

Lab S01: Setup Environment

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Lab S01 – Create the Azure SQL DW and objects

Summary:

This lab will walk you through the creation of the objects required for the “SQL Data Warehouse in a Day” workshops.

Goal:

- Setup Resource group, SQL Server, SQL DW Server, Storage Account

Pre-requisites:

- Demo files for this Lab located at <https://github.com/steveyoungca/SQLDWinaDayWorkshop> downloaded to a local folder
- Azure Subscription or Azure Subscription Pass
- Web browser (Edge/Chrome recommended)

Resources

There are several resources that can augment your learning experience after the session. Some of these links cover material in these labs and presentations while others will help take your knowledge further. There is a link in the

Important Notes

Note 1: Creating all the lab objects in the same Resource Group will make clean-up easier, as when we are complete with the labs, you delete the Resource Group and all the objects it contains will be deleted.

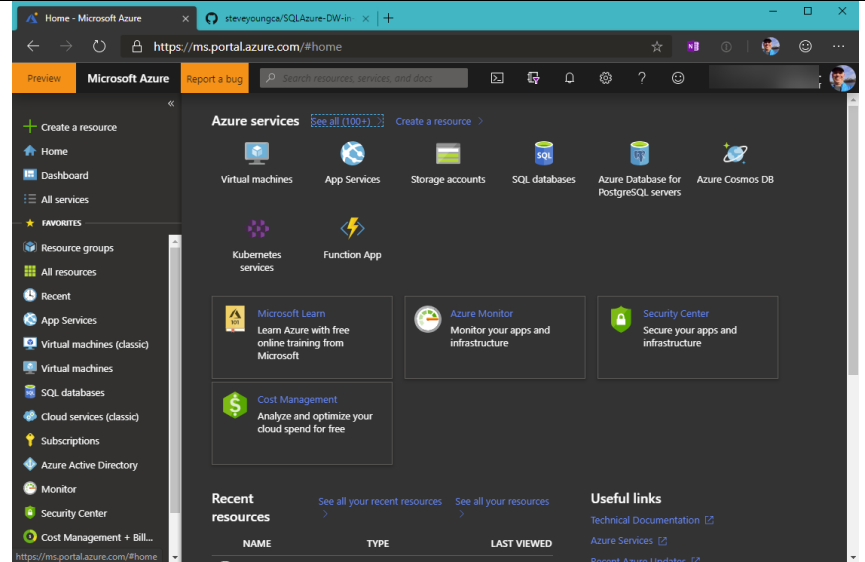
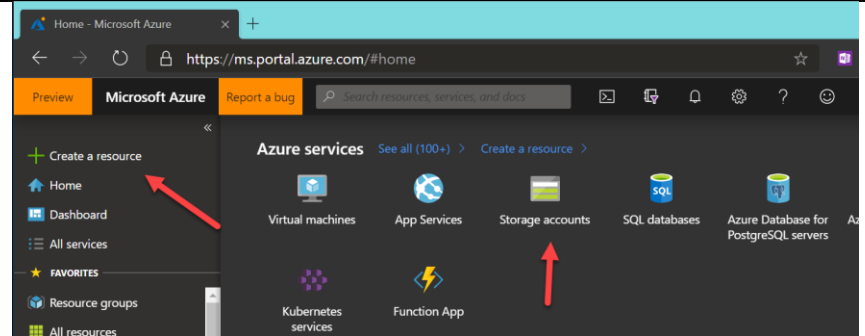
Note 2: Always pause the Azure SQL Datawarehouse when not in use to avoid charges.

1. Sign into your Azure Subscription
2. Open your internet browser in safety mode (InPrivate) and navigate to portal.azure.com and enter the login credentials.

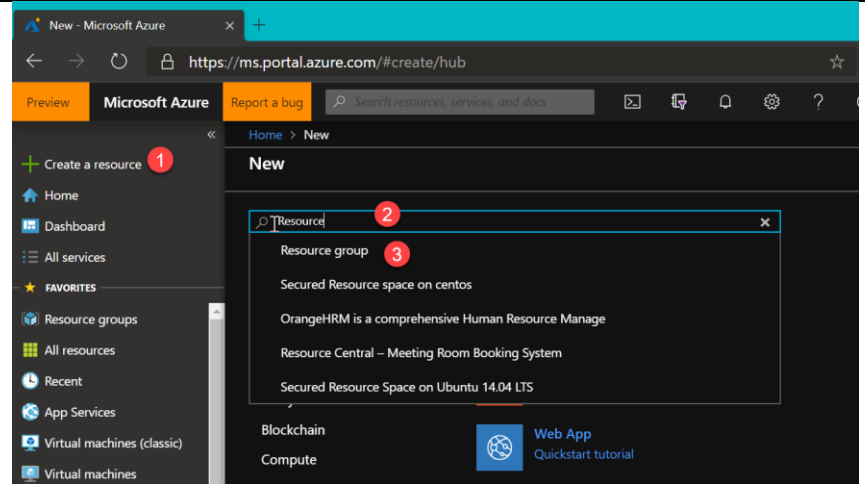
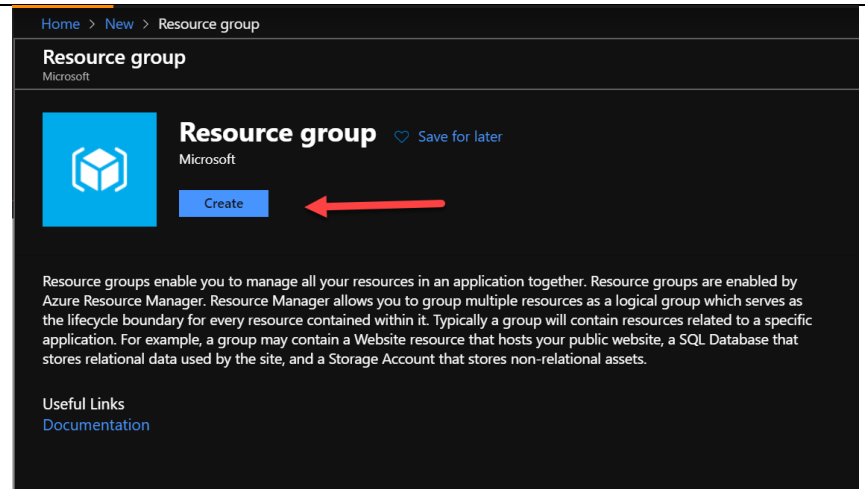
Scenario 1 – Create Objects for Labs

This hands-on demo will detail the steps required to create the objects required for the labs. Not all steps will have a screen shot.

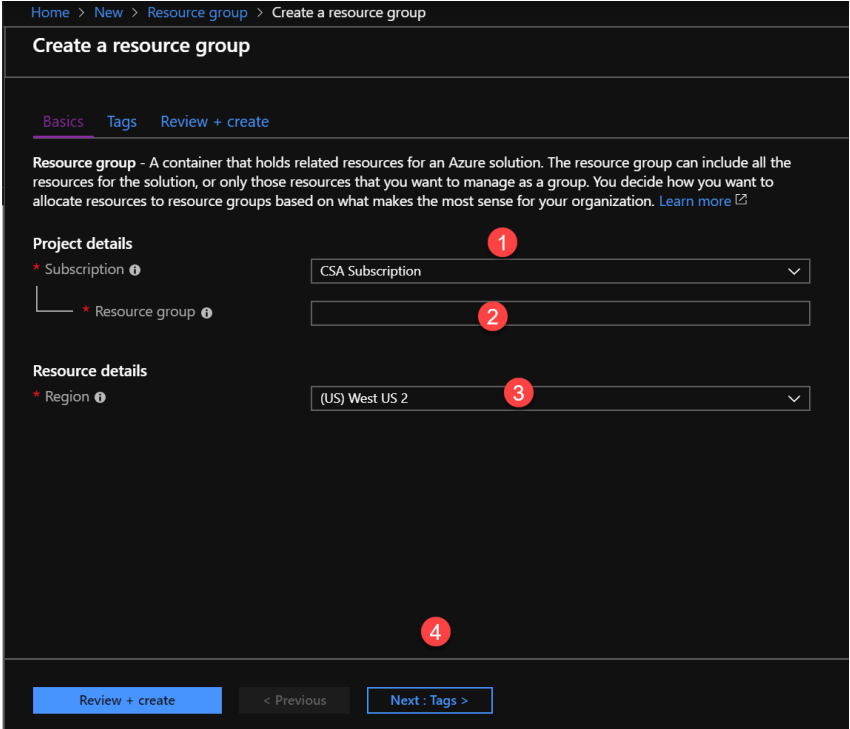
Part 1 – Create Resource Group

#	Commentary / Notes	Click Steps	Screenshots
1.	These initial steps will be the same for each section. Once you have created one resource, the general process will be the same.	<ul style="list-style-type: none"> Open a web browser and navigate to your Azure Portal https://portal.azure.com You will be asked to sign on and authenticate 	
2.	Create a Resource Group	<ul style="list-style-type: none"> This setup is straight forward, once you are signed in, click on Create a Resource. 	

Part 1 – Create Resource Group

#	Commentary / Notes	Click Steps	Screenshots
3.		<ul style="list-style-type: none"> When you select Create a Resource, a search bar is displayed. Type in “Resource” into the bar which will filter the list. Select Resource Group. 	
4.		<ul style="list-style-type: none"> The Resource dialogue is starting. Select Create to begin. 	

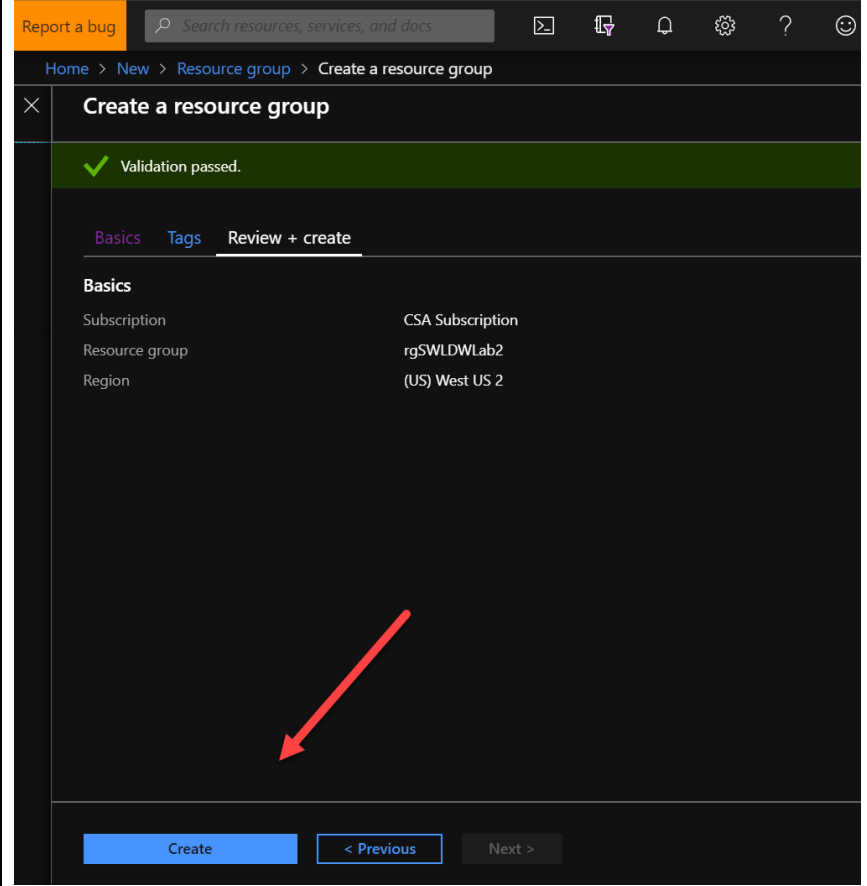
Part 1 – Create Resource Group

#	Commentary / Notes	Click Steps	Screenshots
5.		<ul style="list-style-type: none"> On the creation screen there are several items to select. <ol style="list-style-type: none"> Select the subscription you wish to create the resource group. This is important if you have multiple subscriptions. Some people have development, MSDN, Production, Azure Pass or other purposed subscriptions. Make sure your charges are going to the correct place and billing rate. Select a name for the resource group. I usually put “rg” at the beginning of the name to denote that the object in a listing is a resource group Select the location. This is not as important as you can create objects in various locations / data centers. I usually select the location where the objects contained in the resource group will be created. You can go directly to Review + Create, or to a Tag screen. For this example, we will show the tags. Select Next: Tags to continue. 	

