

Lab 10

CST8912_011

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Submitted to :

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Evaluate the security and data privacy implications of various cloud solutions

Introduction & Purpose

Introduction:

Azure Logic Apps is the PaaS (Platform as a Service) offering from Microsoft Azure. Logic Apps helps us to define workflows and build powerful solutions with the help of connectors, triggers, and actions.

Azure Logic Apps is a cloud platform where you can create and run automated workflows with little to no code. By using the visual designer and selecting from pre-built operations, you can quickly build a workflow that integrates and manages your apps, data, services, and systems.

Few examples where logic apps can be used:

1. Schedule and send email notifications using Office 365 when a specific event happens, for example, a new file is uploaded.
2. Route and process customer orders across on-premises systems and cloud services.
3. Move uploaded files from an SFTP or FTP server to Azure Storage.
4. Monitor tweets, analyze the sentiment, and create alerts or tasks for items that need review.

Purpose:

Task 1: how you can alert users based on the data present/updated in your SQL Database.

Task 2: how to alert users when file gets uploaded/deleted in blob storage

Task3 : Monitoring workflows in azure monitor

Task 4: Clean resources and record all the steps with screenshots in the lab report.

Problem statement: I have a storage account in Azure . In the container we are storing various data files . The files are stored in tree hierarchy of folders (Parent-> year -> month -> day).Each day new files get uploaded to the specific day folder . If the file for that specific day is not uploaded I would like to drop email notification.

Steps covered in the lab

Task 1:

1. Create logic app (choose consumption based plan) and sql server & database instance in Canada central region

The screenshot displays the Azure portal interface for an Azure SQL server. The top navigation bar includes the Microsoft Azure logo, a search bar, and the Copilot icon. The breadcrumb trail indicates the path: Home > Microsoft.SqlServer.createServer_c2ba5e999eaf48b492e8c20244b8f20 | Overview >.

The main content area is titled 'serverforlab' with a sub-label 'SQL server'. A search bar is present below the title. The left sidebar contains a navigation menu with the following items: Overview (selected), Activity log, Access control (IAM), Tags, Quick start, Diagnose and solve problems, Resource visualizer, Settings, Data management, Security, Intelligent performance, Monitoring, Automation, and Help.

The 'Overview' section is expanded, showing a table of 'Essentials' with the following details:

Property	Value
Resource group	(move) CST8912
Status	Available
Location	Canada Central
Subscription	(move) Azure for Students
Subscription ID	22f60889-0ad3-47d4-9d41...
Server admin	yuntiandu
Networking	(Show networking settings)
Microsoft Entra admin	(Not configured)
Server name	serverforlab.database.wind...
Tags	(edit) Add tags

Below the 'Essentials' table, there are 'Notifications (0)' and 'Features (6)'. The 'Features' section is expanded, showing a list of features: All (selected), Security (4), Performance (1), and Recovery (1). A specific feature, 'Microsoft Entra admin', is highlighted with a description: 'Allows you to centrally manage identity and access to your Azure SQL databases.' and a status of 'NOT CONFIGURED'.

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

testdb (serverforlab/testdb)

SQL database

Search

CopyRestoreExportSet server firewall

Overview

Activity log

Tags

Diagnose and solve problems

Query editor (preview)

Mirror database in Fabric (preview)

Resource visualizer

Settings

Data management

Integrations

Power Platform

Security

Intelligent performance

Monitoring

Automation

Help

Essentials

Resource group (... : CST8912)

Status : Online

Location : Canada Central

Subscription (... : Azure for Students)

Subscription ID : 22f60889-0ad3-47d4-9d41-7d026e7ff990

Server name : serverforlab.database.windows.net

Connection strings : Show database connection strings

Pricing tier : General Purpose - Serverless: Gen5, 1 vCore

Auto-pause delay : 1 hour

Earliest restore p... : No restore point available

Tags (edit) : Add tags

Getting startedMonitoringPropertiesFeatures

Start working with your database

Connect to your database and start working with data with a few simple steps. Learn more.

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

Home > Logic apps >

Create Logic App

Select a hosting option

These hosting plans determine the resource allocation, scaling and pricing for your app.
[Learn more about Logic App hosting options](#)

	Consumption	Standard		
Hosting plans	<div>Multi-tenant</div> <div>Fully managed and easy to get started.</div>	<div>Workflow Service Plan</div> <div>Single tenant runtime with in-app connectors and scaling features.</div>	<div>App Service Environment V3</div> <div>Single tenant runtime with full isolation and scale out feature across App Service plans.</div>	<div>Hybrid</div> <div>Local processing and multi-cloud support with Kubernetes Event-Driven Autoscaling.</div>
	Compute	Shared	Dedicated	Dedicated
	Networking	Public cloud	VNET Integration	VNET Integration

Select

Microsoft Azure Search resources, services, and docs (G+/) Copilot

Home > Logic apps > Create Logic App >

Create Logic App (Multi-tenant)

Basics Tags Review + create

Create a logic app, which lets you group workflows as a logical unit for easier management, deployment and sharing of resources. Workflows let you connect your business-critical apps and services with Azure Logic Apps, automating your workflows without writing a single line of code.

