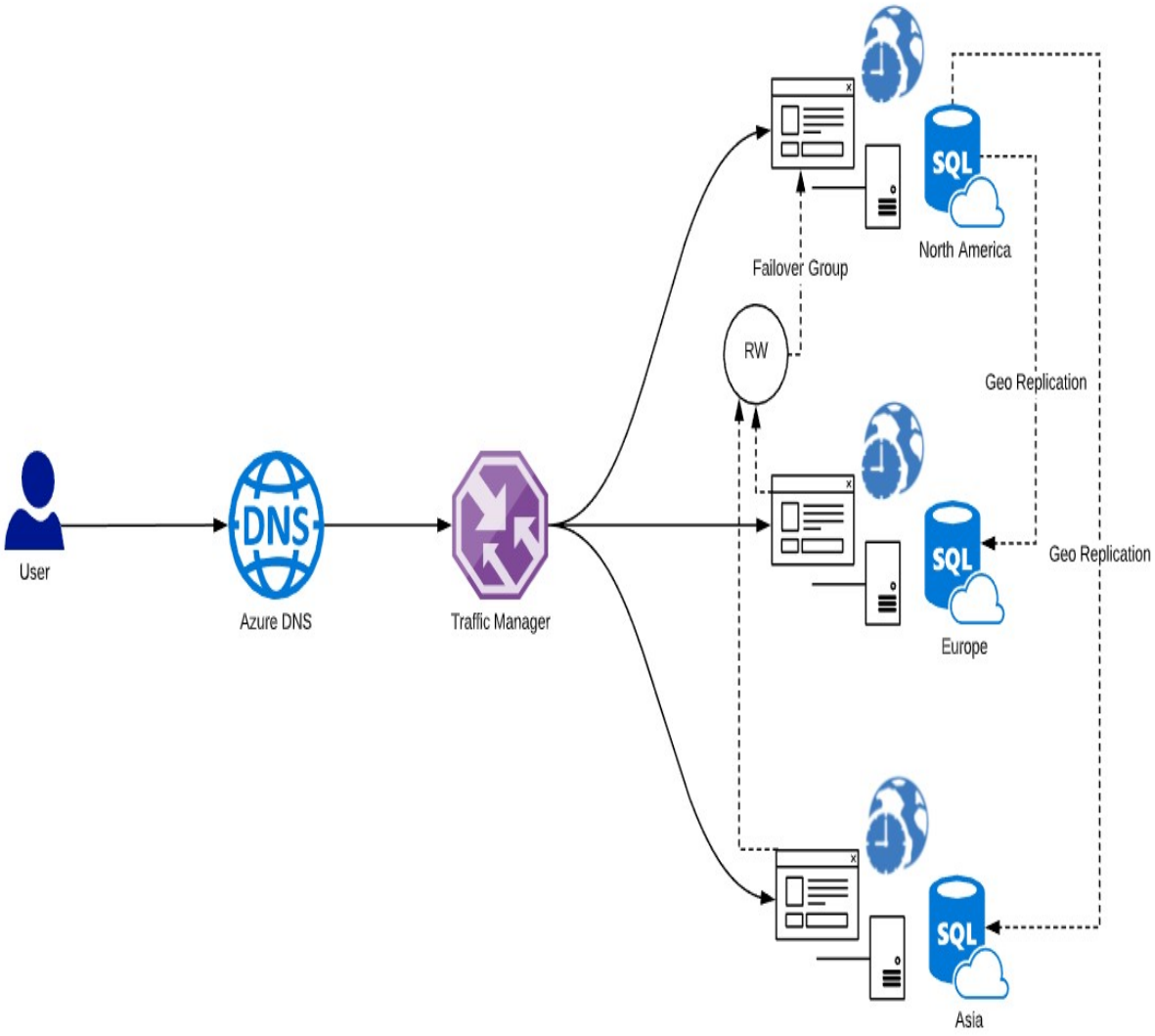
Option B is incorrect because overall cost would increase with additional resources and egress traffic