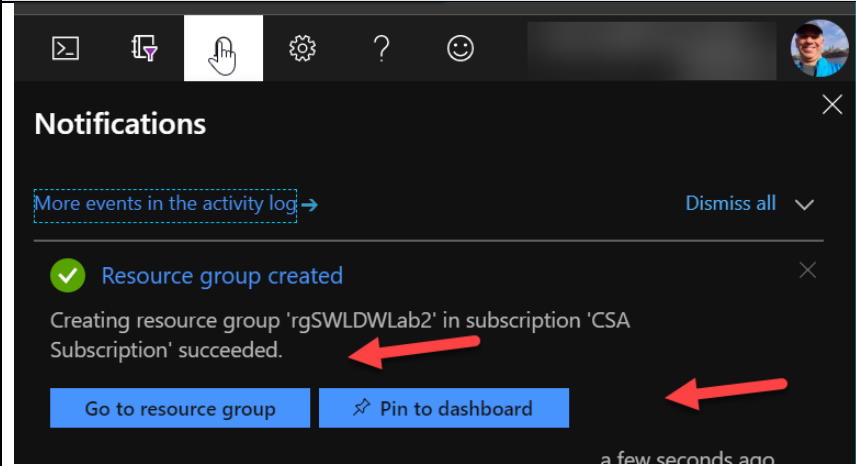
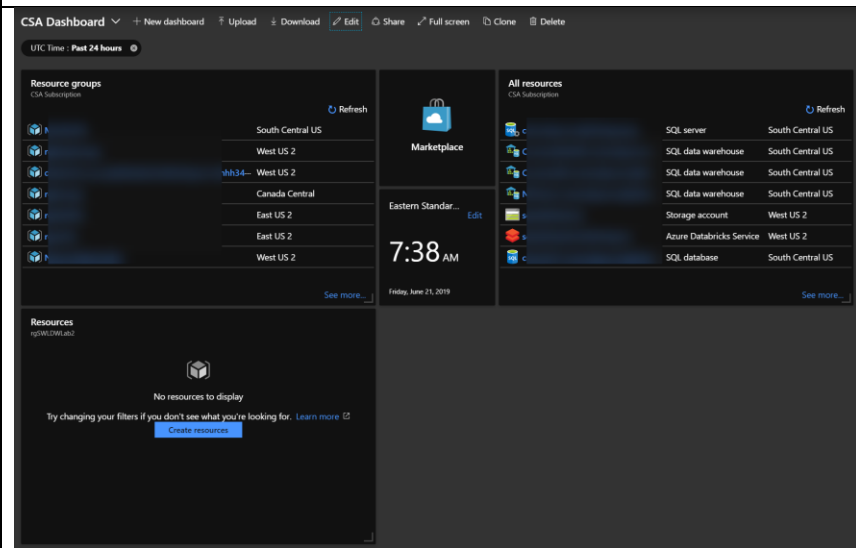
Part 1 – Create Resource Group

#	Commentary / Notes	Click Steps	Screenshots
6.		<ul style="list-style-type: none"> Tags can be used for organization and billing. There are drop down values that an admin can setup or you can type in tags directly into the fields. Select Review + Create to continue <p>“You apply tags to your Azure resources giving metadata to logically organize them into a taxonomy. Each tag consists of a name and a value pair. For example, you can apply the name "Environment" and the value "Production" to all the resources in production.”</p> <p>Source: Microsoft Docs</p> <p>More information on tags: https://docs.microsoft.com/en-us/azure/azure-resource-manager/resource-group-using-tags </p>	

Part 1 – Create Resource Group

#	Commentary / Notes	Click Steps	Screenshots
7.		<ul style="list-style-type: none">Select Create to begin the process.	 <p>The screenshot shows the 'Create a resource group' page in the Azure portal. The page has a dark theme. At the top, there's a navigation bar with 'Home > New > Resource group > Create a resource group'. Below this is a header 'Create a resource group' with a close button. A green banner indicates 'Validation passed.'. There are three tabs: 'Basics' (selected), 'Tags', and 'Review + create'. Under the 'Basics' tab, the following information is displayed: Subscription: CSA Subscription, Resource group: rgSWLDWLab2, Region: (US) West US 2. At the bottom, there are three buttons: 'Create' (highlighted in blue), '< Previous', and 'Next >'. A red arrow points to the 'Create' button.</p>

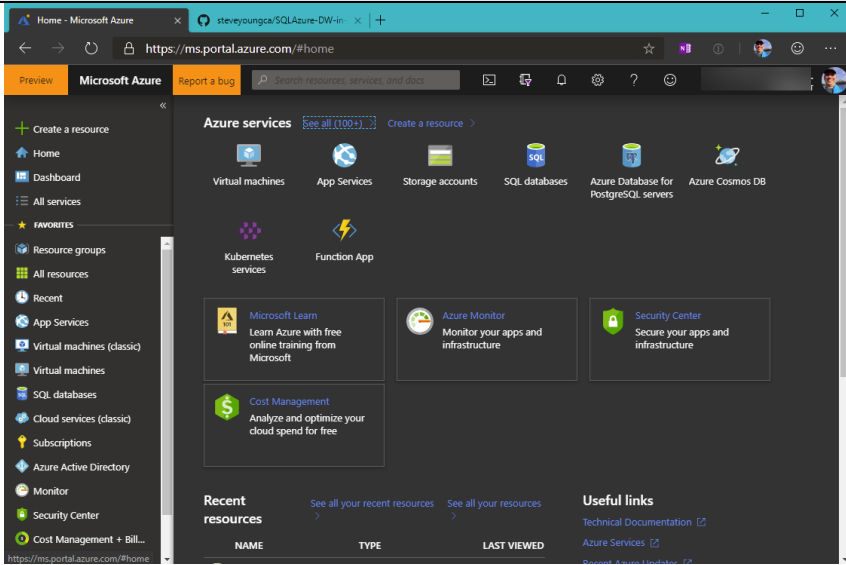
Part 1 – Create Resource Group

#	Commentary / Notes	Click Steps	Screenshots
8.		<ul style="list-style-type: none"> Once complete, you will see a Toast message / notification that the creation is complete. The 2 options will allow you to Pin the resource to the dashboard, or go directly to the resource. Select Pin to Dashboard 	
9.		<ul style="list-style-type: none"> With the Resource Group pinned to the Dashboard, you can see any resources that are contained. We will create resources in the next few steps 	

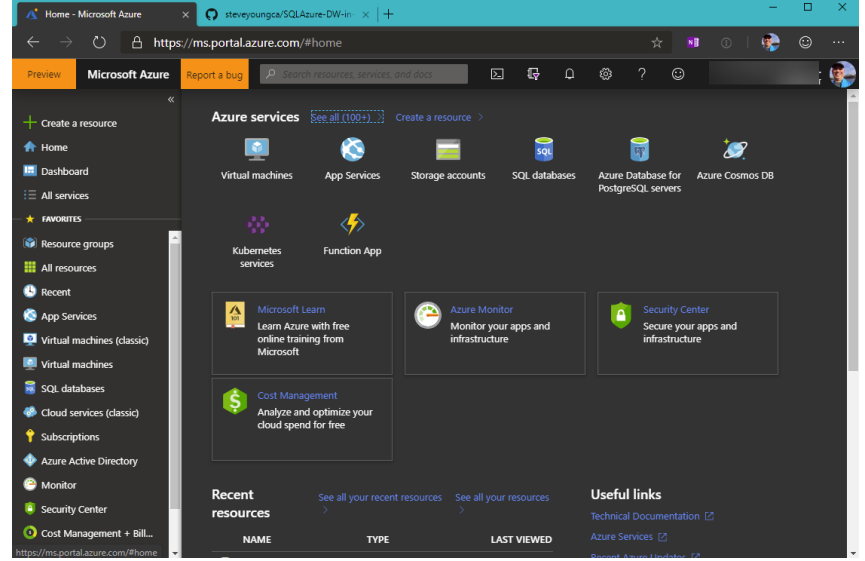
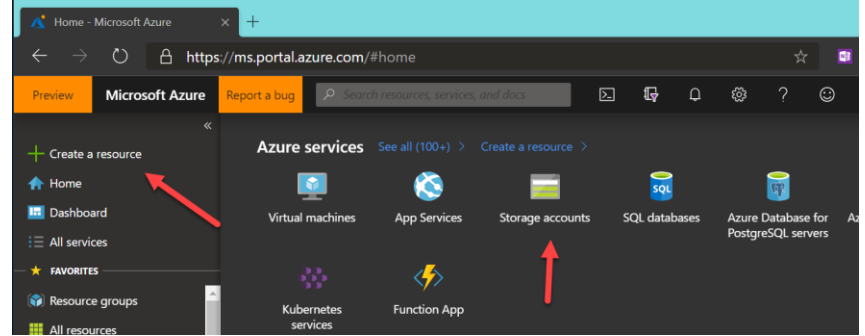
Scenario 2 – Create a Storage Account / Data Lake Gen 2

This hands-on lab will show you the steps to create a storage account. We will also use the option to create this storage account as a data lake.

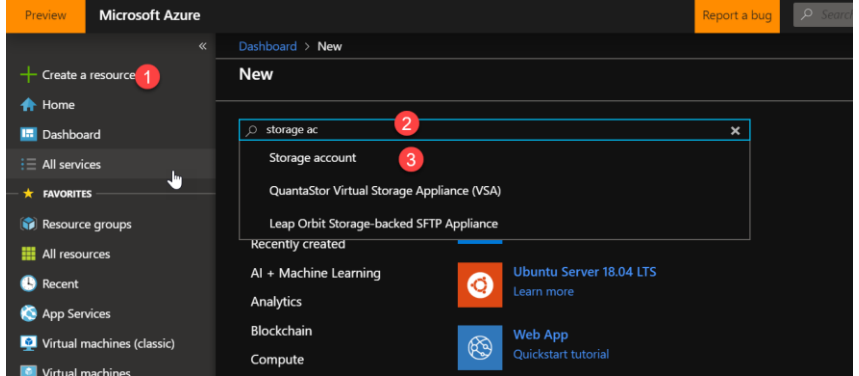
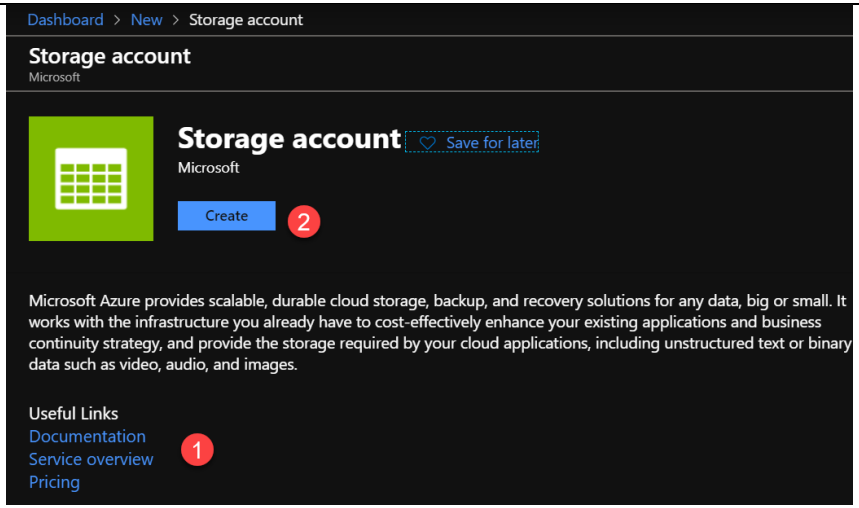
Part 2 – Create a Storage Account / Data Lake Gen 2

#	Commentary / Notes	Click Steps	Screenshots
1.	These initial steps will be the same for each section. Once you have created one resource, the general process will be the same.	<ul style="list-style-type: none"> Open a web browser and navigate to your Azure Portal https://portal.azure.com You will be asked to sign on and authenticate 	

Part 2 – Create a Storage Account / Data Lake Gen 2

#	Commentary / Notes	Click Steps	Screenshots
2.	These initial steps will be the same for each section. Once you have created one resource, the general process will be the same.	<ul style="list-style-type: none"> Open a web browser and navigate to your Azure Portal https://portal.azure.com You will be asked to sign on and authenticate 	
3.	Create a Storage Account	<ul style="list-style-type: none"> This setup is straight forward, once you are signed in, click on Create a Resource. You can also use the icon Storage Accounts which will display all the storage accounts you currently have in the selected subscription. 	

Part 2 – Create a Storage Account / Data Lake Gen 2

#	Commentary / Notes	Click Steps	Screenshots
4.		<ul style="list-style-type: none"> When you select Create a Resource, a search bar is displayed. Type in “Storage Account” into the bar which will filter the list. Select Storage Account. 	
5.		<ul style="list-style-type: none"> The Storage Account creation screen will display. Note the Useful Links at the bottom, these are available for most of the objects you are creating in Azure. These will provide links to documentation. Select Create to begin the process. 	

