

# Hands-On Lab: Azure Serverless Architecture with Functions, Logic Apps, and Cosmos DB

Staff Code: SD2990

Name: Huynh Huu Co

## Task 1. Setup Azure Cosmos DB


The screenshot shows the Azure Data Explorer interface for the 'serverless-azure-lab-productdb' account. The left sidebar displays the 'Data Explorer' section with a tree view of the database structure. The 'Products' collection is expanded, showing 'Items', 'Settings', 'Stored Procedures', 'User Defined Functions', and 'Triggers'. The 'Items' sub-collection is selected, and the 'Partition Keys (preview)' tab is active. The 'Current partition key' is set to '/productId'. A 'Change' button is visible at the bottom.

Insert sample data: `{ "productId": "p100", "productName": "Widget", "quantity": 20 }`

The screenshot shows the Azure Cosmos DB Data Explorer interface for the 'serverless-azure-lab-productdb' account. The left sidebar displays the 'Data Explorer' section with a tree view of the database structure. The 'Products' collection is expanded, showing 'Items', 'Settings', 'Stored Procedures', 'User Defined Functions', and 'Triggers'. The 'Items' sub-collection is selected, and the 'Partition Keys (preview)' tab is active. The 'Current partition key' is set to '/productId'. A sample data item is shown in the right pane, with fields: productId, productName, quantity, id, \_rid, \_self, \_etag, \_attachments, and \_ts.

## Task 2. Develop Azure Function

- Build and publish Azure Function to Azure:

 **Function App (Windows)**  
Create new

Microsoft account  
co.huynhhuu@outlook.com

Name

sd2990-azure-serverless-lab

Subscription name

Azure subscription 1

Resource group

serverless-azure-lab-rg (Southeast Asia)

New...

Plan Type

Consumption

Location

Southeast Asia

Azure Storage

sd2990storageaccount (Southeast Asia)

New...

Application Insights

None

New...

Export...

Create

Cancel

Dashboard >

**Function App** ✨ ...

Default Directory

+ Create

⚙️ Manage view

🔄 Refresh

📄 Export to CSV

🔗 Open query

🏷️ Assign tags

▶ Start

↺ Restart

☐ Stop

🗑️ Delete

Filter for any field...