Option C is incorrect because design gets complex with additional components and automation scenario

Option D is CORRECT lower latency is offered during read-only operations as per the requirement

Option E is CORRECT as write operations' performance is improved in the closest Azure region

Diagram:



Reference:

https://docs.microsoft.com/en-us/azure/sql-database/sql-database-designing-cloud-solutions-for-disaster-recovery

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Question 7

Incorrect

Domain :Monitor and optimize data solutions

Scenario: In an organization, you use Azure SQL database monitoring tools to troubleshoot potential problems and make recommendations in order to improve database performance. You receive an incident where the system is running slow. You connect with the end user and get to know that the query is taking longer than expected. As an initial troubleshooting step, you check the monitor resource usage using dynamic management views.

Text: Refer to the scenario given above and complete the following query:

```
SELECT
   AVG(avg_cpu_percent) AS 'Average CPU use in percent',
   MAX(avg_cpu_percent) AS 'Maximum CPU use in percent',
   AVG(avg_data_io_percent) AS 'Average data IO in percent',
   MAX(avg_data_io_percent) AS 'Maximum data IO in percent',
   AVG(avg_log_write_percent) AS 'Average log write use in percent',
   MAX(avg_log_write_percent) AS 'Maximum log write use in percent',
   AVG(avg_memory_usage_percent) AS 'Average memory use in percent',
   MAX(avg_memory_usage_percent) AS 'Maximum memory use in percent'
FROM _____;
```

- A. **sys.resource_stats** ✗
- B. **sys.dm_tran_active_transactions**
- C. **sys.dm_db_resource_stats** ✓
- D. **sys.dm_tran_database_transactions**

Explanation:

Answer: C

Option A is incorrect because it does not have column “avg_memory_usage_percent”

Option B is incorrect because it is used for active transaction details

Option C is CORRECT because it provides resource usage. Refer the query below.

Option D is incorrect because it provides information about transactions at the database level.

SELECT

```
    AVG(avg_cpu_percent) AS 'Average CPU use in percent',
    MAX(avg_cpu_percent) AS 'Maximum CPU use in percent',
    AVG(avg_data_io_percent) AS 'Average data IO in percent',
    MAX(avg_data_io_percent) AS 'Maximum data IO in percent',
    AVG(avg_log_write_percent) AS 'Average log write use in percent',
    MAX(avg_log_write_percent) AS 'Maximum log write use in percent',
    AVG(avg_memory_usage_percent) AS 'Average memory use in percent',
    MAX(avg_memory_usage_percent) AS 'Maximum memory use in percent'
FROM sys.dm_db_resource_stats;
```

Reference:

https://docs.microsoft.com/en-us/azure/sql-database/sql-database-monitoring-with-dmvs