- 6.
- The first screen allows you to put in the basic information
 - These are the Basic options
 - Select the **subscription** you wish to create this under.
 - Select the **Resource Group** created in the previous step. This should be listed in the drop down.
 - Give the **Storage Account** a name. Try to provide something easy to remember.
 - Select the **Region**. This is important as it should be in the same region that your data will reside and be used in. If you have objects in different regions, such as the storage and applications/services that use this data, you will have data charges on that data transmitted between the data centers / regions. See link below. Inbound is free, outbound data transfers have a fee.
<https://azure.microsoft.com/en-us/pricing/details/bandwidth/>
 - Select **Standard** or Premium Storage. Premium storage is usually for VMs and those types of workloads. <https://azure.microsoft.com/en-us/blog/introducing-premium-storage-high-performance-storage-for-azure-virtual-machine-workloads/>
 - Select Storage V2 as the Account Kind
 - For this lab, you only need Locally Redundant. <https://docs.microsoft.com/en-us/azure/storage/common/storage-redundancy>
 - This storage will be HOT storage. Cold is for archive. <https://docs.microsoft.com/en-us/azure/storage/blobs/storage-blob-storage-tiers>
 - Select **Next: Advanced** to move to the next set of options.

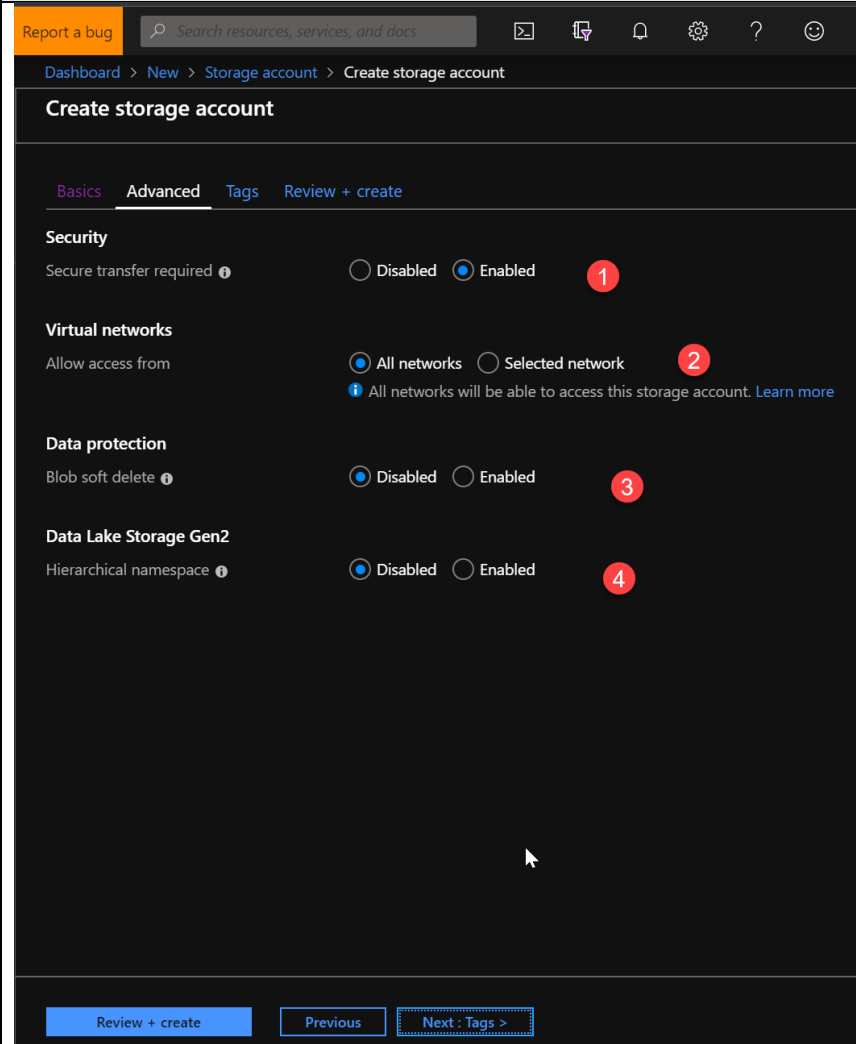
The screenshot shows the 'Create storage account' page in the Azure portal. The page is divided into sections: Basics, Advanced, Tags, and Review + create. The Basics section is active. It contains the following fields and options:

- Subscription:** CSA Subscription (Callout 2)
- Resource group:** Select existing... (Callout 3) or Create new
- Storage account name:** (Callout 4)
- Location:** (US) East US (Callout 5)
- Performance:** Standard (selected) or Premium (Callout 6)
- Account kind:** StorageV2 (general purpose v2) (Callout 7)
- Replication:** Read-access geo-redundant storage (RA-GRS) (Callout 8)
- Access tier (default):** Cool or Hot (selected) (Callout 9)

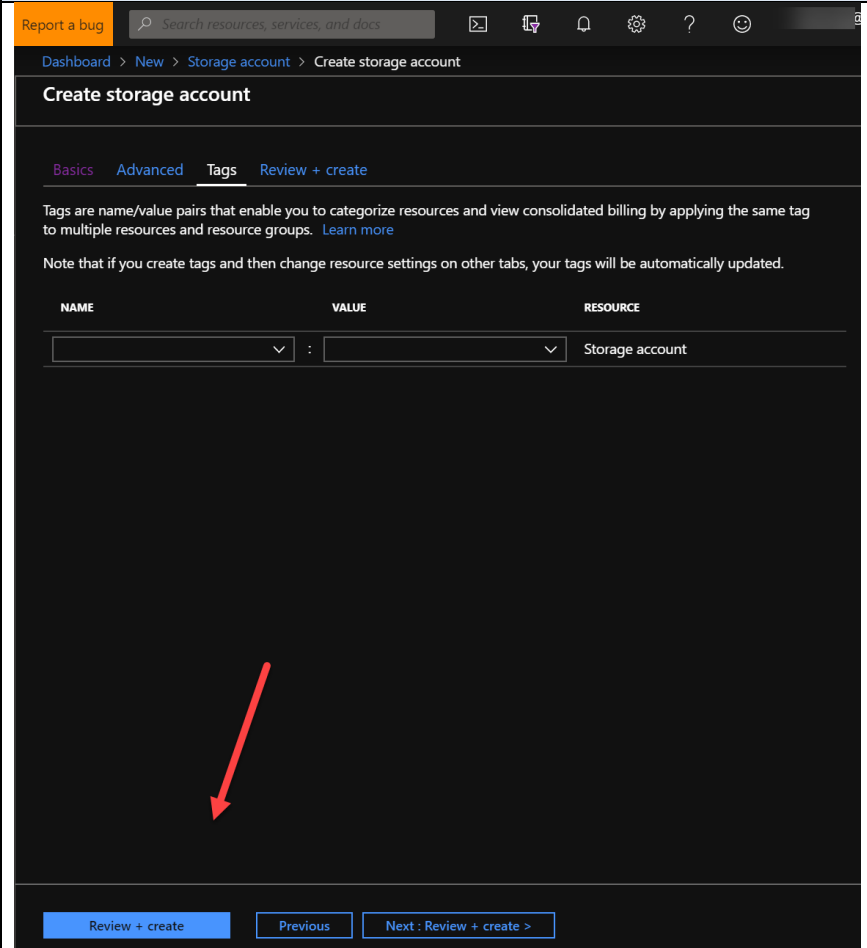
At the bottom, there are three buttons: Review + create, Previous, and Next: Advanced > (Callout 10).

This link provides general information on Azure Storage Accounts.
<https://docs.microsoft.com/en-us/azure/storage/common/storage-introduction>

Part 2 – Create a Storage Account / Data Lake Gen 2

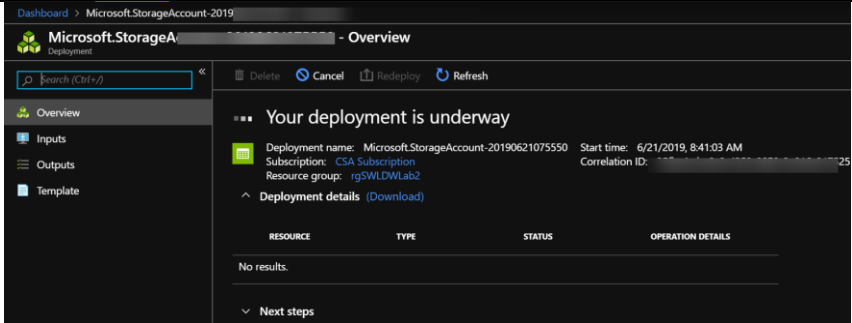
#	Commentary / Notes	Click Steps	Screenshots
7.	Note that the Data Lake Storage Gen2 will be disabled for this lab.	<ul style="list-style-type: none"> This screen allows you to select various advanced options. <ol style="list-style-type: none"> Set the Secure Transfer Required to Enabled. https://docs.microsoft.com/en-us/azure/storage/common/storage-require-secure-transfer For this set of labs, select All Networks. Disable Data Protection for soft delete. https://azure.microsoft.com/en-us/blog/soft-delete-for-azure-storage-blobs-ga/ For this set of labs we will Enable this option. https://docs.microsoft.com/en-us/azure/storage/blobs/data-lake-storage-quickstart-create-account <p>Select Next: Tags to create Tags.</p>	 <p>The screenshot shows the 'Create storage account' page in the Azure portal, specifically the 'Advanced' tab. The page is dark-themed. At the top, there's a navigation bar with 'Dashboard > New > Storage account > Create storage account'. Below this, the title 'Create storage account' is followed by tabs: 'Basics', 'Advanced' (selected), 'Tags', and 'Review + create'. The main content area is divided into four sections, each with a red circle and a number indicating a step: 1. 'Security' section, 'Secure transfer required' is set to 'Enabled' (radio button selected). 2. 'Virtual networks' section, 'Allow access from' is set to 'All networks' (radio button selected). 3. 'Data protection' section, 'Blob soft delete' is set to 'Disabled' (radio button selected). 4. 'Data Lake Storage Gen2' section, 'Hierarchical namespace' is set to 'Enabled' (radio button selected). At the bottom, there are three buttons: 'Review + create' (blue), 'Previous' (grey), and 'Next: Tags >' (dashed border, indicating it's the next step).</p>

Part 2 – Create a Storage Account / Data Lake Gen 2

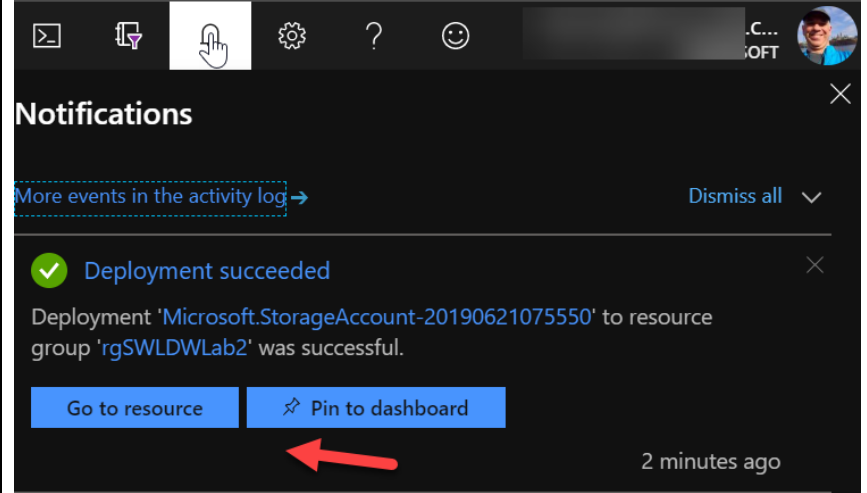
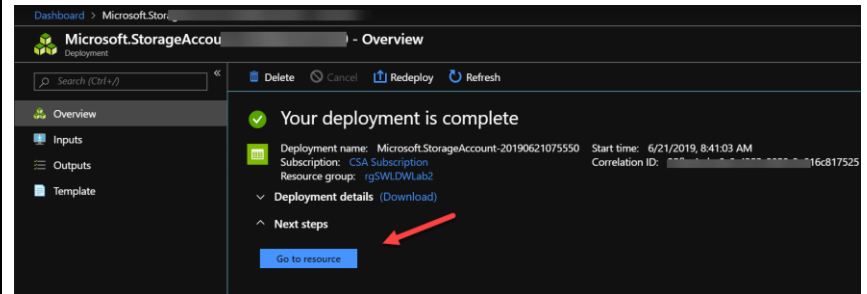
#	Commentary / Notes	Click Steps	Screenshots
8.		<ul style="list-style-type: none"> Tags can be used for organization and billing. There are drop down values that an admin can setup or you can type in tags directly into the fields. Select Review + Create to continue <p>“You apply tags to your Azure resources giving metadata to logically organize them into a taxonomy. Each tag consists of a name and a value pair. For example, you can apply the name "Environment" and the value "Production" to all the resources in production.”</p> <p>Source: Microsoft Docs</p> <ul style="list-style-type: none"> More information on tags: https://docs.microsoft.com/en-us/azure/azure-resource-manager/resource-group-using-tags 	 <p>The screenshot shows the 'Create storage account' page in the Azure portal. The 'Tags' tab is selected, showing a table for adding tags. The table has columns for NAME, VALUE, and RESOURCE. The RESOURCE column is pre-filled with 'Storage account'. At the bottom of the page, there are three buttons: 'Review + create' (highlighted with a red arrow), 'Previous', and 'Next: Review + create >'. The breadcrumb navigation at the top reads: Dashboard > New > Storage account > Create storage account.</p>