Project Details

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

Subscription * Azure for Students

Resource Group * CST8912 [Create new](#)

Instance Details

Logic App name * la01

Region * Canada Central

Enable log analytics * ☐ Yes ☒ No

[Review + create](#) < Previous Next : Tags >

2. Create alerts table in sql database using query editor

Microsoft Azure Search resources, services, and docs (G+/) Copilot

Home > testdb (serverforlab/testdb)

testdb (serverforlab/testdb) | Query editor (preview)

SQL database

Search Login + New Query ↑ Open query Feedback

- Overview
- Activity log
- Tags
- Diagnose and solve problems
- Query editor (preview)**
- Mirror database in Fabric (preview)
- Resource visualizer
- Settings
- Data management
- Integrations
- Power Platform
- Security
- Intelligent performance
- Monitoring
- Automation
- Help

Query 1

Run Cancel query Save query Export data as

```

1 CREATE TABLE Alerts
2 (
3   ID INT NOT NULL PRIMARY KEY IDENTITY (1,1),
4   ToAddress VARCHAR(50) NOT NULL,
5   MailSubject VARCHAR(50) NOT NULL,
6   MailBody VARCHAR(50) NOT NULL,
7   EmailSent BIT NOT NULL
8 );

```

Results Messages

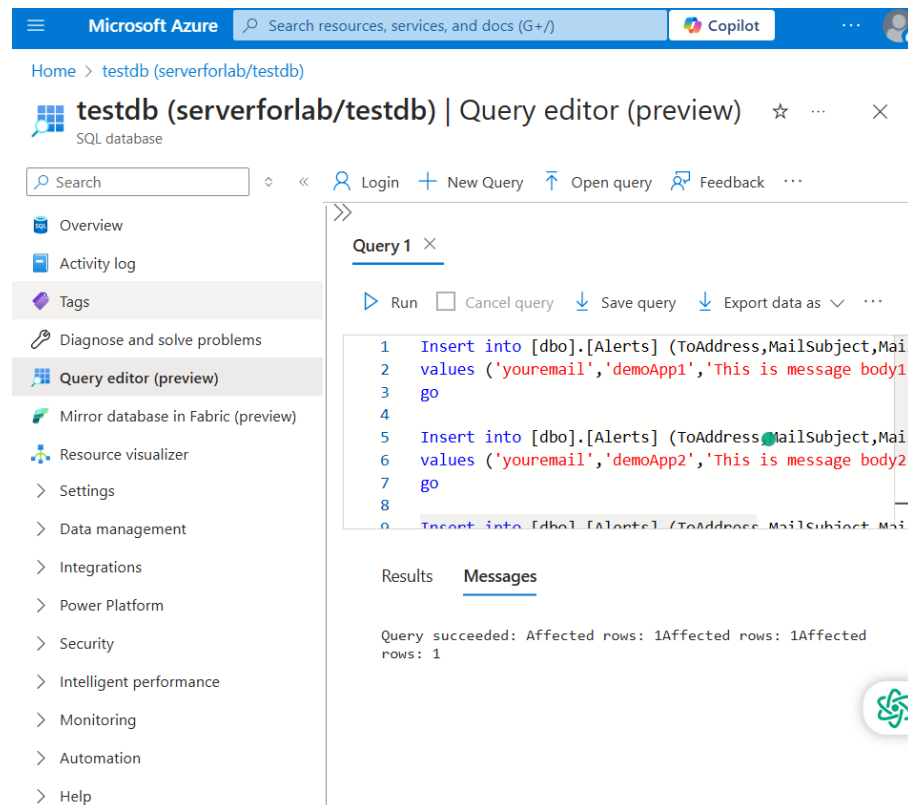
Query succeeded: Affected rows: 0

3. Insert records into the Alerts table using the query

```
Insert into [dbo].[Alerts] (ToAddress,MailSubject,MailBody,EmailSent)
values ('youremail','demoApp1','This is message body1',0)
go
```

```
Insert into [dbo].[Alerts] (ToAddress,MailSubject,MailBody,EmailSent)
values ('youremail','demoApp2','This is message body2',0)
go
```

```
Insert into [dbo].[Alerts] (ToAddress,MailSubject,MailBody,EmailSent)
values ('youremail','demoApp3','This is message body3',0)
Go
```



4. Select rows from db.Alerts table to verify the records inserted in the table.

Microsoft Azure | Search resources, services, and docs (G+/)

testdb (serverforlab/testdb) | Query editor (preview)

Query 1

```
1 SELECT * FROM Alerts;
2 GO
3
```

Results

ID	ToAddress	MailSubject	MailBody	EmailSent
1	youremail	demoApp1	This is message body1	False
2	youremail	demoApp2	This is message body2	False
3	youremail	demoApp3	This is message body3	False

5. Go to logic app created in lab

6. Use recurrence trigger and define values for interval (3) and frequency (minute)

Microsoft Azure | Search resources, services, and docs (G+/)