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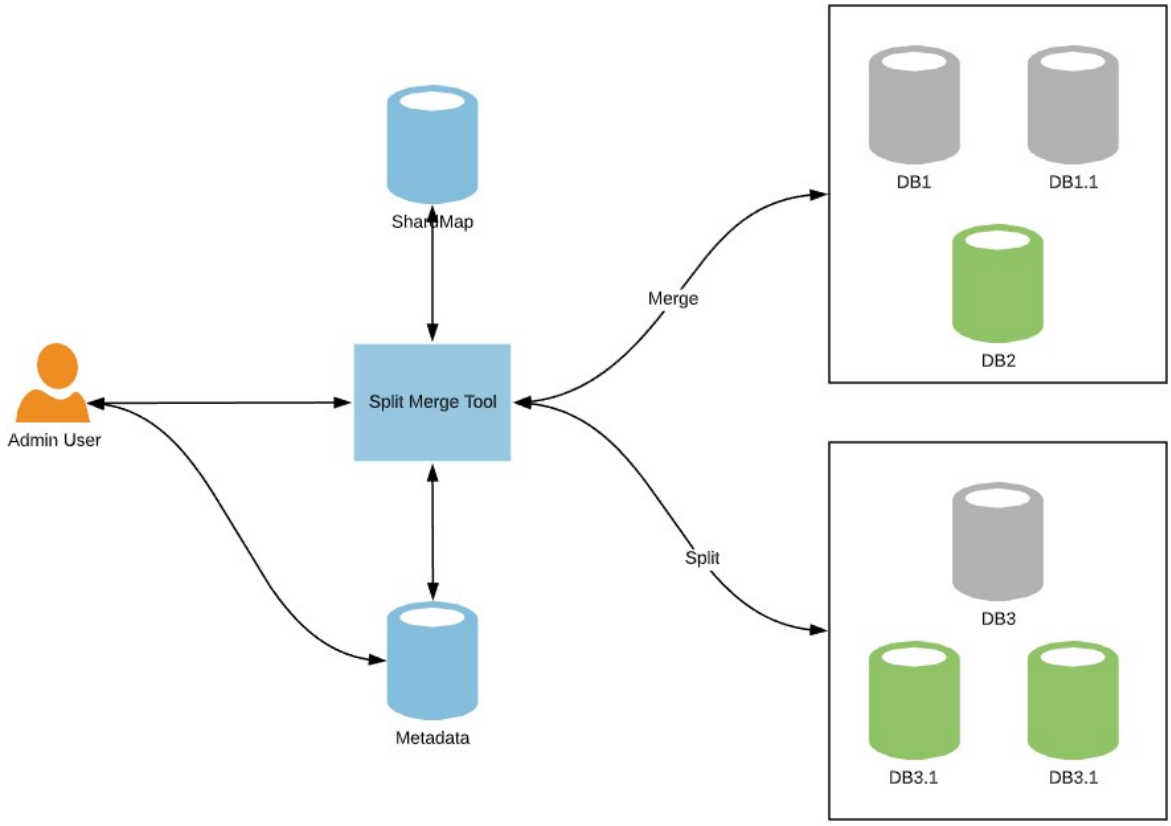
Question 8

Correct

Domain :Implement data storage solutions

Scenario: In order to accommodate the data growth, you decide to add more shards. Redistribution of the data to the new databases has to be done without disrupting the data integrity. You use the split-merge tool to orchestrate the data movement between shards in combination with the necessary shard map updates. It uses shard map management to maintain the service metadata database, and ensure consistent mappings. For reference tables, the split, merge and move operations copy the data from the source to the target shard.



Refer the scenario given above and choose three requirements or limitations for split-merge service:

- [ ] A. **Collocate your split-merge service in the region and data center where your databases reside.**
- [x] B. **Shards need to exist and be registered in the shard map before a split-merge operation on these shards can be performed.**
- [x] C. **Service does not create tables or any other database objects automatically as part of its operations.**
- [x] D. **Schema for all sharded tables and reference tables needs to exist on the target shard prior to any split operation.**
- [ ] E. **Keep the test tenant data size above the maximum data size of your largest tenant.**

Explanation:

Answer: B, C and D

Option A is incorrect because it is a best practice not a requirement or limitation.