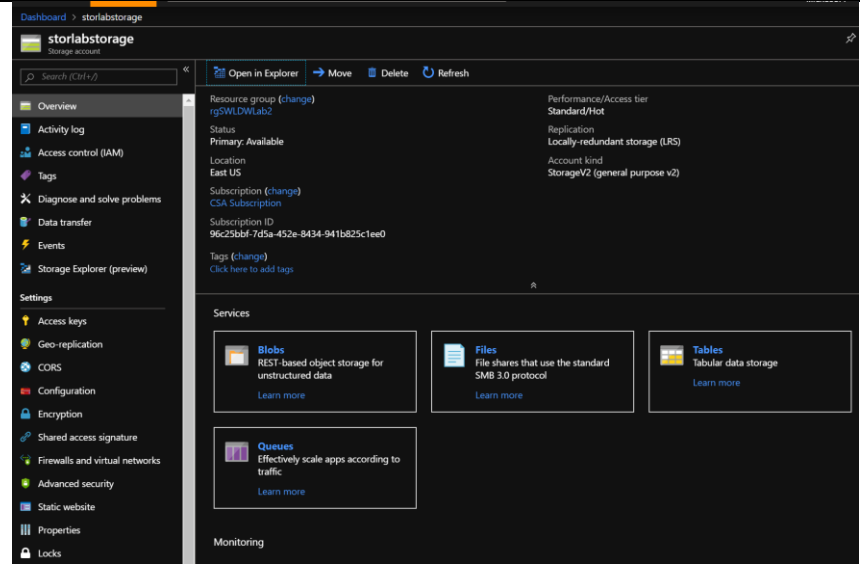
Part 2 – Create a Storage Account / Data Lake Gen 2

#	Commentary / Notes	Click Steps	Screenshots
9.		<ul style="list-style-type: none">Select Create once you reviewed the options.	<div><div>Report a bug</div><div><div>Search resources, services, and docs</div><div><div></div><div></div><div></div><div></div><div></div><div></div></div></div><div><div>Dashboard > New > Storage account > Create storage account</div><div>Create storage account</div><div>Validation passed</div><div><div>Basics</div><div>Advanced</div><div>Tags</div><div>Review + create</div></div><div><div>Basics</div><div><div>Subscription</div><div>Resource group</div><div>Location</div><div>Storage account name</div><div>Deployment model</div><div>Account kind</div><div>Replication</div><div>Performance</div><div>Access tier (default)</div><div>CSA Subscription</div><div>rgSWLDWLab2</div><div>(US) East US</div><div>storlabstorage</div><div>Resource manager</div><div>StorageV2 (general purpose v2)</div><div>Locally-redundant storage (LRS)</div><div>Standard</div><div>Hot</div></div><div><div>Advanced</div><div><div>Secure transfer required</div><div>Allow access from</div><div>Hierarchical namespace</div><div>Blob soft delete</div><div>Enabled</div><div>All networks</div><div>Disabled</div><div>Disabled</div></div></div></div><div><div>Create</div><div>Previous</div><div>Next</div><div>Download a template for automation</div></div></div></div>

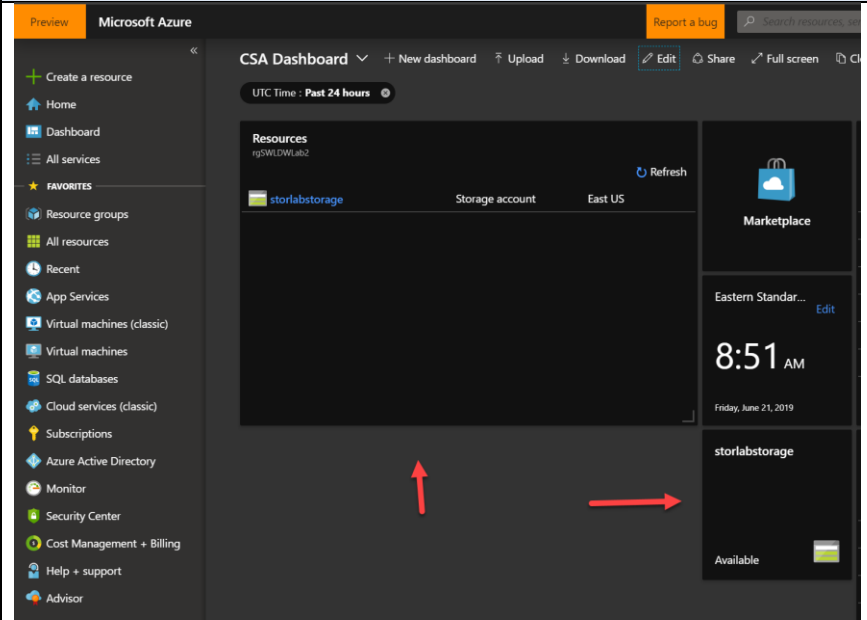
Part 2 – Create a Storage Account / Data Lake Gen 2			
#	Commentary / Notes	Click Steps	Screenshots
10.		<ul style="list-style-type: none">You can follow the deployment process	

Part 2 – Create a Storage Account / Data Lake Gen 2

#	Commentary / Notes	Click Steps	Screenshots
11.		<ul style="list-style-type: none"> The Toast / alert message will allow you to pin this resource to your dashboard. The Deployment process, when complete, will have a button to take you to that resource. 	 <p>The screenshot shows the Azure portal notifications pane. At the top, there's a 'Notifications' header with a close button. Below it, a link 'More events in the activity log' is shown. A notification card for 'Deployment succeeded' is displayed, stating 'Deployment 'Microsoft.StorageAccount-20190621075550' to resource group 'rgSWLDWLab2' was successful.' At the bottom of the card, there are two buttons: 'Go to resource' and 'Pin to dashboard'. A red arrow points to the 'Pin to dashboard' button. The notification is timestamped '2 minutes ago'.</p>  <p>The screenshot shows the 'Overview' page for the deployment 'Microsoft.StorageAccount-20190621075550'. The page indicates 'Your deployment is complete'. It lists the deployment name, subscription, and resource group. Under the 'Next steps' section, there is a 'Go to resource' button, which is highlighted by a red arrow.</p>

Part 2 – Create a Storage Account / Data Lake Gen 2			
#	Commentary / Notes	Click Steps	Screenshots
12.		<ul style="list-style-type: none">Once, complete you can go to the Resource.We will walk though some of these options during the LAB time.	

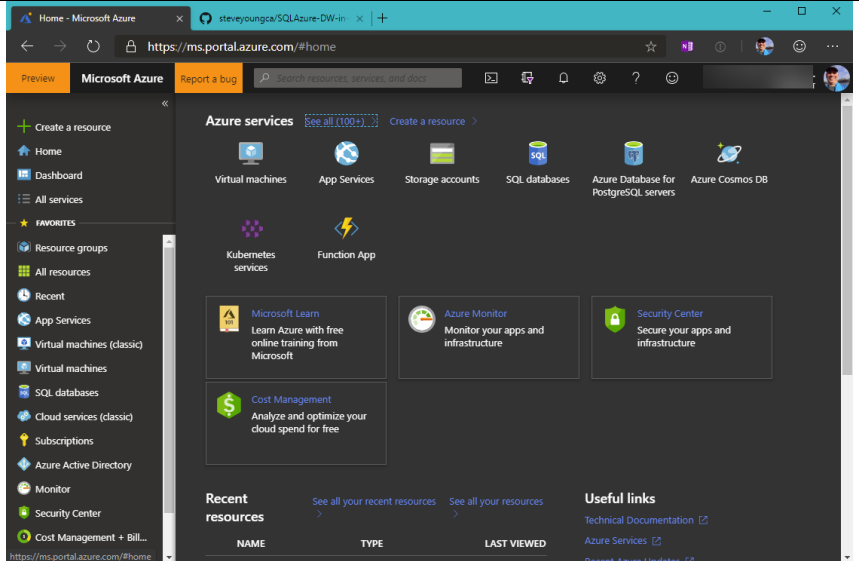
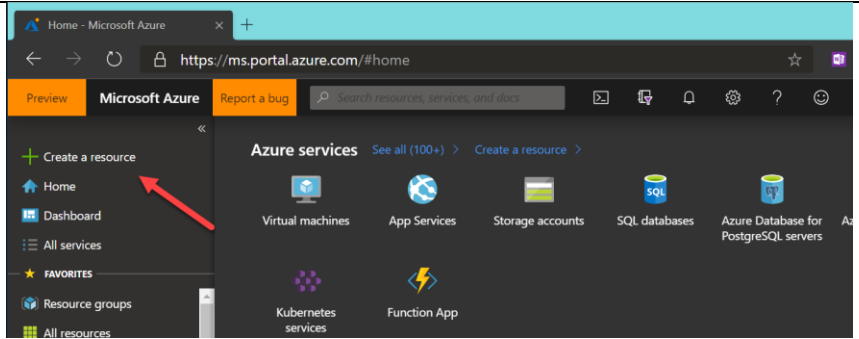
Part 2 – Create a Storage Account / Data Lake Gen 2

#	Commentary / Notes	Click Steps	Screenshots
13.		<ul style="list-style-type: none"> Once created and pinned, your Dashboard may look something like the capture on the right. 	

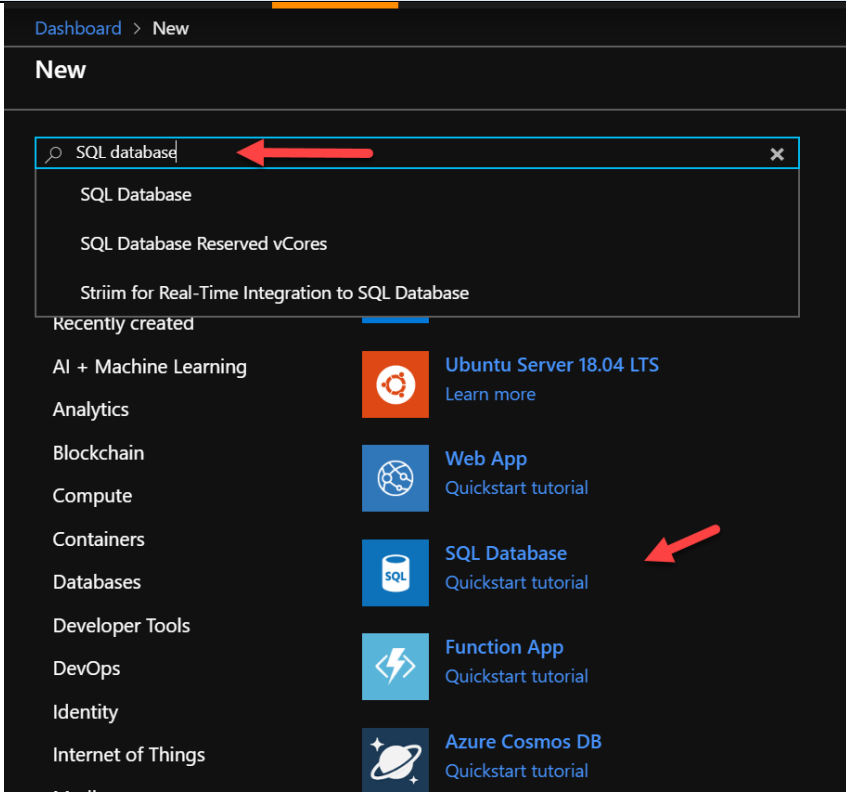
Scenario 3 – Create a Logical SQL Server and Sample Database

This hands-on lab will show you the steps to create a storage account. We will also use the option to create this storage account as a data lake.