Home > la01

la01 | Logic app designer

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Development Tools

Logic app designer

Logic app code view

Logic app templates

Run history

Versions

API connections

Quick start guides

Settings

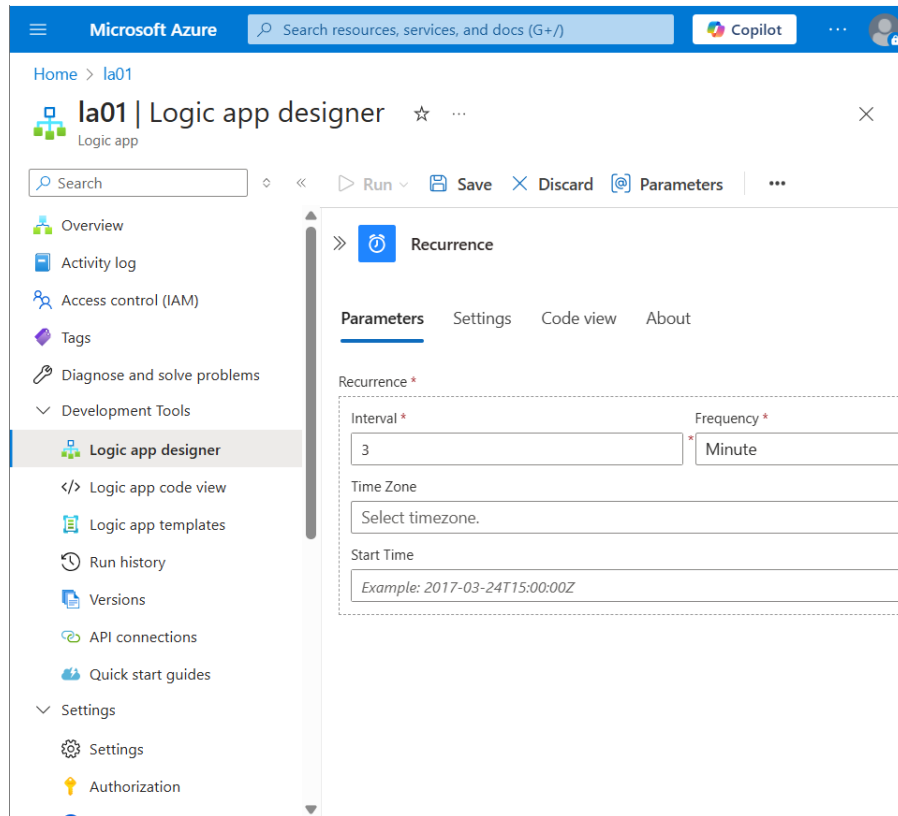
Settings

Authorization

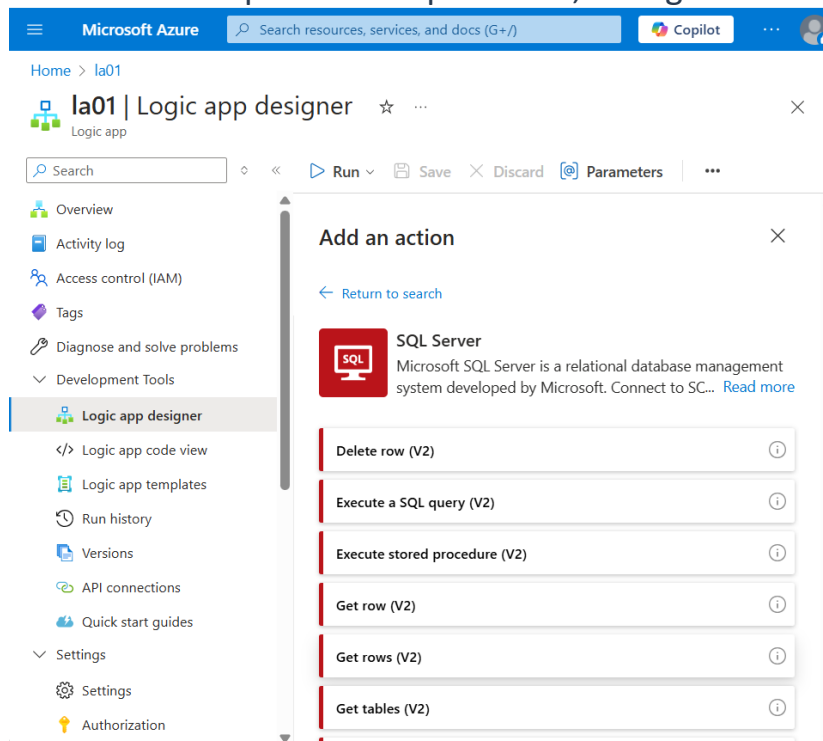
Triggers

Triggers tell your app when to start running. Each workflow needs at least one trigger.

Add a trigger



7. Add new step named “sql server” , use “get rows” as action.



8. Enter the credentials (In background, connectors are getting created).
Enter your server name (FQDN), database name, username and

password.

Microsoft Azure Search resources, services, and docs (G+/) Copilot

Home > la01

la01 | Logic app designer ☆ ...

Search Run Save Discard Parameters ...

Overview
Activity log
Access control (IAM)
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Resource visualizer
Development Tools
Logic app designer
Logic app code view
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API connections
Quick start guides
Settings
Monitoring

Create connection

Create a new connection

Connection Name * sqldbconnection

Authentication Type * SQL Server Authentication

SQL Server Name * ① serverforlab.database.windows.net

SQL Database Name * ① testdb

Username * ① yuntiandu

Password * ①

Gateway ① Subscription
Subscription
Gateway

Create new

Microsoft Azure Search resources, services, and docs (G+/) Copilot

Home > la01

la01 | Logic app designer ☆ ...

Search Run Save Discard Parameters ...

Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Resource visualizer
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Logic app code view
Logic app templates
Run history
Versions
API connections
Quick start guides
Settings
Monitoring

Get rows (V2)

Parameters Settings Code view Testing About

Server Name *
Use connection settings (serverforlab.database.windows.net)

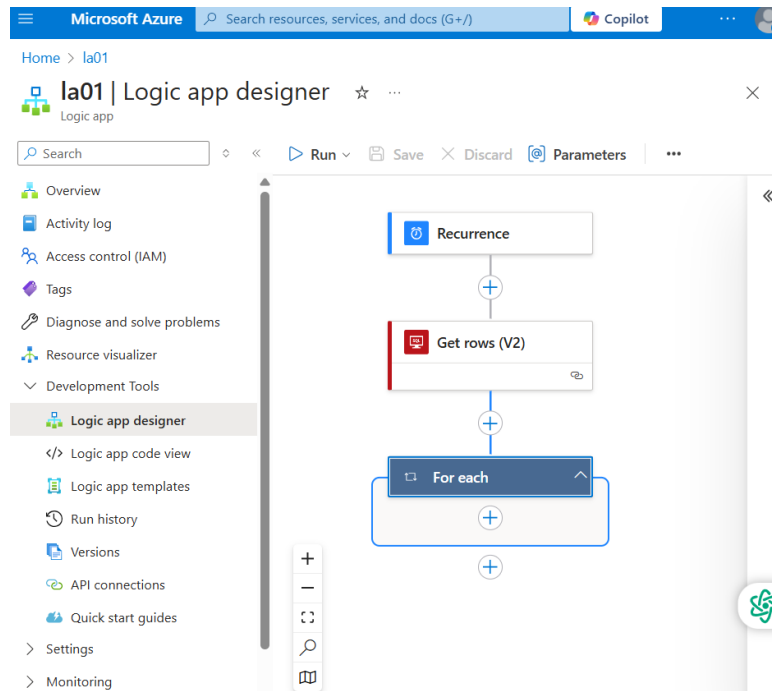
Database Name *
Use connection settings (testdb)

Table Name *
Alerts

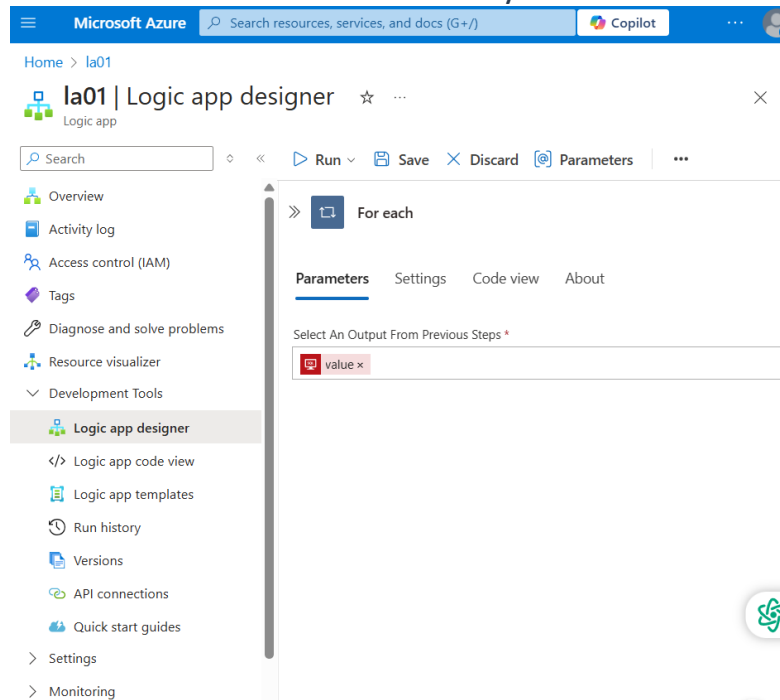
Advanced parameters
Showing 0 of 6

Connected to sqldbconnection. Change connection

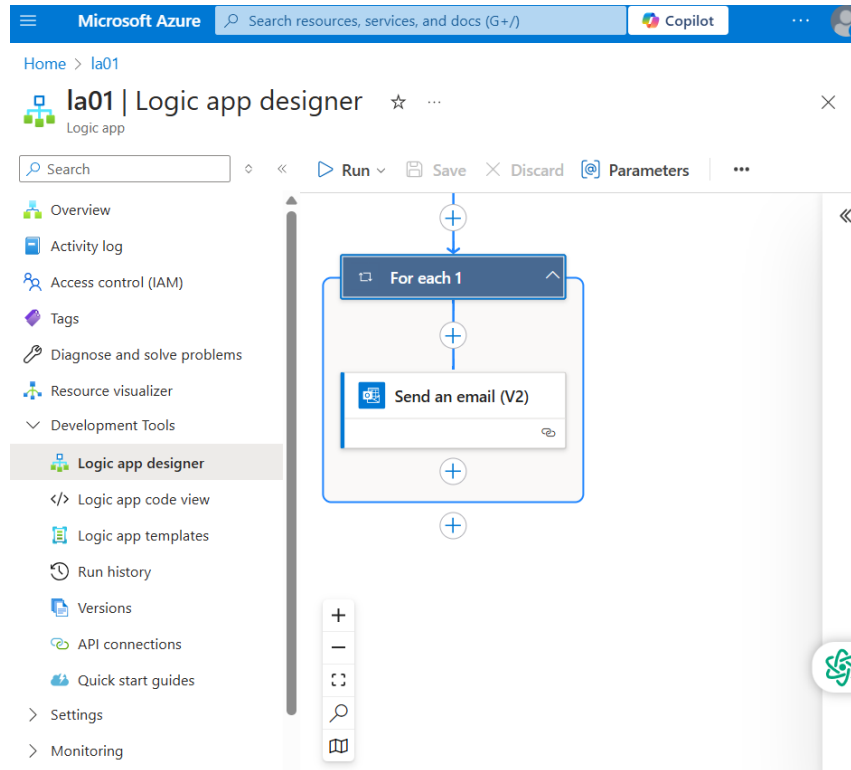
9. Add a new step 'For-Each' in the Logic App.