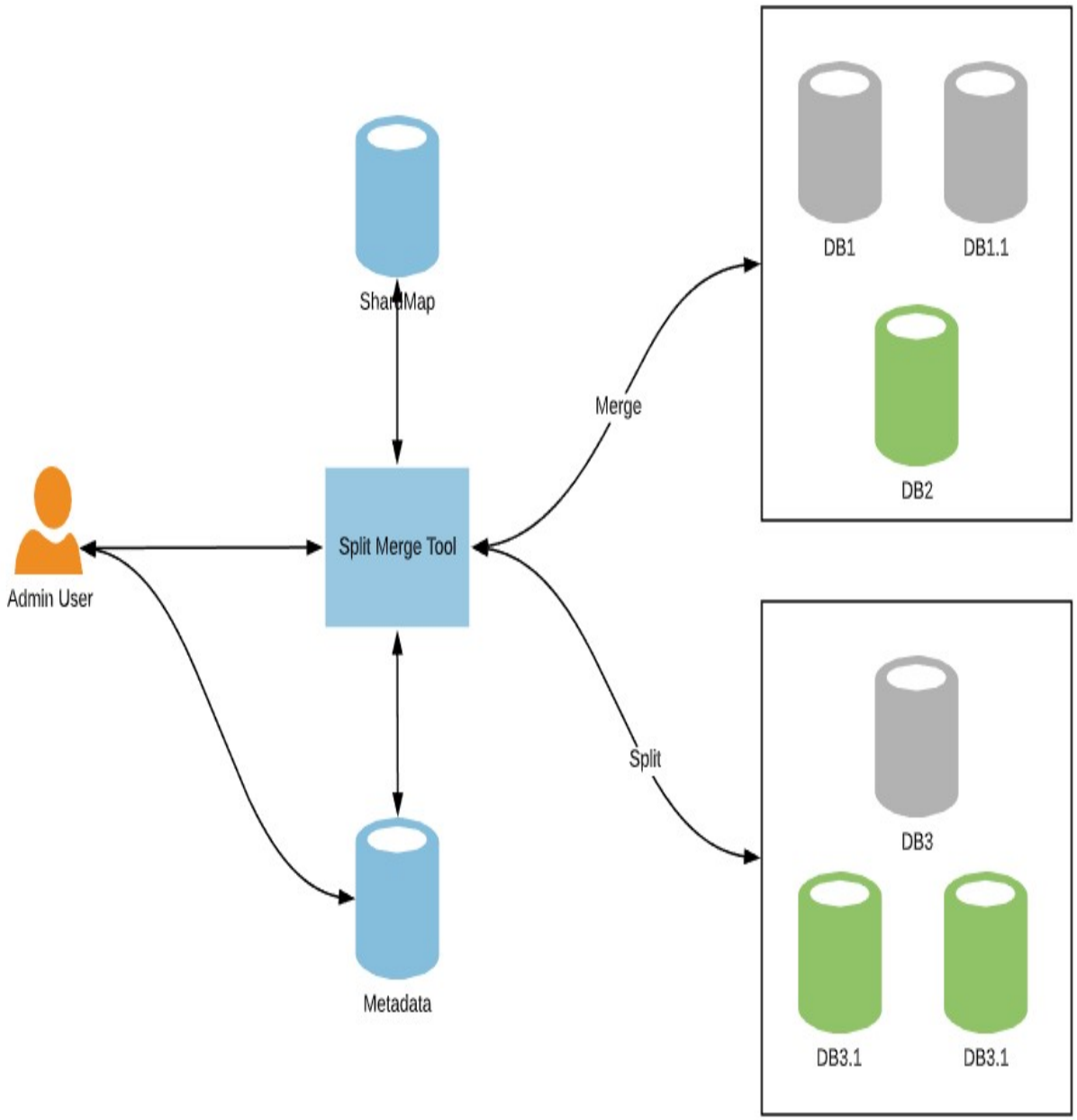
Option B is CORRECT because it is a requirement that shards need to exist and registered in shard map.

Option C is CORRECT because service does not create tables automatically.

Option D is CORRECT because it is a requirement for split-merge service.

Option E is incorrect because it is a best practice not a requirement or limitation.

