Student Name: **Weight: 3%**

Student ID: **Marks: /10**

Lab: Azure Storage Services

Lab Objectives

In this lab, you'll explore how to create and manage Azure storage services. You will:

1. Create a Storage Account.

2. Create a Storage Container.

3. Upload and view a storage blob.

4. Use Azure Storage Explorer.

5. Delete and recover a blob.

6. Set blob versioning.

7. Create a blob static website.

Lab Requirements

- Up to date browser

- Azure account

- A selection of picture and text files that you can store in Azure

- Webpages.zip file

    Note: You will be downloading some software, which you can download to your local
    machine or a virtual machine.

Instructions

1. Working individually, follow the procedure below.

2. Take screenshots, as described in the *Marking Criteria* section.

3. Create a document that includes all screenshots appropriately titled and described, and
   then upload it to Brightspace, as indicated by your instructor.

4. Be sure to include your name and student ID in the document.

Marking Criteria

Screenshots	Marks
Azure storage explorer, connected to an Azure account with multiple containers and blobs loaded	/5
Multiple versions of a file in a storage container	/3
Static website with the home page and one with the error page	/2
Total	/10

Note: This icon indicates when a screenshot is required.

Source: Flatiron.com, Freepik, Image: screenshot_983871

Procedure

Part 1: Create a Storage Account

All Azure storage begins with creating one or more storage accounts. The storage account is the top level container for a set of Azure data objects, and it determines:

- The pricing
- The supported services
- Redundancy options

All storage accounts must be created with a globally unique namespace within Azure so it can be accessed via HTTP or HTTPS.

☐ Navigate to the **Storage Account** page in the Azure portal and click the **Create** button.

☐ Enter your resource group information and globally unique storage account name.

☐ Select **Canada East** as your region, open the **Redundancy** menu, and then note the options available for redundancy in this region.

☐ Select **Canada Central** as your region, open the **Redundancy** menu, and then note the differences in the options.

   Why are there are more options available in the *Canada Central* region?

☐ Compare the structure and services available in the two Canadian regions at: Azure geographies: Canada (https://azure.microsoft.com/en-us/explore/global-infrastructure/geographies/#geographies).

☐ Select **Premium** as the *Performance* option.

   You see an extra option called *Account Type*.

☐ Examine the redundancy options available with the different account types.

   Note: Read more about account types at: Azure Storage redundancy (https://learn.microsoft.com/en-us/azure/storage/common/storage-redundancy).

☐ Select **Canada Central**, **Standard** and **LRS** as your storage options.

☐ Click **Next** to go to the *Advanced* page.

Create a storage account ⋯

Basics   Advanced   Networking   Data protection   Encryption   Tags   Review

tables. The cost of your storage account depends on the usage and the options you choose below. Learn more about Azure storage accounts

Project details

Select the subscription in which to create the new storage account. Choose a new or existing resource group to organize and manage your storage account together with other resources.

Subscription *   Tootechi

Resource group *   (New) StorageTest1
                        Create new

Instance details

If you need to create a legacy storage account type, please click here.

Storage account name ⓘ *   storagetest7983

Region ⓘ *   (Canada) Canada Central
                            Deploy to an edge zone

Performance ⓘ *   ⦿ **Standard:** Recommended for most scenarios (general-purpose v2 account)

                       ◯ **Premium:** Recommended for scenarios that require low latency.

Redundancy ⓘ *   Locally-redundant storage (LRS)

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☐ On the **Advanced** page, scroll down to the **Blob Storage** section.

This is where you can select the tier for the data storage. The hot tier has the highest costs but the fastest access.

☐ Leave the setting at **Hot** and click **Next** to get to the *Networking* page.

Here you can set the access and routing for your storage account. *Network Routing* determines how your clients are routed to the storage. The default selection is through the Microsoft global network, so your clients access the storage at the nearest point-of-presence (POP).

☐ Leave the default setting and click **Next** to go to the *Data Protection* page.

☐ Note the options that allow you to protect your data. The *Soft Delete* selections determine how long Azure will maintain deleted data so it can be recovered. You can also use versioning to track and maintain previous versions of a blob.

☐ Leave the defaults and click **Next** to go to the *Encryption* page.

Server-side encryption keeps your data secure at rest and you can select how to manage your keys. With Microsoft Managed Keys (MMK), storage and management of keys are handled by Microsoft.

☐ Leave the default settings, and then review and create your storage account.