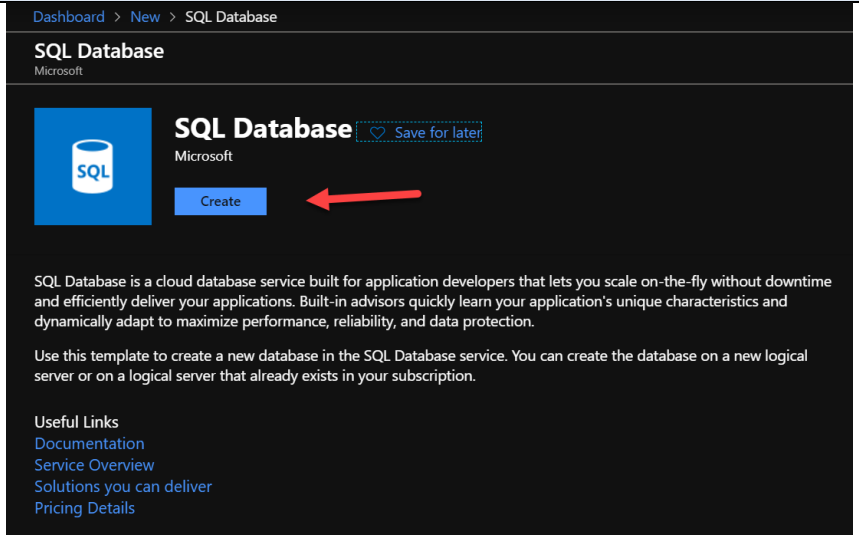
Part 3 – Create a Logical SQL Server and Sample Database

#	Commentary / Notes	Click Steps	Screenshots
1.	These initial steps will be the same for each section. Once you have created one server, the general process will be the same.	<ul style="list-style-type: none"> Open a web browser and navigate to your Azure Portal https://portal.azure.com You will be asked to sign on and authenticate 	
2.	Create a SQL Server	<ul style="list-style-type: none"> This setup is straight forward, once you are signed in, click on Create a Resource. Select SQL Server This will create a SQL Logical Server. Azure SQL Database and Azure SQL Data Warehouse will belong to the same logical server and show up together. During this process there is an option to create the Sample Adventure Works database which we will do. 	
3.		<ul style="list-style-type: none"> 	

Part 3 – Create a Logical SQL Server and Sample Database

#	Commentary / Notes	Click Steps	Screenshots
4.		<ul style="list-style-type: none"> There is also a listing of popular resources on the same screen, SQL Database is highlighted with the arrow. This can be selected also as a shortcut, or you can select the Quick Start tutorial. For this example, we will select from the drop down list. Type in SQL Database into the search box. Select SQL Database from the drop-down list. 	

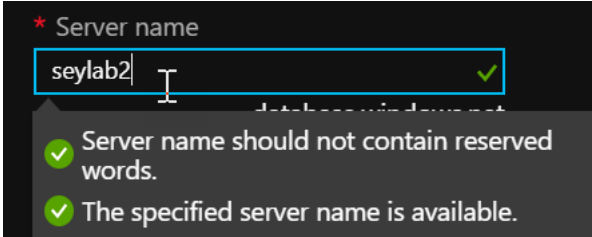
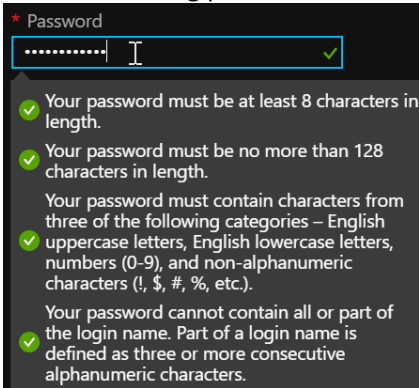
Part 3 – Create a Logical SQL Server and Sample Database

#	Commentary / Notes	Click Steps	Screenshots
5.		<ul style="list-style-type: none"> Select Create to start the process 	 <p>The screenshot shows the Azure portal interface for creating a new SQL Database. At the top, the breadcrumb navigation reads 'Dashboard > New > SQL Database'. Below this, the heading 'SQL Database' is followed by the Microsoft logo. To the left is a blue square icon with a white 'SQL' cylinder. To the right of the icon is a blue 'Create' button, which is highlighted by a red arrow. Above the 'Create' button is a 'Save for later' link with a heart icon. Below the icon and button, there is descriptive text about SQL Database as a cloud database service, followed by a paragraph explaining the template and a section of 'Useful Links' including Documentation, Service Overview, Solutions you can deliver, and Pricing Details.</p>

6.

- The blades will walk you through various basic and Advanced settings.
 - You can create just a SQL Logical Server using PowerShell, but we will use the Portal to create an Azure SQL Database
1. Select the **Subscription** to create this Server and Database to
 2. Select the **Resource Group** that you want to have this SQL Server associated with.
 3. This will create a SQL Relational Database, Provide a **Name**. You can use caps in this name
 4. IF we do not have a server to select, we can create a New on by selecting the **Create New** option. A new blade will appear to enter the information for the server. These steps are in the row below.

The screenshot shows the 'Create SQL Database' blade in the Azure Portal. The breadcrumb trail is 'Dashboard > New > SQL Database > Create SQL Database'. The page title is 'Create SQL Database' with the Microsoft logo. A warning banner states: 'Changing basic options may reset selections you have made. Please review all options prior to creating the database.' Below this are tabs for 'Basics', 'Additional settings', 'Tags', and 'Review + create'. The 'Basics' tab is active, showing instructions: '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](#)'. The 'project details' section asks to 'Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.' It contains two dropdowns: 'Subscription' (labeled 1) with 'CSA Subscription' selected, and 'Resource group' (labeled 2) with 'rgSWLDWLab2' selected. The 'database details' section asks to 'Enter required settings for this database, including picking a logical server and configuring the compute and storage resources'. It contains: a 'Database name' text box (labeled 3) with placeholder 'Enter database name'; a 'Server' dropdown (labeled 4) with 'Select a server' and a 'Create new' link; a radio button group for 'Want to use SQL elastic pool?' (labeled 5) with 'Yes' and 'No' (selected); and a message for 'Compute + storage' (labeled 6) stating 'Please select a server first.' with a 'Configure database' link. At the bottom, there is a 'Review + create' button (labeled 7), a 'Next: Additional settings >' button, and a 'Download a template for automation' link.

7. For the Location of the server, step 5, your subscription may not allow you to create the server in certain regions. You will get a red message. East US 2 is an open region for most subscriptions.
- Some subscriptions are trials, development etc.
- Make a note of the Admin login and password as you will need this for the SQL Server Management Studio login in a future lab.
- To create the **New Logical Server**, fill in the following information.
 - Enter a name for the server. You are limited to lowercase characters.
 
 - Enter a SQL Login for administrator. There is an option once setup to add in an Azure Active Directory Admin account. (LabAdministrator) for example.
 - Enter in a strong password
 
 - Validate the password
 - Select the Location. East US 2 is our selected data center.
 - Select the Allow Azure Services to access Server <https://docs.microsoft.com/en-us/azure/mysql/howto-connect-webapp>
 - Hit the Select button at the bottom of the blade.

Select

New server

* Server name 1
 .database.windows.net

* Server admin login 2

* Password 3

* Confirm password 4

* Location 5

☒ Allow Azure services to access server

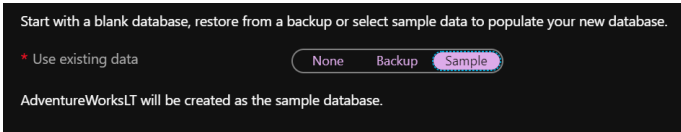
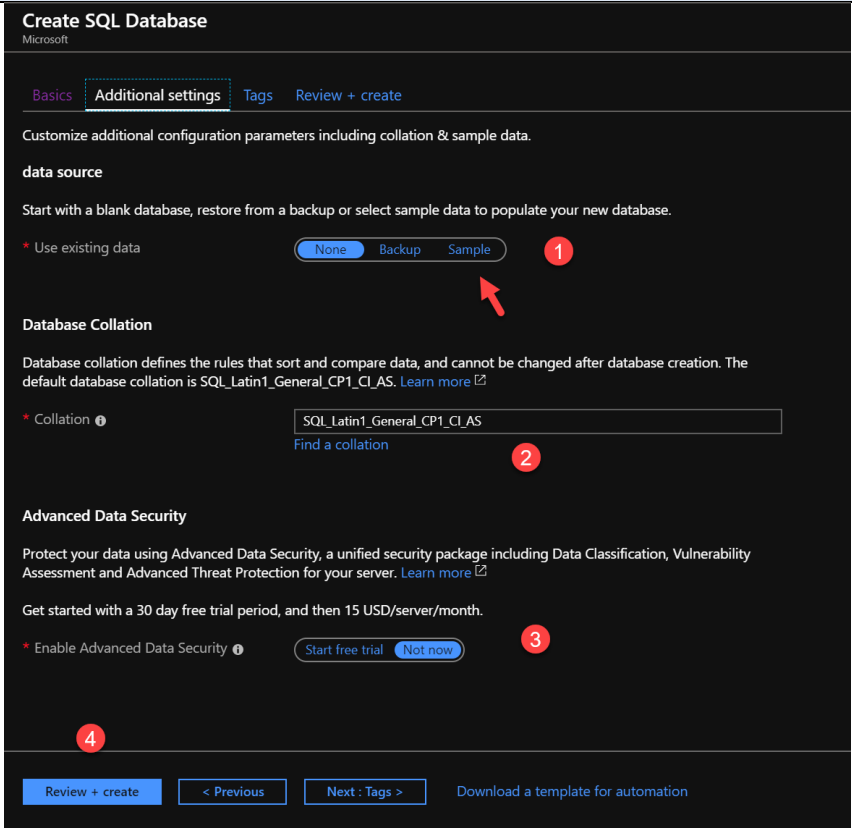
Part 3 – Create a Logical SQL Server and Sample Database

#	Commentary / Notes	Click Steps	Screenshots
8.		<ul style="list-style-type: none"> Continuing from step 7, 5. We do not want to enable elastic Pools for this database. Select No. 6. We will configure the database in the row below. Select Configure Database. 	
9.		<ul style="list-style-type: none"> Without going into a lot of detail, there are many option for creating a database. More information on these new levels and Tiers are available here, https://docs.microsoft.com/en-us/azure/sql-database/sql-database-single-database-get-started Remember this is for the SQL Database we are creating not the Server. For the Labs, and keeping costs down, we are going to select the Left Arrow for the Basic, Standard or Premium option. 	

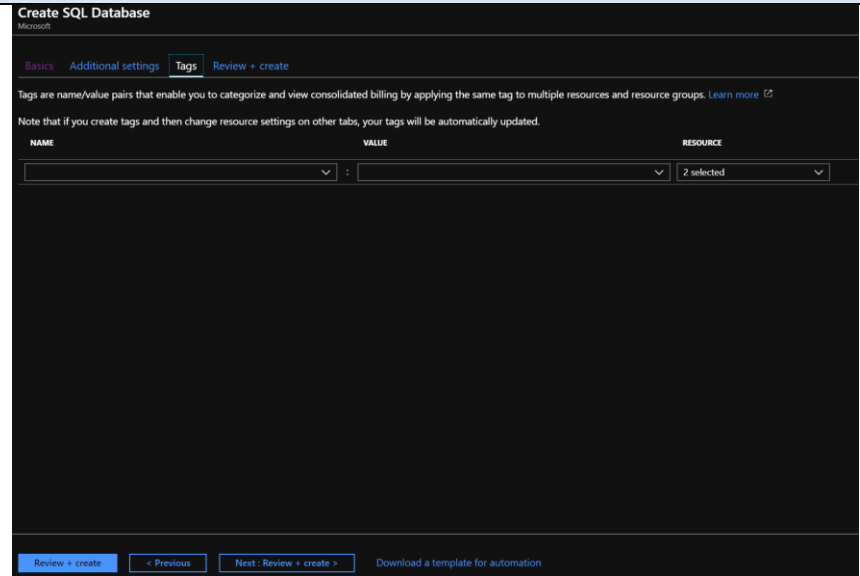
Part 3 – Create a Logical SQL Server and Sample Database

#	Commentary / Notes	Click Steps	Screenshots
10.		<ul style="list-style-type: none"> Select the Standard and keep the options. S Select Different options and see how the pricing changes, but go back to the options pictured on the right to keep the costs low for the Labs. Select Apply to return to the Create SQL Database Screen. 	
11.		<ul style="list-style-type: none"> Select the Next: Additional Settings screen. 	