Diagram:



Reference:

https://docs.microsoft.com/en-us/azure/sql-database/sql-database-elastic-scale-overview-split-and-merge

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Question 9 **Correct**

Domain :Monitor and optimize data solutions

Scenario: Your application team developed an application using Azure App Service and Azure SQL Database as a back-end using Free Tier. After a few days you receive an error message when the connection to Azure SQL Database has failed. You review the log and get the error code as 40544, that is, the database has reached its size quota. Partition or delete data, drop indexes, or consult the documentation for possible resolutions. As the next step, you decide to identify which tables are consuming the most space and are therefore potential candidates for cleanup.
Refer to scenario given above and choose an option to complete the query give below:

```
SELECT o.name,
 SUM(p.row_count) AS 'Row Count',
 SUM(p.reserved_page_count) * 8.0 / 1024 AS 'Table Size (MB)'
FROM sys.objects o
JOIN __________________________ p on p.object_id = o.object_id
GROUP BY o.name
ORDER BY [Table Size (MB)] DESC
```

- A. **sys.dm_db_partition_stats** ✓
- B. **sys.dm_db_file_space_usage**
- C. **sys.dm_db_log_stats**
- D. **sys.dm_db_session_space_usage**

Explanation:

Answer: A

Option A is CORRECT because sys.dm_db_partition_stats Returns page and row-count information for every partition in the current database

Option B is incorrect because it does not produce desired results on the join with sys.objects

Option C is incorrect because it does not produce desired results on the join with sys.objects

Option D is incorrect because it does not produce desired results on the join with sys.objects

```
SELECT o.name,
 SUM(p.row_count) AS 'Row Count',
 SUM(p.reserved_page_count) * 8.0 / 1024 AS 'Table Size (MB)'
FROM sys.objects o
JOIN sys.dm_db_partition_stats p on p.object_id = o.object_id
GROUP BY o.name
ORDER BY [Table Size (MB)] DESC
```

Reference:

https://docs.microsoft.com/en-us/azure/sql-database/troubleshoot-connectivity-issues-microsoft-azure-sql-database

Question 10

Incorrect

Domain :Monitor and optimize data solutions

Scenario: You have a requirement to configure logging of diagnostics telemetry for Azure SQL databases in order to get performance reports, alerts, and mitigation recommendations. You go ahead and enable streaming of diagnostics telemetry for an elastic pool. However, as you realize the database temetry is missing. You troubleshoot and find out that you also need to configure diagnostics telemetry for each database in the elastic pool.

Question Text: Follow the scenario given above and choose three options to enable streaming of diagnostic telemetry for an elastic pool resource.

- [x] A. **Turn off diagnostics if already enabled** ✗
- [ ] B. **Select the checkbox for ResourceUsageStats**
- [x] C. **Select destination resource as "Send to Log Analytics"** ✓
- [x] D. **Choose log telemetry options** ✓
- [ ] E. **Select the check box for Basic metrics** ✓

Explanation:

Answer: C, D and E

Option A is incorrect because diagnostics need to be enabled

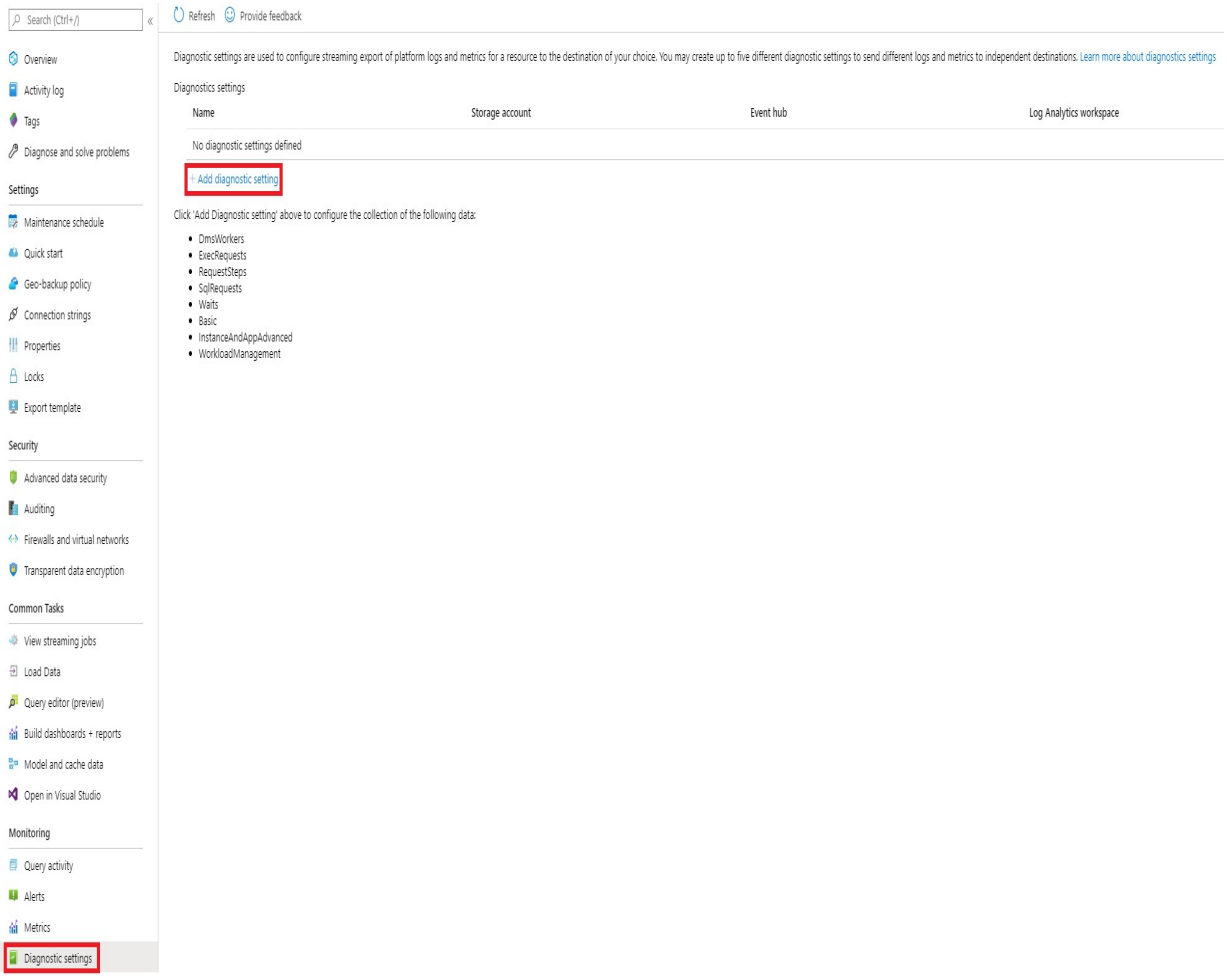
Option B is incorrect because ResourceUsageStats is selected for managed instances

Option C is CORRECT because objective is to send the telemetry details to Log Analytics

Option D is CORRECT because log options need to be selected in order to log monitoring info

Option E is CORRECT because it is required for advanced one-minute-based monitoring experience