Subscription equals all

Resource group equals all ✕



Location equals all ✕

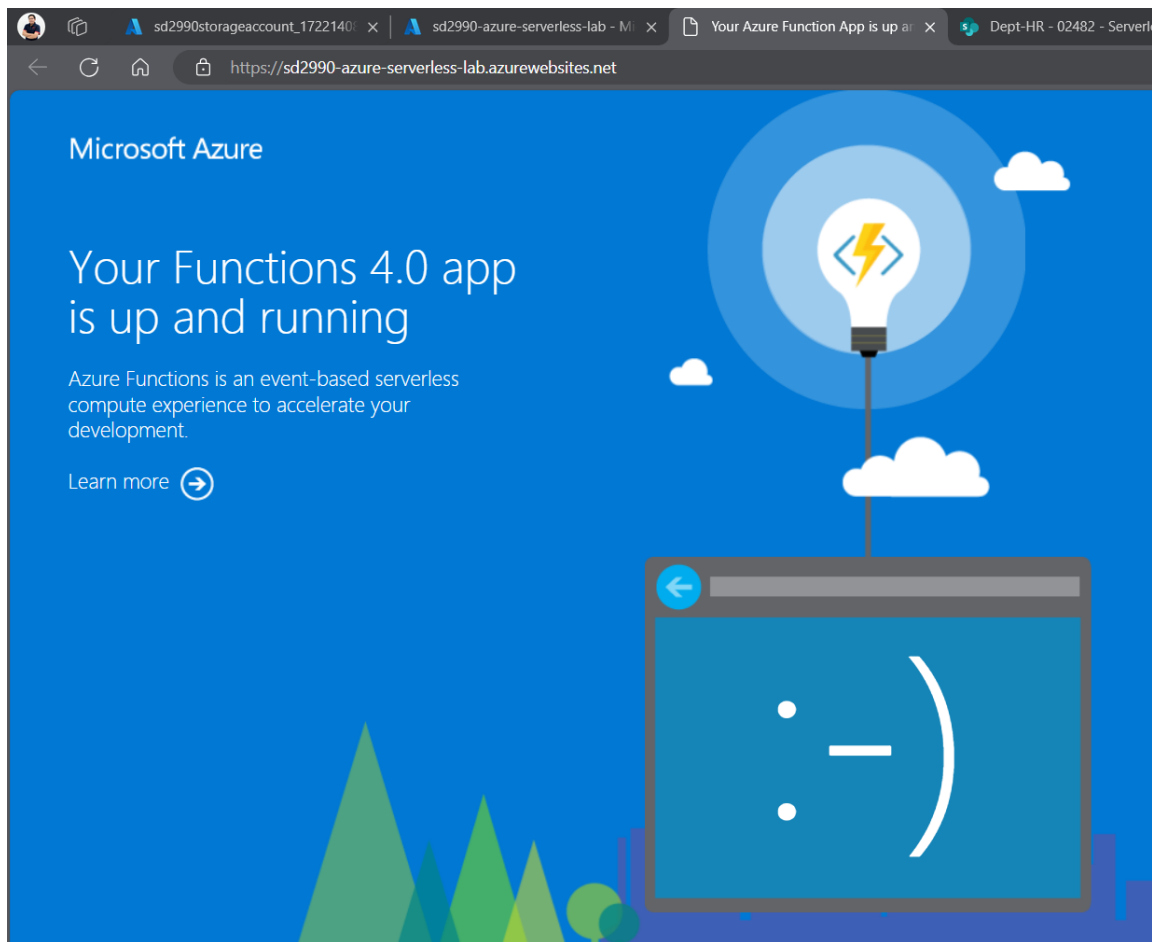
+ Add filter

Showing 1 to 1 of 1 records.

No grouping

List view

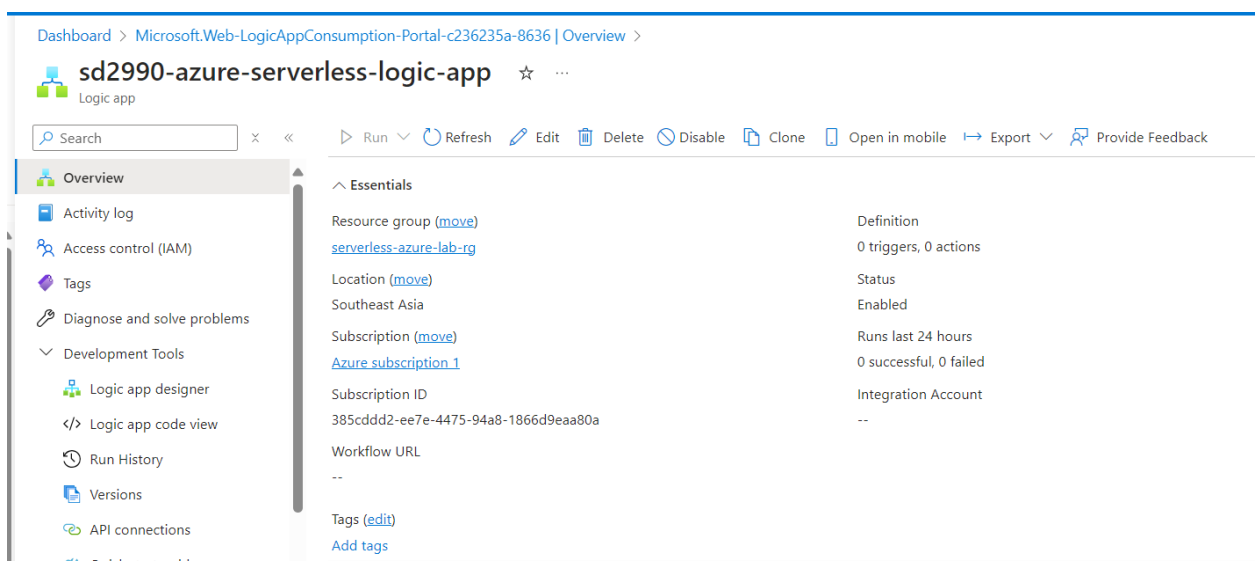
<input type="checkbox"/> Name ↑↓	Status ↑↓	Location ↑↓	Pricing Tier ↑↓	App Service Plan ↑↓	Subscription ↑↓	App Type ↑↓
<input type="checkbox"/>  sd2990-azure-serverless-lab	Running	Southeast Asia	Dynamic	 SoutheastAsiaPlan	Azure subscription 1	Function App ...