☐ When the deployment is complete, go to the main page for the resource and examine the settings.

Part 2: Create a Storage Container

☐ Go to the main page for your storage account and note the selections under the **Data Storage** settings in the blade menu.

☐ To store blobs, you need one or more containers within the storage account. Select **Containers** from the blade menu and then click **+Container** on the top menu.

☐ Give the container a name and select **Blob** access.

New container   ✕

Name *
blobsb   ✓

Public access level ⓘ
Blob (anonymous read access for blobs only)   ⌄

⚠ Blobs within the container can be read by anonymous request,
but container data is not available. Anonymous clients cannot
enumerate the blobs within the container.

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☐ Create the container.

Part 3: Upload and View a Storage Blob

☐ From your containers page, select the container you created.

☐ Click the **Upload** button on the top menu and select your picture.

☐ Open the **Advanced** menu and review the blob types.

Note: Read more about blob types at: [Introduction to Azure blob storage](https://learn.microsoft.com/en-us/azure/storage/blobs/storage-blobs-introduction) (https://learn.microsoft.com/en-us/azure/storage/blobs/storage-blobs-introduction).

☐ Upload your file.

☐ From your container page, select the file you uploaded and copy the URL.

☐ Enter the URL into a browser. You should see your picture.

☐ Note the details of the URL name.

☐ Create several containers and practice uploading files.

Part 4: Use Azure Storage Explorer

Azure has created an app called Storage Explorer that helps you manage your blobs easily.

☐ Go to the Azure Storage Explorer website (https://azure.microsoft.com/en-us/products/storage/storage-explorer/) and download and install the Storage Explorer app to your local computer or virtual machine.

☐ Open the app and sign in with your Azure account.

When you are connected to the account, you should see your storage accounts, containers and files.
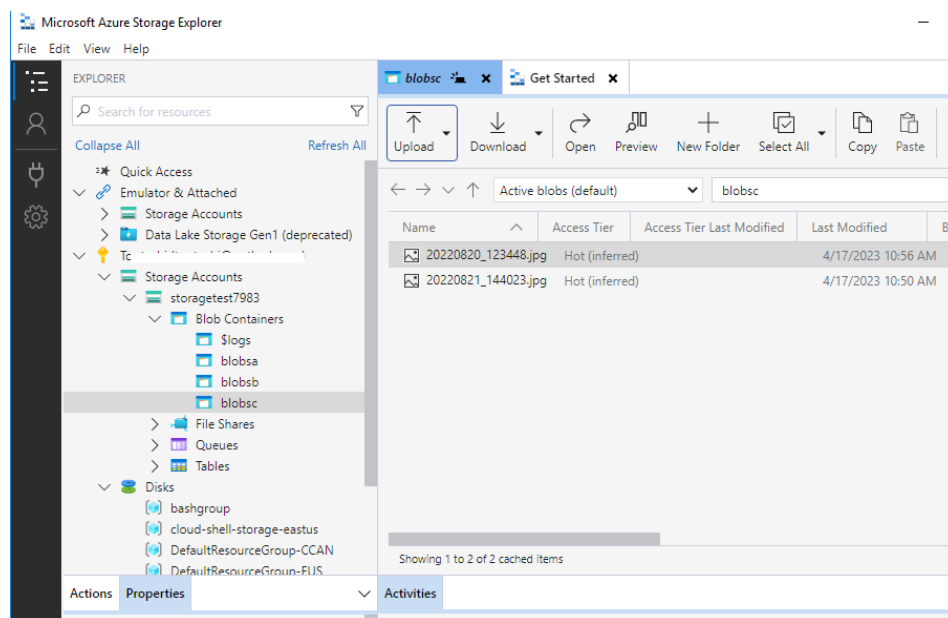
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☐ Complete the tutorial: Manage Azure Blob Storage resources with Storage Explorer (https://learn.microsoft.com/en-us/azure/vs-azure-tools-storage-explorer-blobs).

Part 5: Delete and Restore a Storage Container

☐ Return to the Azure Portal and go to the main page of one of your storage containers.

☐ Select one of the blobs and click the **Delete** button.

☐ Read the information, and then delete the blob.

In the container you created previously in this lab, you left the default soft delete setting of seven days. This means that Azure won't permanently delete that file for seven days.

Note: By default, you can't see the deleted blobs in the containers page.

☐ In the upper right-hand corner of the containers main page, toggle the **Show Deleted Blobs** switch.