Diagram: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Maintenance schedule
Quick start
Geo-backup policy
Connection strings
Properties
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Common Tasks
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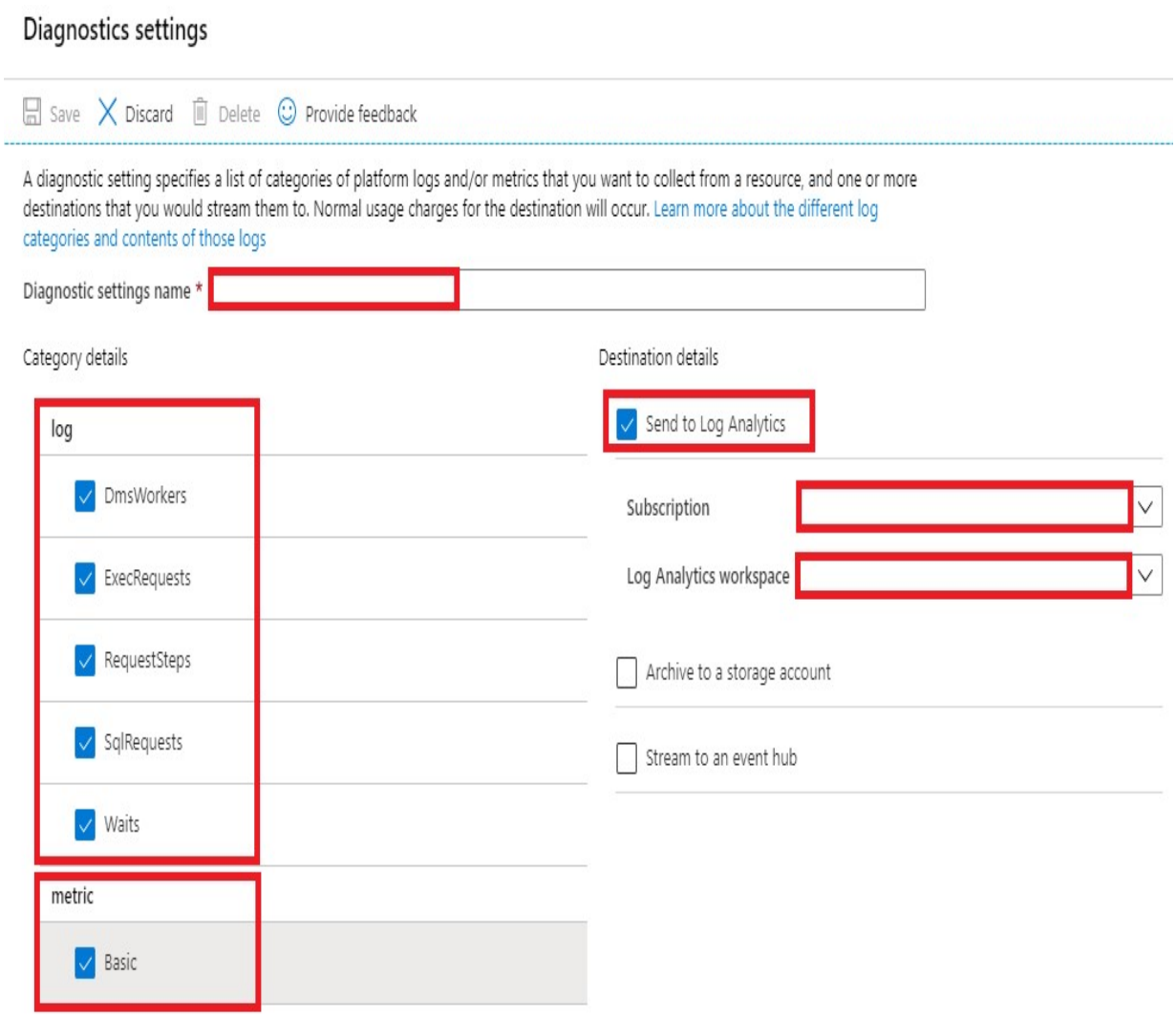
Model and cache data
Open in Visual Studio
Monitoring
Query activity
Alerts
Metrics
Diagnostic settings
Refresh
Provide feedback
Diagnostic settings are used to configure streaming export of platform logs and metrics for a resource to the destination of your choice. You may create up to five different diagnostic settings to send different logs and metrics to independent destinations. Learn more about diagnostics settings
Diagnostics settings
Name
Storage account
Event hub
Log Analytics workspace
No diagnostic settings defined
+ Add diagnostic setting
Click 'Add Diagnostic setting' above to configure the collection of the following data:
DmsWorkers
ExecRequests
RequestSteps
SqlRequests
Waits
Basic
InstanceAndAppAdvanced
WorkloadManagement



Reference:

https://docs.microsoft.com/en-us/azure/sql-database/sql-database-metrics-diag-logging?tabs=azure-portal

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