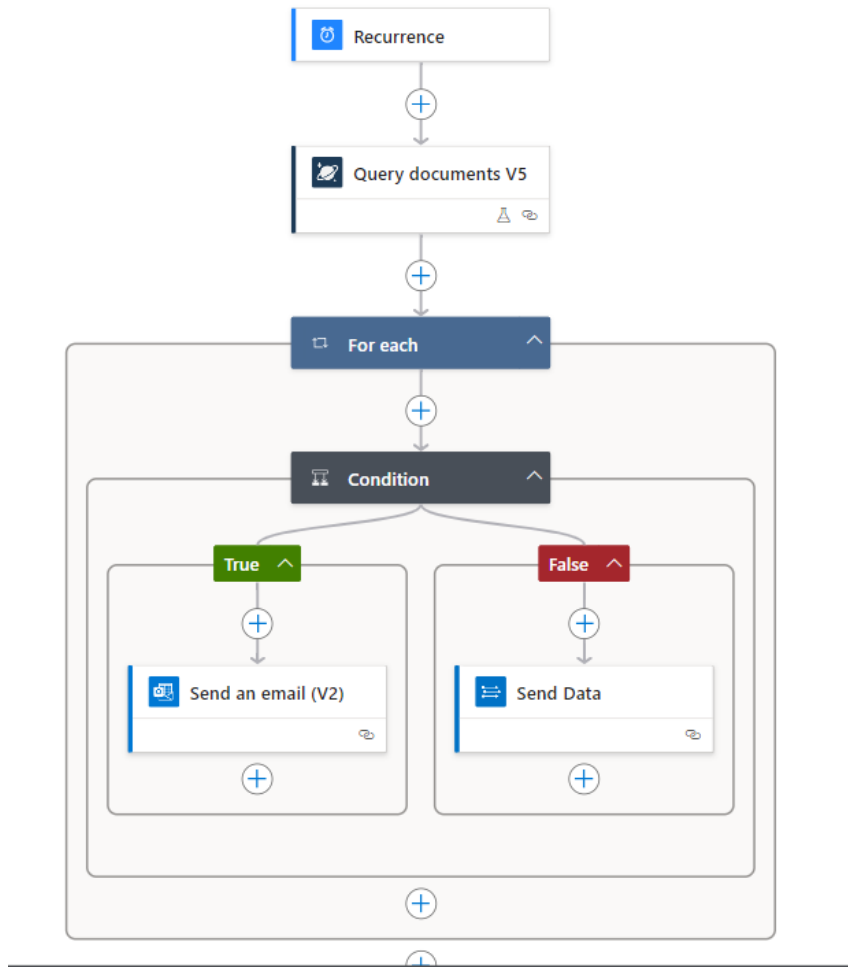
- Source code: *attachment via email*

### Task 3. Implement Azure Logic App

1. Create a Logic App in Azure Portal:



## 2. Design the Workflow:



JSON file of the Logic App:

```

{
  "definition": {
    "$schema": "https://schema.management.azure.com/providers/Microsoft.Logic/schemas/2016-06-01/workflowdefinition.json#",
    "contentVersion": "1.0.0.0",
    "staticResults": {
      "Query_documents_V50": {
        "status": "Succeeded",
        "outputs": {
          "statusCode": "OK"
        }
      }
    },
    "triggers": {
      "Recurrence": {
        "type": "Recurrence",
        "recurrence": {
          "interval": 5,
          "frequency": "Minute",
          "timeZone": "SE Asia Standard Time",

```

```

      "startTime": "2024-07-28T12:40:00Z"
    }
  },
  "actions": {
    "Query_documents_V5": {
      "type": "ApiConnection",
      "inputs": {
        "host": {
          "connection": {
            "name": "@parameters('$connections')['documentdb']['connectionId']"
          }
        },
        "method": "get",
        "path":
"/v5/cosmosdb/{encodeURIComponent('AccountNameFromSettings')}/dbs/{encodeURIComponent('ProductDB')}/colls/{encodeURIComponent('Products')}/query",
        "queries": {
          "queryText": "SELECT * FROM c WHERE c.quantity > 5"
        }
      },
      "runAfter": {},
      "operationOptions": "DisableAsyncPattern, DisableAutomaticDecompression",
      "runtimeConfiguration": {
        "staticResult": {
          "staticResultOptions": "Disabled",
          "name": "Query_documents_V50"
        }
      }
    }
  },
  "For_each": {
    "type": "foreach",
    "foreach": "@body('Query_documents_V5')?['value']",
    "actions": {
      "Condition": {
        "type": "If",
        "expression": {
          "and": [
            {
              "greater": [
                "@body('Query_documents_V5')?['Count']",
                0
              ]
            }
          ]
        },
        "actions": {
          "Send_an_email_(V2)": {
            "type": "ApiConnection",
            "inputs": {
              "host": {
                "connection": {
                  "name": "@parameters('$connections')['outlook']['connectionId']"
                }
              },
              "method": "post",
              "body": {
                "To": "co.huynhhuu@nashtechglobal.com",
                "Subject": "SD2990 - Azure logic app lab - Test true condition",