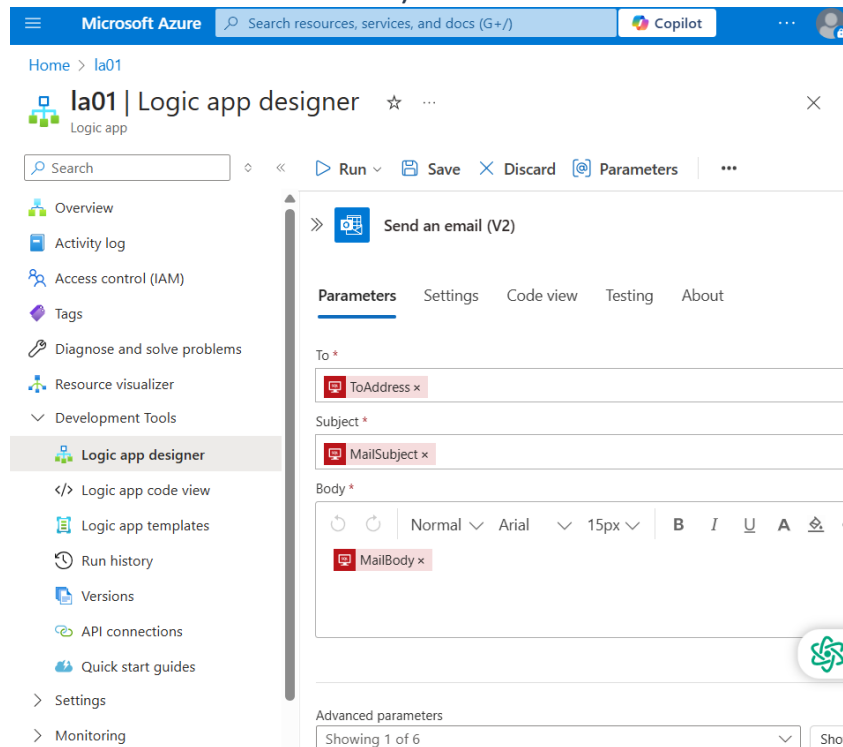
10. Select 'Value' Parameter from Dynamic Content



11. Now add a 'Send mail' Action.



12. Enter the details from Dynamic content (refer to values from columns defined in the alerts table)



13. Save the Logic App.

14. Wait for sometime and you will receive an email.

Task 2: Design a logic to trigger an email notification in your outlook when the file to a specific folder does not gets uploaded by specific time.

1. Create a storage account in Canada central region

The screenshot shows the 'Create a storage account' wizard in the Microsoft Azure portal. The wizard is titled 'Create a storage account' and includes a close button (X). Below the title, there is a note: 'and manage your storage account together with other resources.' The wizard is divided into several sections:

- Subscription ***: Azure for Students
- Resource group ***: CST8912 (with a 'Create new' link)
- Instance details**
 - Storage account name ***: labtest8912
 - Region ***: (Canada) Canada Central (with a 'Deploy to an Azure Extended Zone' link)
 - Primary service**: Azure Blob Storage or Azure Data Lake Storage Gen 2
 - Performance ***: ☒ Standard: Recommended for most scenarios (general-purpose v2 account). ☐ Premium: Recommended for scenarios that require low latency.
 - Redundancy ***: Locally-redundant storage (LRS)

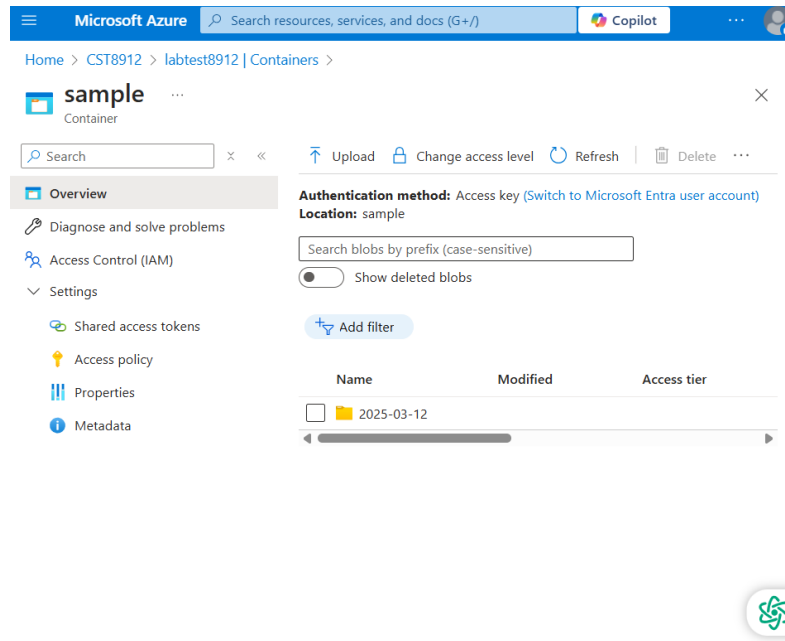
At the bottom, there are buttons for 'Previous', 'Next', and 'Review + create'. A 'Give feedback' link is also present.