☐ You should now see the blob you deleted and see that its status is deleted. You can also see the number of days left before it is permanently deleted (retention days).

Name	Status	Retention (days)	Modified	Access tier	Archive statu
☐ 📄 20220820_123448.jpg	✅ Current version	-	4/17/2023, 11:56:31 ...	Hot (Inferred)	
☐ 📄 20220821_144023.jpg	⛔ Deleted	6	4/17/2023, 11:50:46 ...	Hot (Inferred)	

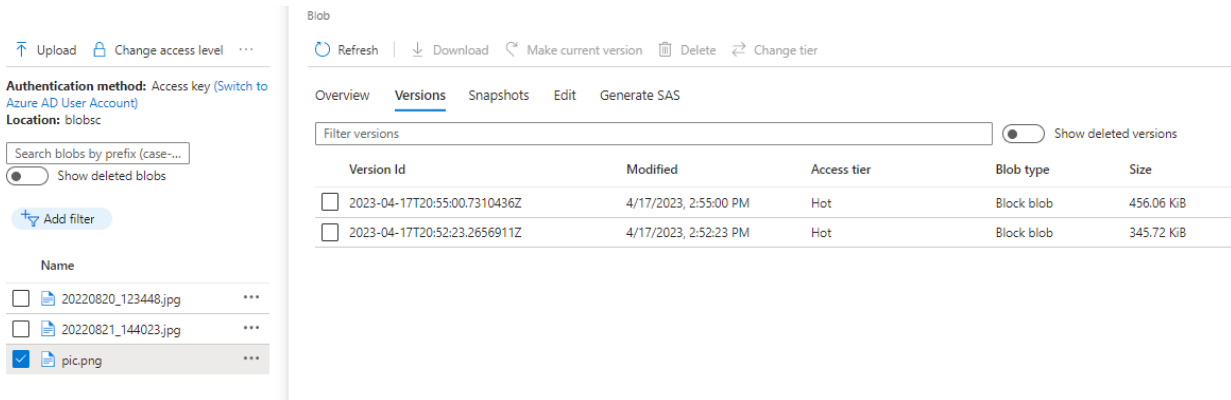© 2023, Microsoft Azure. Used with permission from Microsoft.

☐ To restore the deleted file, select the file and click the **…** (three dots) menu.

☐ Select **Undelete** to restore the file.

Section 6: Blob Versioning

To keep copies of a file as it changes, turn on blob versioning.

☐ Navigate to the main page for your storage account and select **Data Protection** from the blade menu.

☐ Enable **Versioning and Blob Change Feed** for the storage account.

☐ Save the configuration change.

☐ Go to one of your storage containers and upload a picture from your local computer.

☐ Edit the picture on your local computer, save it and upload it again. Select the **Overwrite** option.

☐ Repeat this one more time.

☐ From the container's main page, select the file and click **Versions** from the top menu.

You can see the two versions of the file that have been overwritten.

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☐ To restore the original version of the file, select the first one you uploaded, and then select **Make Current Version**.

☐ You now have three versions of the file but the first version is the active one.

☐ Navigate to your storage account and select **Containers** from the blade menu.

Because you enabled the Change Feed you can now also see the feed.

Part 7: Create a Static Blob Website

Previously in this lab, you saw that each blob could be accessed from a unique URL when the blobs or container access was set to anonymous. Now, you'll create a static website in your storage account to host basic web pages.

☐ Unzip the **webpages.zip** file to your local computer or virtual machine.

☐ Look through the html code to see the headers and links.

☐ From your storage account's main page, select **Static Website** from the blade menu.

☐ Toggle the **Static Website** button. You'll see the index and error page entry boxes.

☐ Type **home.htm** as the index document name and **error.htm** as the error document.

☐ Go back to the **Containers** page.

You should have a new container called **$Web**.

☐ Upload the web pages to the container.

There should be four files:

- Home.htm
- Public.htm
- Students.htm
- Error.htm

☐ Return to the *Static Website* page, copy the primary endpoint URL and paste it into a browser.

You should see the home.htm page. You should also be able to navigate through the page links.

Connie's Class Intranet Web Page

Welcome to Connie's class Web site. This site contains both public and private information. Information in the Management Web page is private and only students have access to it.

Click here for Public information about Connie's Class

Click here for the Connie's Class Studentst Web page

☐ At the end of the URL in your browser, type **/otherpage.htm**.

Because this page does not exist, the error page should appear.