```

```

        "Body": "<p>length(body('Get_documents'))['Documents']) is greater
than 0</p>",
        "Importance": "Normal"
    },
    "path": "/v2/Mail"
  }
},
"else": {
  "actions": {
    "Send_Data": {
      "type": "ApiConnection",
      "inputs": {
        "host": {
          "connection": {
            "name":
"@parameters('$connections')['azureloganalyticsdatacollector']['connectionId']"
          },
          "method": "post",
          "body": "{ \"data\" : \"No low-stock items were found!\" }",
          "headers": {
            "Log-Type": "low-stock items log"
          },
          "path": "/api/logs"
        }
      }
    }
  },
  "runAfter": {
    "Query_documents_V5": [
      "Succeeded"
    ]
  }
},
"outputs": {},
"parameters": {
  "$connections": {
    "type": "Object",
    "defaultValue": {}
  }
},
"parameters": {
  "$connections": {
    "value": {
      "documentdb": {
        "id": "/subscriptions/385cddd2-ee7e-4475-94a8-
1866d9eaa80a/providers/Microsoft.Web/locations/southeastasia/managedApis/documentdb",
        "connectionId": "/subscriptions/385cddd2-ee7e-4475-94a8-
1866d9eaa80a/resourceGroups/serverless-azure-lab-
rg/providers/Microsoft.Web/connections/documentdb",
        "connectionName": "documentdb"
      },
      "outlook": {

```

```

      "id": "/subscriptions/385cddd2-ee7e-4475-94a8-1866d9eaa80a/providers/Microsoft.Web/locations/southeastasia/managedApis/outlook",
      "connectionId": "/subscriptions/385cddd2-ee7e-4475-94a8-1866d9eaa80a/resourceGroups/serverless-azure-lab-rg/providers/Microsoft.Web/connections/outlook",
      "connectionName": "outlook"
    },
    "azureloganalyticsdatacollector": {
      "id": "/subscriptions/385cddd2-ee7e-4475-94a8-1866d9eaa80a/providers/Microsoft.Web/locations/southeastasia/managedApis/azureloganalyticsdatacollector",
      "connectionId": "/subscriptions/385cddd2-ee7e-4475-94a8-1866d9eaa80a/resourceGroups/serverless-azure-lab-rg/providers/Microsoft.Web/connections/azureloganalyticsdatacollector",
      "connectionName": "azureloganalyticsdatacollector"
    }
  }
}
}
}
}
}

```

### Test run:

Dashboard > sd2990-azure-serverless-logic-app

**sd2990-azure-serverless-logic-app | Run History** ★ ...

Logic app

Search  Refresh

Overview  
Activity log  
Access control (IAM)  
Tags  
Diagnose and solve problems  
Development Tools  
Logic app designer  
Logic app code view  
**Run History**  
Versions  
API connections

All

Pick a date  Pick a time

Search to filter items by identifier

Status	Start time	Identifier	Duration	Static Results
✓ Succeeded	7/28/2024, 2:08 PM	08584794563692314206837...	1.73 Seconds	
✓ Succeeded	7/28/2024, 2:02 PM	08584794567407036231809...	6.22 Seconds	
✗ Failed	7/28/2024, 1:59 PM	08584794569198156167424...	637 Milliseconds	
✗ Failed	7/28/2024, 1:55 PM	08584794571751992143808...	486 Milliseconds	
✗ Failed	7/28/2024, 1:52 PM	08584794573478401533581...	162 Milliseconds	Enabled
✗ Failed	7/28/2024, 1:46 PM	08584794577135253769977...	142 Milliseconds	Enabled
✗ Failed	7/28/2024, 1:14 PM	08584794596156526614392...	196 Milliseconds	Enabled

All Unread By Date ↑

Today

Huu Co Huy... External  
SD2990 - Azure logic app lab... 2:09 PM  
You don't often get email from

Huu Co Huy... External  
SD2990 - Azure logic app lab - ... 2:03 PM  
You don't often get email from

Friday

SD2990 - Azure logic app lab - Test true condition

Huu Co Huynh <co.huynhhuu@outlook.com>  
To Co Huynh Huu

This sender co.huynhhuu@outlook.com is from outside your organization.

You don't often get email from co.huynhhuu@outlook.com. [Learn why this is important](#)

length(body('Get\_documents')?['Documents']) is greater than 0

Reply Reply All Forward

Sun 2024-07-28 2:09 PM

THANK YOU FOR REVIEWING!

SD2990 – Huynh Huu Co – Serverless on Azure – Assignment Report