Part 3 – Create a Logical SQL Server and Sample Database

#	Commentary / Notes	Click Steps	Screenshots
12.		<ul style="list-style-type: none"> Let's choose the following options <ol style="list-style-type: none"> The default starting database option is set to None. We can create a database from a backup or use the Sample Database. Select Sample. We will leave the other options as the default. Note what you can change. Select Next:Tags to go to the next screen. <p>The Sample should look like this.</p> 	

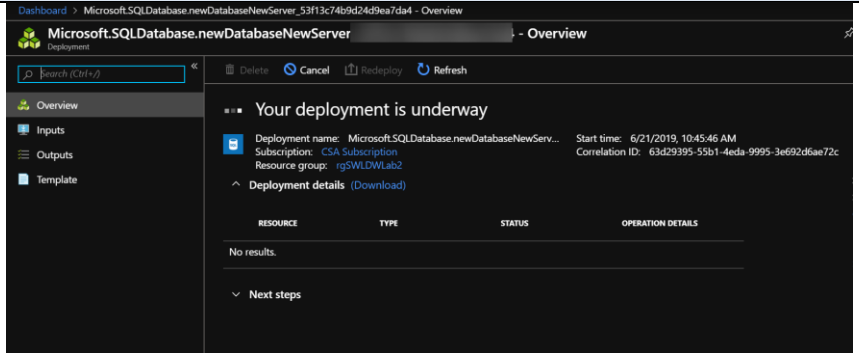
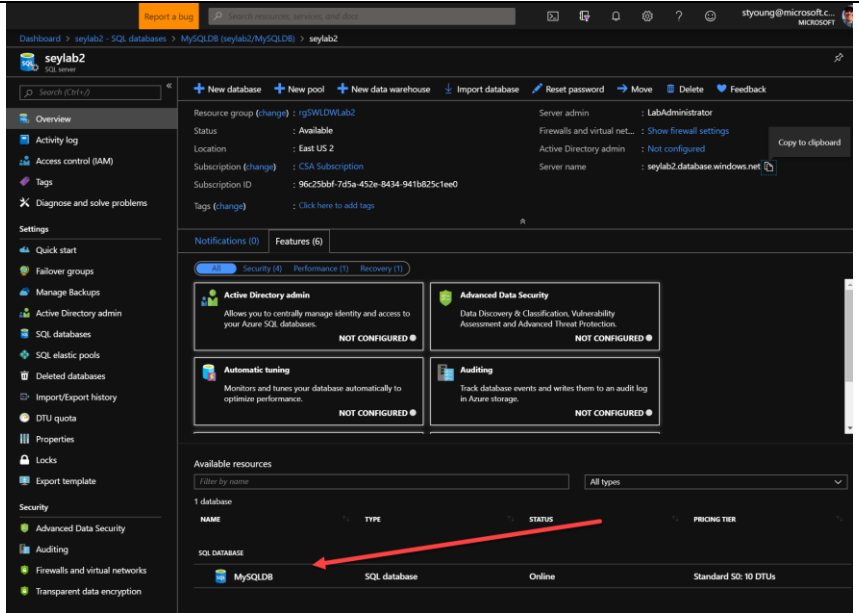
Part 3 – Create a Logical SQL Server and Sample Database

#	Commentary / Notes	Click Steps	Screenshots
13.		<ul style="list-style-type: none"> Tags can be used for organization and billing. There are drop down values that an admin can setup or you can type in tags directly into the fields. Select Review + Create to continue <p>“You apply tags to your Azure resources giving metadata to logically organize them into a taxonomy. Each tag consists of a name and a value pair. For example, you can apply the name "Environment" and the value "Production" to all the resources in production.”</p> <p>Source: Microsoft Docs</p> <ul style="list-style-type: none"> More information on tags: https://docs.microsoft.com/en-us/azure/azure-resource-manager/resource-group-using-tags Select Review and Create to validate your settings. 	

Part 3 – Create a Logical SQL Server and Sample Database

#	Commentary / Notes	Click Steps	Screenshots
14.		<ul style="list-style-type: none">Your setup should look like the following.	<div><div>Dashboard > New > SQL Database > Create SQL Database</div><div>Create SQL Database</div><div>Microsoft</div><div><div>Basics</div><div>Additional settings</div><div>Tags</div><div>Review + create</div></div><div><div>product details</div><div><div>SQL database</div><div>by Microsoft</div><div>Terms of use Privacy policy</div></div><div><div>Estimated cost per month</div><div>15.00 USD</div><div>View pricing details</div></div></div><div><div>terms</div><div>By clicking "Create", I (a) agree to the legal terms and privacy statement(s) associated with the Marketplace offering(s) listed above; (b) authorize Microsoft to bill my current payment method for the fees associated with the offering(s), with the same billing frequency as my Azure subscription; and (c) agree that Microsoft may share my contact, usage and transactional information with the provider(s) of the offering(s) for support, billing and other transactional activities. Microsoft does not provide rights for third-party offerings. For additional details see Azure Marketplace Terms.</div></div><div><div>Basics</div><div><div>Subscription</div><div>Resource group</div><div>Region</div><div>Database name</div><div>Server</div><div>Compute + storage</div></div><div><div>CSA Subscription</div><div>rgSWLDWLab2</div><div>East US 2</div><div>MySQLDB</div><div>(new) seylab2</div><div>Standard S0: 10 DTUs, 250 GB storage</div></div></div><div><div>Additional settings</div><div><div>Use existing data</div><div>Collation</div><div>Advanced Data Security</div></div><div><div>Sample</div><div>SQL_Latin1_General_CP1_CI_AS</div><div>Not now</div></div></div><div><div>Tags</div></div><div><div>Create</div><div>< Previous</div><div>Download a template for automation</div></div></div>

Part 3 – Create a Logical SQL Server and Sample Database

#	Commentary / Notes	Click Steps	Screenshots
15.		<ul style="list-style-type: none"> Your screen as you deploy the SQL Server. Once Complete, a Go To Resource button will be displayed, select this when displayed. 	
16.		<ul style="list-style-type: none"> When you go to the resource, the SQL Server you created, you will see the database you selected. Because in step 12, we selected sample, the database will have the AdventureWorksLT installed. I usually have a sample database installed so I can do some testing and setup. 	

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Configure

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General Purpose
Scalable compute and storage options

Up to 7,000 IOPS
5-10 ms latency

Hyperscale
On-demand scalable storage

Data up to 200,000 IOPS, 1-2 ms latency
Log up to 7,000 IOPS, 5-10ms latency

Business Critical
High transaction rate and high resiliency

Up to 200,000 IOPS
1-2 ms latency

Compute tier

Provisioned ✓
Compute resources are pre-allocated
Billed per hour based on vCores configured

Serverless
Compute resources are auto-scaled
Billed per second based on vCores used

Compute Generation ⓘ

Gen4
up to 24 vCores
up to 168 GB memory

Gen5 ✓
up to 80 vCores
up to 408 GB memory

Save money
Save up to 55% with a license you already own. Already have a SQL Server license? ⓘ
☐ Yes ☒ No

vCores How do vCores compare with DTUs? ⓘ
 2 vCores

Data max size ⓘ
 32 GB 1 TB

9.6 GB LOG SPACE ALLOCATED

Cost summary

Gen5 - General Purpose (GP_Gen5_2)
Cost per vCore (in USD) **187.62**
vCores selected **x 2**

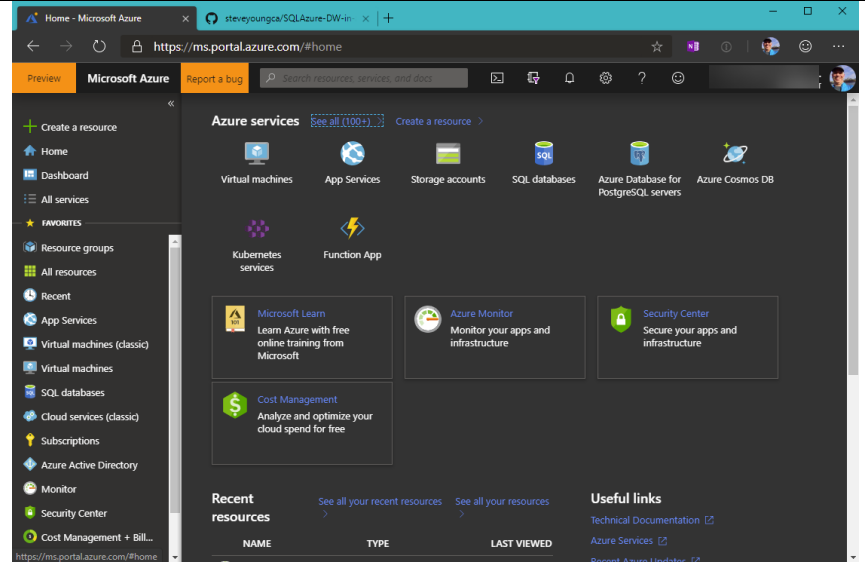
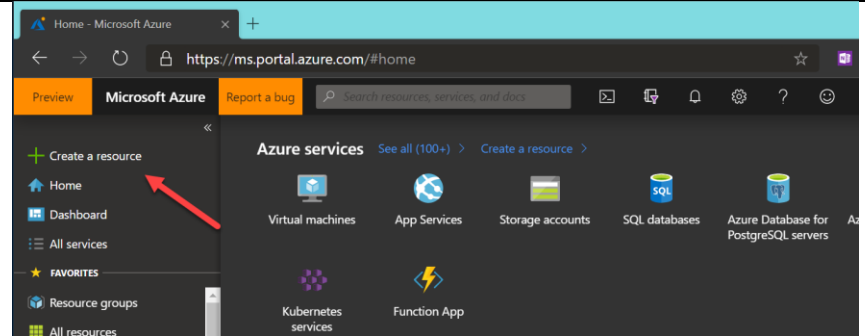
Cost per GB (in USD) **0.12**
Max storage selected (in GB) **x 41.6**

ESTIMATED COST / MONTH **380.03 usd**

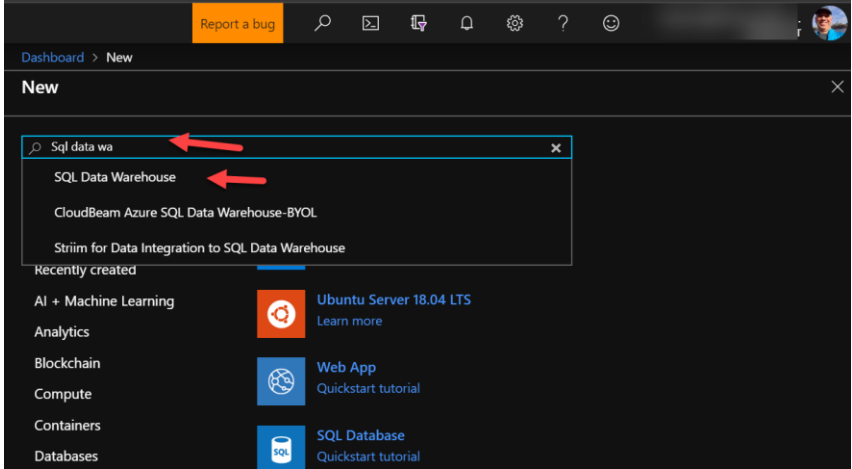
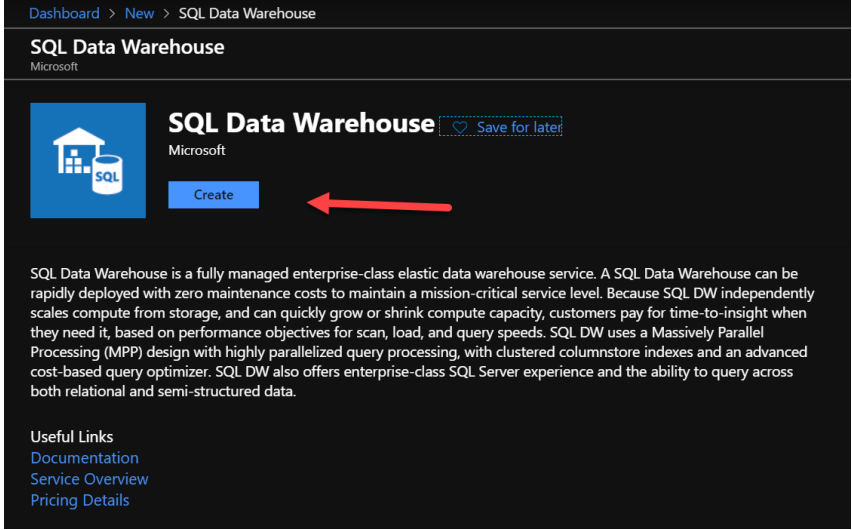
Scenario 4 – Create an Azure SQL Data Warehouse

This hands-on lab will show you the steps to create a storage account. We will also use the option to create this storage account as a data lake.