2. Create a sample container and within that container create folder in format of “yyyy-mm-dd”

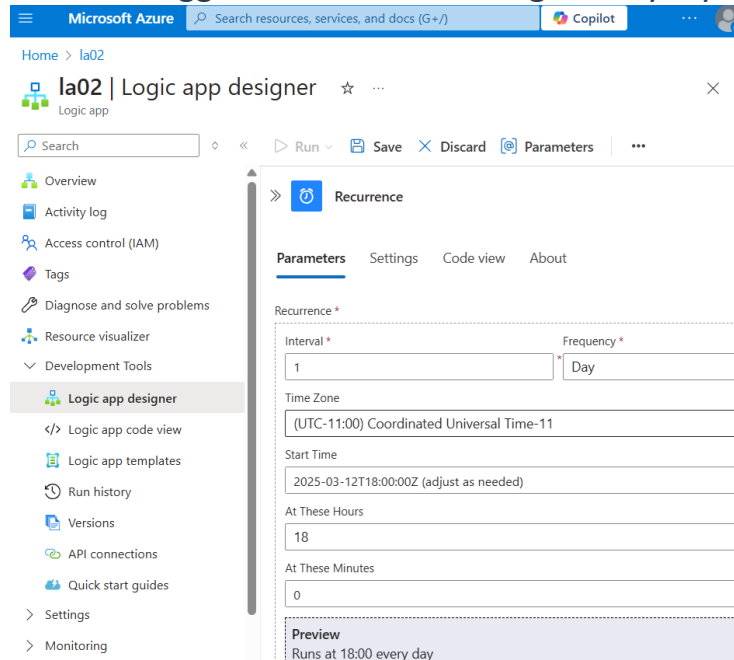
The screenshot shows the 'Containers' page in the Microsoft Azure portal for the storage account 'labtest8912'. The page has a search bar and a 'Show deleted containers' toggle. Below this is a table listing containers:

Name	Last modified	Anonymous access l..
<input type="checkbox"/> \$logs	3/12/2025, 7:37:33 PM	Private
<input type="checkbox"/> sample	3/12/2025, 7:43:51 PM	Private

On the left side, there is a navigation pane with the following items: Overview, Activity log, Tags, Diagnose and solve problems, Access Control (IAM), Data migration, Events, Storage browser, Storage Mover, Partner solutions, Resource visualizer, Data storage, Containers (selected), File shares, Queues, and Tables.



3. Create a trigger to schedule this logic everyday at 6pm



- Use list blob to check every file in folder to check the file in the folder, you can use the expression like `concat('/',utcNow('yyyy/MM/dd'))`, if the file in the path does not exists, list blob will fail.

Microsoft Azure

Search resources, services, and docs (G+/I)

Copilot

...

Home > la02

la02 | Logic app designer

Logic app

Search

Run Save Discard Parameters

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Resource visualizer

Development Tools

Logic app designer

Logic app code view

Logic app templates

Run history

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Monitoring

Initialize variable

Parameters Settings Code view About

Name *

FolderPath

Type *

String

Value

concat(...)

Microsoft Azure

Search resources, services, and docs (G+/I)

Copilot

...

Home > la02

la02 | Logic app designer

Logic app

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Create connection

Lists blobs (V2)