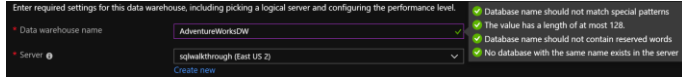
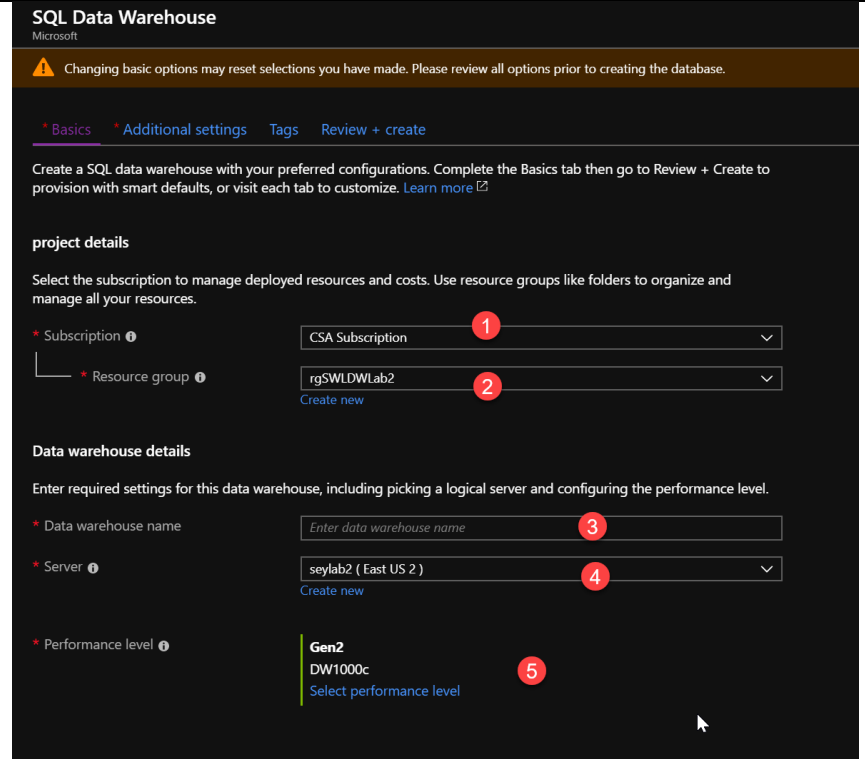
Part 4 – Create an Azure SQL Data Warehouse

#	Commentary / Notes	Click Steps	Screenshots
1.	These initial steps will be the same for each section. Once you have created one server, the general process will be the same.	<ul style="list-style-type: none"> Open a web browser and navigate to your Azure Portal https://portal.azure.com You will be asked to sign on and authenticate 	
2.	Create a Azure SQL Data Warehouse Server	<ul style="list-style-type: none"> This will use the SQL Logical Server created in the previous step. Azure SQL Database and Azure SQL Data Warehouse will belong to the same logical server and show up together. This setup is straight forward, once you are signed in, click on Create a Resource. 	

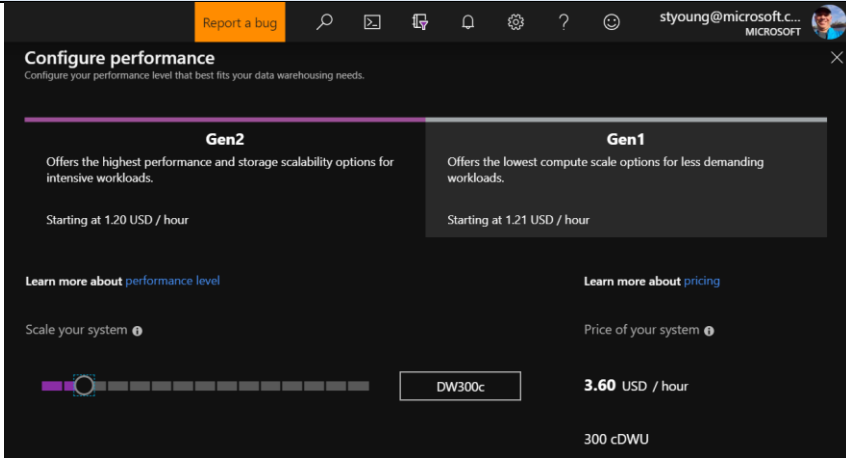
Part 4 – Create an Azure SQL Data Warehouse

#	Commentary / Notes	Click Steps	Screenshots
3.		<ul style="list-style-type: none"> For this example, we will select from the drop down list. Type in SQL Data Warehouse into the search box. Select SQL SWL Database from the drop-down list. 	
4.		<ul style="list-style-type: none"> Select Create to start the process 	

Part 4 – Create an Azure SQL Data Warehouse

#	Commentary / Notes	Click Steps	Screenshots
5.		<ul style="list-style-type: none"> This screen is very similar to the Azure SQL Database screens. <ol style="list-style-type: none"> Select the Subscription you wish to use Select the Resource Group we created in the previous section. Enter a Data Warehouse Name. Use AdventureWorksDW for the scripting labs.  <ol style="list-style-type: none"> Select the Server that we created in the previous step from the Drop down. Select the Select Performance Level link 	

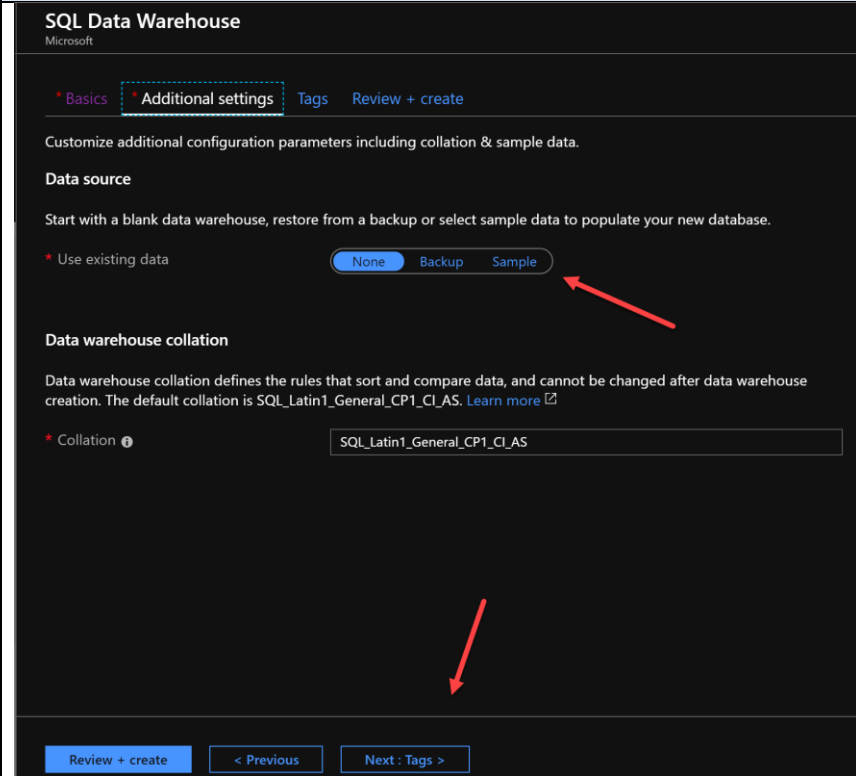
Part 4 – Create an Azure SQL Data Warehouse

#	Commentary / Notes	Click Steps	Screenshots
6.		<ul style="list-style-type: none"> The Select Performance Level will display. Select Gen2 Moving the Scale Your System slider will change the cost and performance. Select DW200 for the lab. Select the Apply at the bottom of the screen 	 <p>The screenshot shows the 'Configure performance' dialog in the Azure portal. The dialog is titled 'Configure performance' and has a subtitle 'Configure your performance level that best fits your data warehousing needs.' There are two main sections: 'Gen2' and 'Gen1'. The 'Gen2' section is highlighted with a purple bar and contains the text 'Offers the highest performance and storage scalability options for intensive workloads.' and 'Starting at 1.20 USD / hour'. The 'Gen1' section contains the text 'Offers the lowest compute scale options for less demanding workloads.' and 'Starting at 1.21 USD / hour'. Below these sections, there are links for 'Learn more about performance level' and 'Learn more about pricing'. At the bottom, there is a 'Scale your system' section with a slider and a button labeled 'DW300c'. The price of the system is shown as '3.60 USD / hour' for '300 cDWU'.</p>

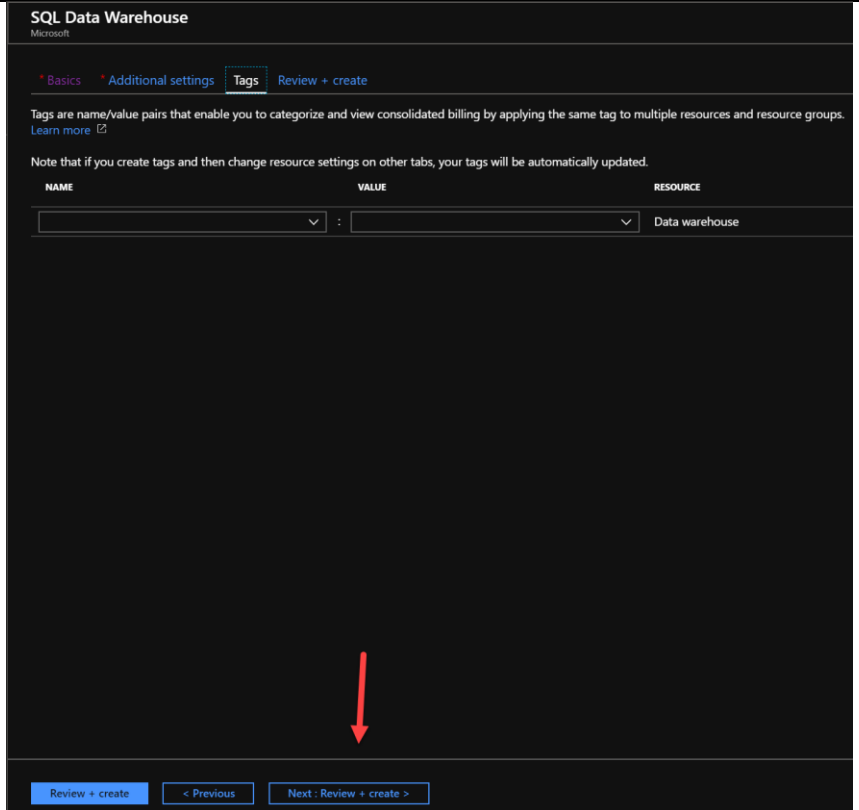
Part 4 – Create an Azure SQL Data Warehouse

#	Commentary / Notes	Click Steps	Screenshots
7.		<ul style="list-style-type: none"> Review your entries, and then select the Next: Additional Settings 	

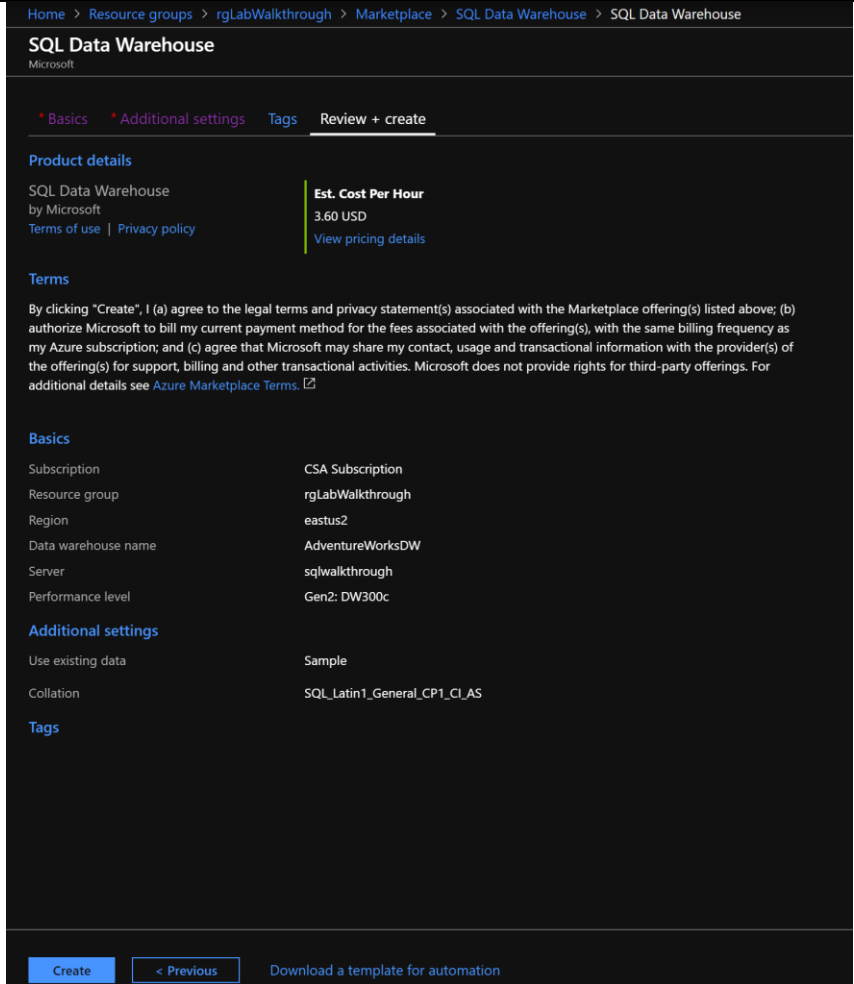
Part 4 – Create an Azure SQL Data Warehouse

#	Commentary / Notes	Click Steps	Screenshots
8.		<ul style="list-style-type: none"> These additional settings will allow you to restore a backup, or add a Sample option. Selecting Sample, as we need for our labs, will be the Adventure Works DW. Select Next: Tags to continue. 	 <p>The screenshot displays the 'SQL Data Warehouse' configuration interface. At the top, there are tabs for 'Basics', 'Additional settings' (which is selected and highlighted with a red dashed box), 'Tags', and 'Review + create'. Below the tabs, a message states: 'Customize additional configuration parameters including collation & sample data.' Under the 'Data source' section, it says 'Start with a blank data warehouse, restore from a backup or select sample data to populate your new database.' There are three radio buttons: 'None', 'Backup', and 'Sample'. A red arrow points to the 'Sample' button. Below this, the 'Data warehouse collation' section explains that collation defines sorting and comparison rules and cannot be changed after creation. The default collation is 'SQL_Latin1_General_CP1_CI_AS'. A text box shows this collation is selected. At the bottom, there are three buttons: 'Review + create', '< Previous', and 'Next : Tags >'. A red arrow points to the 'Next : Tags >' button.</p>

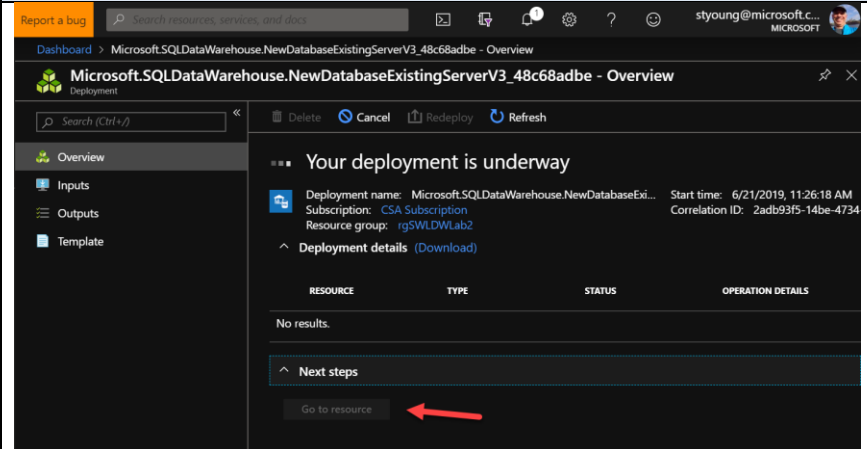
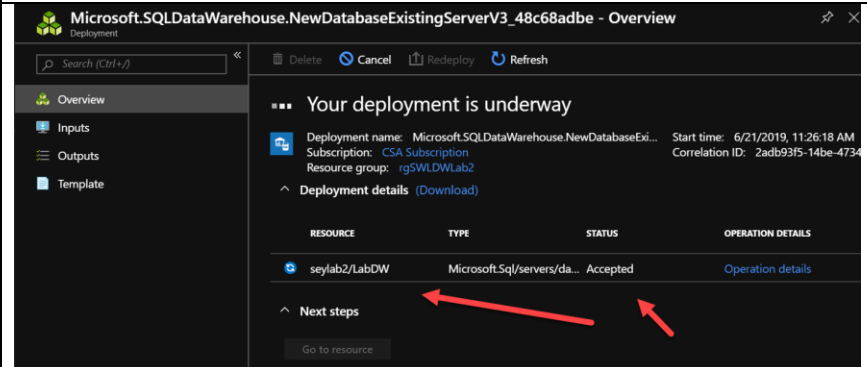
Part 4 – Create an Azure SQL Data Warehouse

#	Commentary / Notes	Click Steps	Screenshots
9.		<ul style="list-style-type: none"> Tags can be used for organization and billing. There are drop down values that an admin can setup or you can type in tags directly into the fields. Select Review + Create to continue <p>“You apply tags to your Azure resources giving metadata to logically organize them into a taxonomy. Each tag consists of a name and a value pair. For example, you can apply the name "Environment" and the value "Production" to all the resources in production.”</p> <p>Source: Microsoft Docs</p> <ul style="list-style-type: none"> More information on tags: https://docs.microsoft.com/en-us/azure/azure-resource-manager/resource-group-using-tags 	 <p>The screenshot displays the 'SQL Data Warehouse' configuration page in the Azure portal. The 'Tags' tab is selected, showing a table with columns for NAME, VALUE, and RESOURCE. A red arrow points to the 'Review + create' button at the bottom of the page.</p>

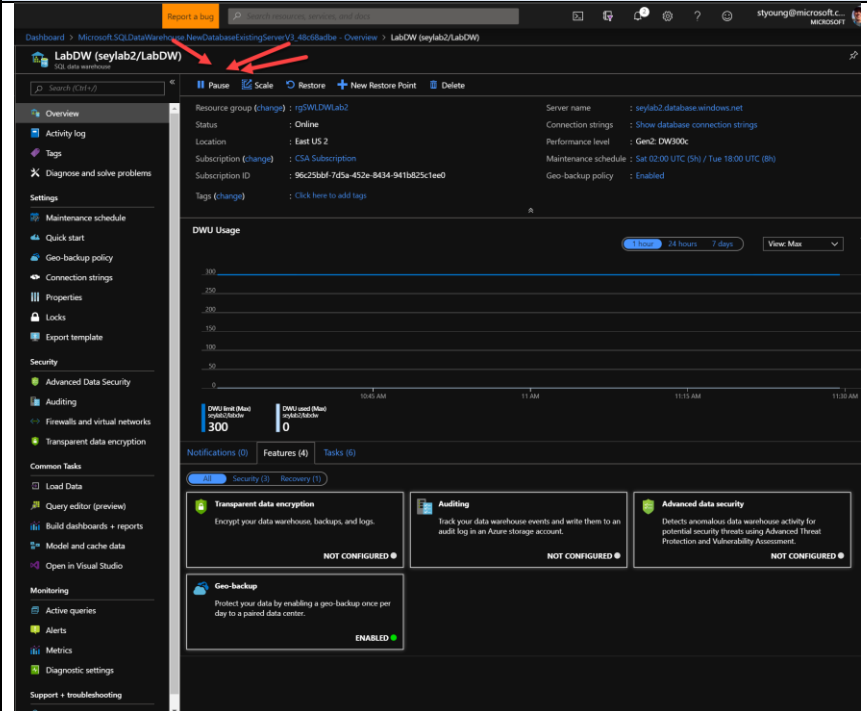
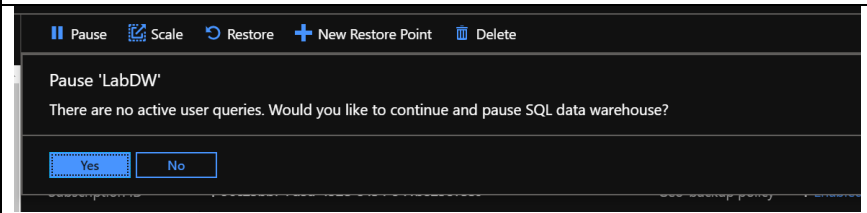
Part 4 – Create an Azure SQL Data Warehouse

#	Commentary / Notes	Click Steps	Screenshots
10.		<ul style="list-style-type: none"> Review the create screen and select Create. 	 <p>The screenshot shows the 'SQL Data Warehouse' page in the Azure Marketplace. The breadcrumb navigation at the top reads: Home > Resource groups > rgLabWalkthrough > Marketplace > SQL Data Warehouse > SQL Data Warehouse. The page title is 'SQL Data Warehouse' by Microsoft. There are four tabs: Basics, Additional settings, Tags, and Review + create (which is selected). Under 'Product details', it shows 'SQL Data Warehouse by Microsoft' with links for 'Terms of use' and 'Privacy policy'. The 'Est. Cost Per Hour' is listed as '3.60 USD' with a link to 'View pricing details'. The 'Terms' section contains a paragraph about legal terms and privacy statements. The 'Basics' section lists configuration details: Subscription (CSA Subscription), Resource group (rgLabWalkthrough), Region (eastus2), Data warehouse name (AdventureWorksDW), Server (sqlwalkthrough), and Performance level (Gen2: DW300c). The 'Additional settings' section shows 'Use existing data' (Sample) and 'Collation' (SQL_Latin1_General_CP1_CI_AS). The 'Tags' section is empty. At the bottom, there are three buttons: 'Create' (highlighted in blue), '< Previous', and 'Download a template for automation'.</p>

Part 4 – Create an Azure SQL Data Warehouse

#	Commentary / Notes	Click Steps	Screenshots
11.		<ul style="list-style-type: none"> Once the deployment is underway, this screen will update. 	 <p>The screenshot shows the Azure portal interface for a deployment. The title bar indicates the deployment name: Microsoft.SqlDataWarehouse.NewDatabaseExistingServerV3_48c68adbe - Overview. The main content area shows the deployment status as 'Your deployment is underway'. Below this, there is a table with columns: RESOURCE, TYPE, STATUS, and OPERATION DETAILS. The table is currently empty, showing 'No results.' A red arrow points to the 'Go to resource' button located below the 'Next steps' section.</p>
12.		<ul style="list-style-type: none"> Updates along the way Click on Go To Resource when complete 	 <p>The screenshot shows the Azure portal interface for a deployment. The title bar indicates the deployment name: Microsoft.SqlDataWarehouse.NewDatabaseExistingServerV3_48c68adbe - Overview. The main content area shows the deployment status as 'Your deployment is underway'. Below this, there is a table with columns: RESOURCE, TYPE, STATUS, and OPERATION DETAILS. The table now contains one row: RESOURCE: seylab2/LabDW, TYPE: Microsoft.Sql/servers/da..., STATUS: Accepted, and OPERATION DETAILS: Operation details. A red arrow points to the 'Go to resource' button located below the 'Next steps' section.</p>

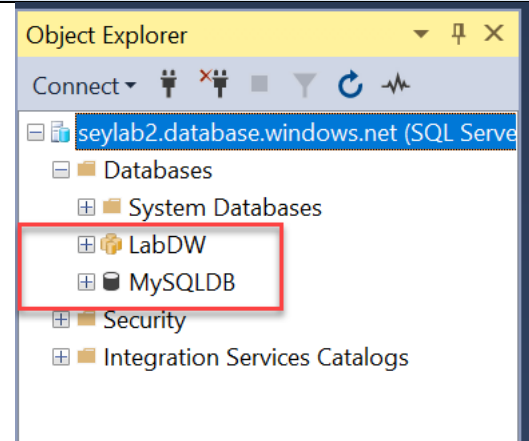
Part 4 – Create an Azure SQL Data Warehouse

#	Commentary / Notes	Click Steps	Screenshots
13.		<ul style="list-style-type: none"> The resource will be deployed and displayed. Always, Always remember to Pause if you do not need this database running. This will avoid the operational charges. You may still have storage charges depending on options. 	
14.		<ul style="list-style-type: none"> Selecting Pause will check if there are any active connections and provide you a YES to pause. 	

Part 4 – Create an Azure SQL Data Warehouse

#	Commentary / Notes	Click Steps	Screenshots															
15.		<ul style="list-style-type: none">Your dashboard Resource tile should look like this when complete.	<p>The screenshot shows the 'CSA Dashboard' for resource group 'rgSWLDWLab2'. It features a 'Resources' section with a table of resources:</p> <table><thead><tr><th>Resource Name</th><th>Type</th><th>Location</th></tr></thead><tbody><tr><td>LabDW (seylab2/LabDW)</td><td>SQL data warehouse</td><td>East US 2</td></tr><tr><td>seylab2</td><td>SQL server</td><td>East US 2</td></tr><tr><td>MySQLDB (seylab2/MySQLDB)</td><td>SQL database</td><td>East US 2</td></tr><tr><td>storlabstorage</td><td>Storage account</td><td>East US</td></tr></tbody></table> <p>Other visible elements include a 'Marketplace' tile, a clock showing '11:32 AM' on 'Friday, June 21, 2019', and a 'LabDW' tile at the bottom left.</p>	Resource Name	Type	Location	LabDW (seylab2/LabDW)	SQL data warehouse	East US 2	seylab2	SQL server	East US 2	MySQLDB (seylab2/MySQLDB)	SQL database	East US 2	storlabstorage	Storage account	East US
Resource Name	Type	Location																
LabDW (seylab2/LabDW)	SQL data warehouse	East US 2																
seylab2	SQL server	East US 2																
MySQLDB (seylab2/MySQLDB)	SQL database	East US 2																
storlabstorage	Storage account	East US																

Part 4 – Create an Azure SQL Data Warehouse

#	Commentary / Notes	Click Steps	Screenshots
16.		<ul style="list-style-type: none"> Your Database Server should have both databases displayed. 	
17.		<ul style="list-style-type: none"> This should be how your resource group appears after your Lab 01 is complete. 	