Create a new connection

Connection Name *

blobconnection

Authentication Type *

Access Key

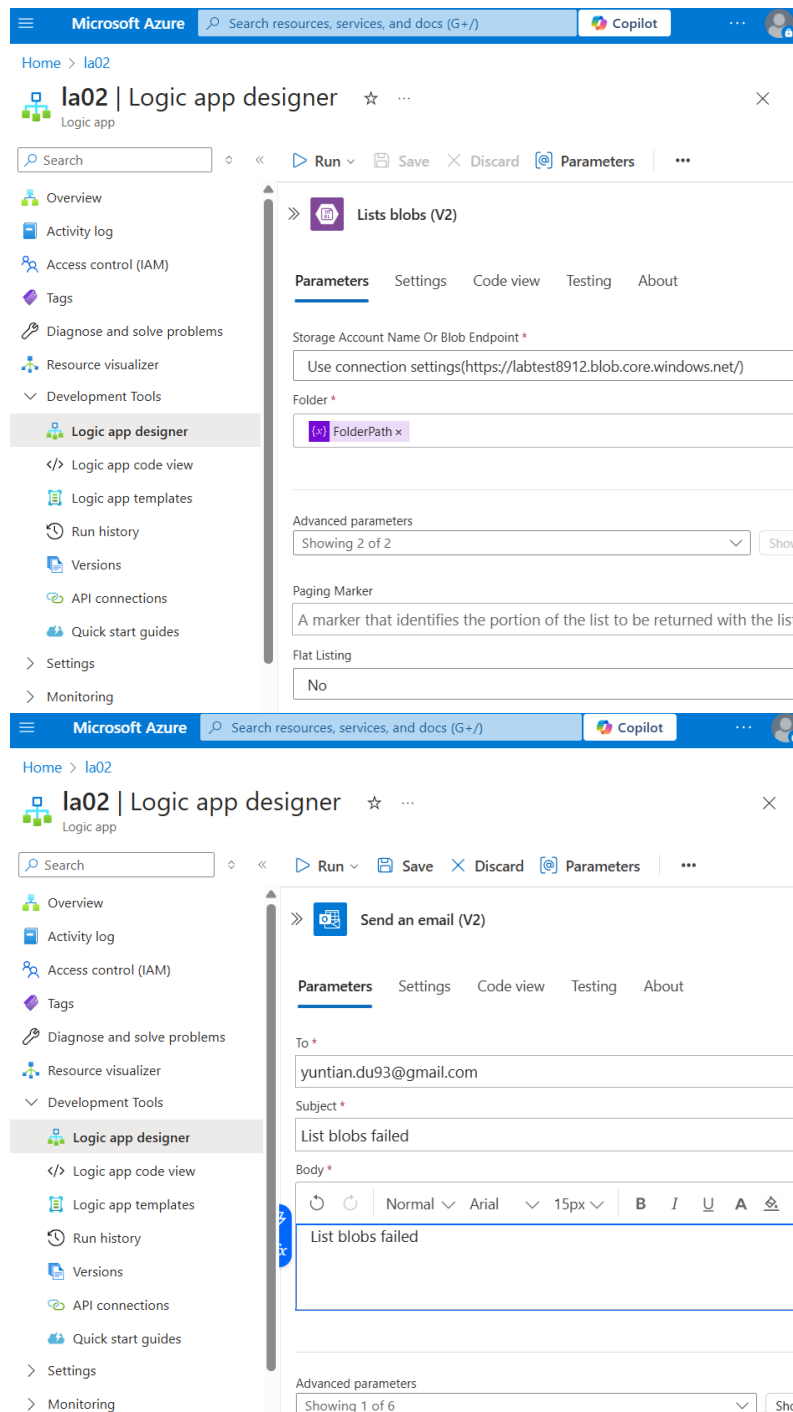
Azure Storage Account Name Or Blob Endpoint *

https://labtest8912.blob.core.windows.net/

Azure Storage Account Access Key

.....

Create new



5. Send an email to your email address in outlook if list blob fails.

The image displays two screenshots of the Microsoft Azure Logic App Designer interface, showing the configuration and workflow design of a Logic App named 'la02'.

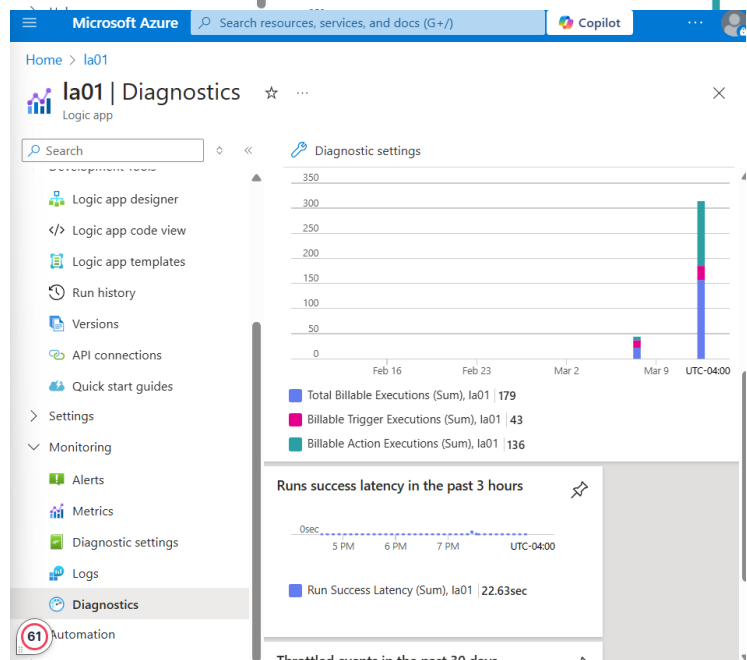
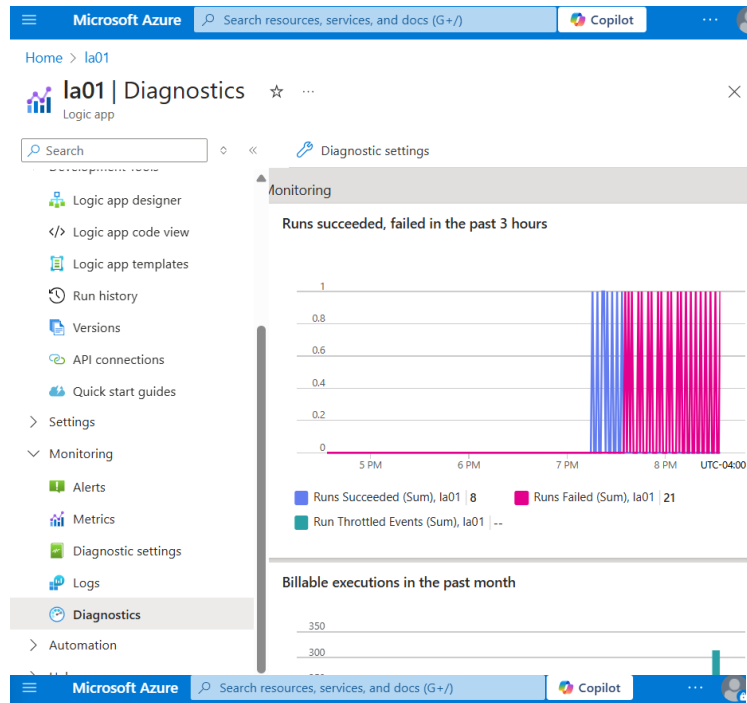
Top Screenshot: Settings for 'Send an email (V2)'

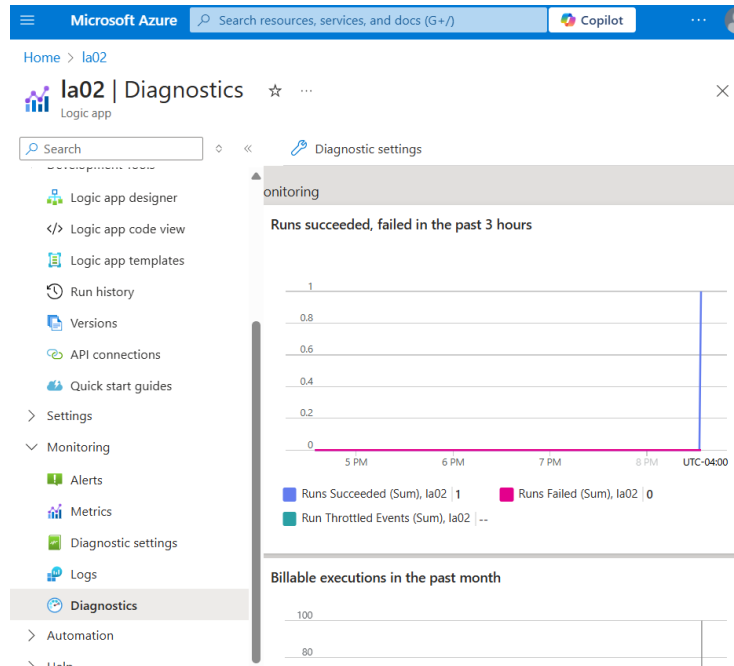
- Navigation:** Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Resource visualizer, Development Tools, Logic app designer (selected), Logic app code view, Logic app templates, Run history, Versions, API connections, Quick start guides, Settings, Monitoring.
- Search:** Search resources, services, and docs (G+)
- Actions:** Run, Save, Discard, Parameters.
- Settings:**
 - Select actions:**
 - Lists blobs (V2)
 - Is successful (checked)
 - Has timed out
 - Is skipped
 - Has failed (checked)
 - Security:**
 - Secure inputs: Off
 - Secure outputs: Off

Bottom Screenshot: Workflow Design

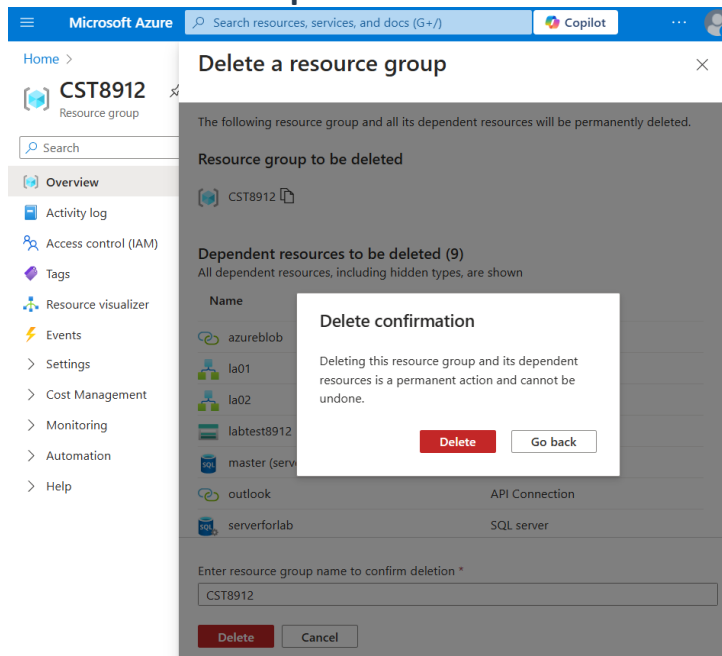
- Navigation:** Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Resource visualizer, Development Tools, Logic app designer (selected), Logic app code view, Logic app templates, Run history, Versions, API connections, Quick start guides, Settings, Monitoring.
- Search:** Search resources, services, and docs (G+)
- Actions:** Run, Save, Discard, Parameters.
- Workflow:**
 - Recurrence
 - Initialize variable
 - Lists blobs (V2)
 - Send an email (V2)
- Notification:** Successfully saved workflow 'la02'

Task 3: Monitor workflows in Azure Logic Apps





Task4: Clean all the resources created during this lab and record all the steps with screenshots in the lab report.



References
None.