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

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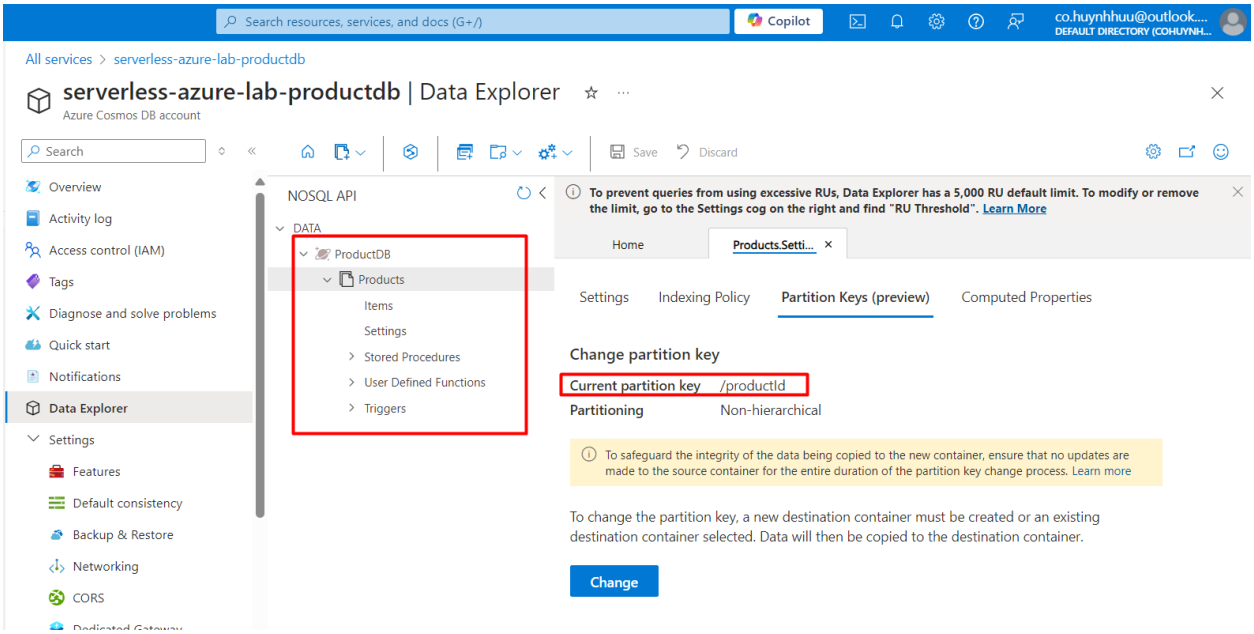
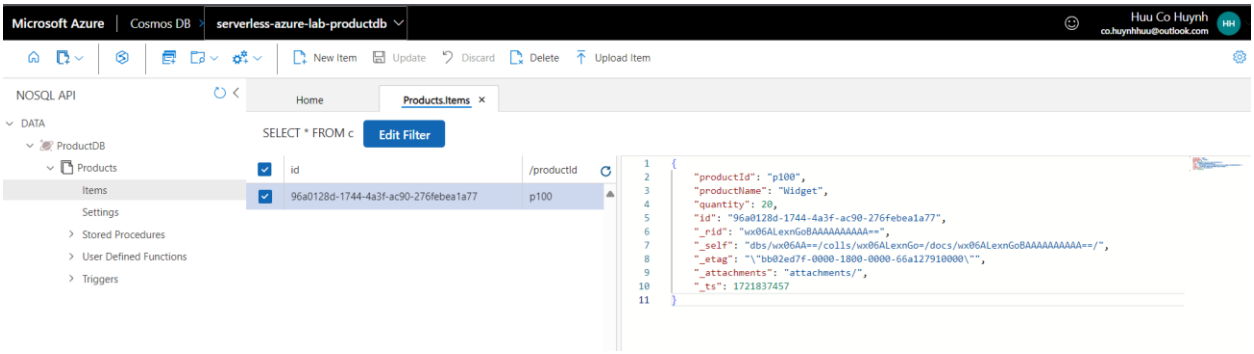
Task 1. Setup Azure Cosmos DB

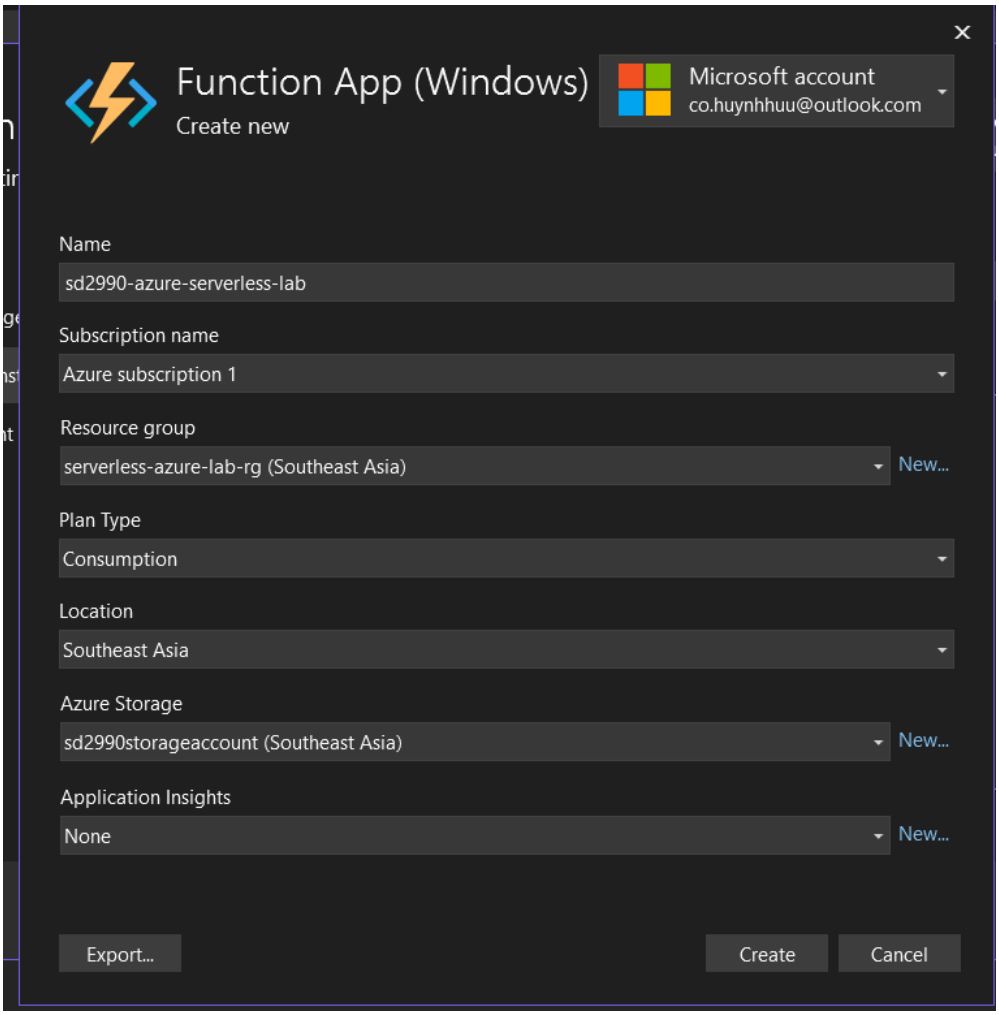


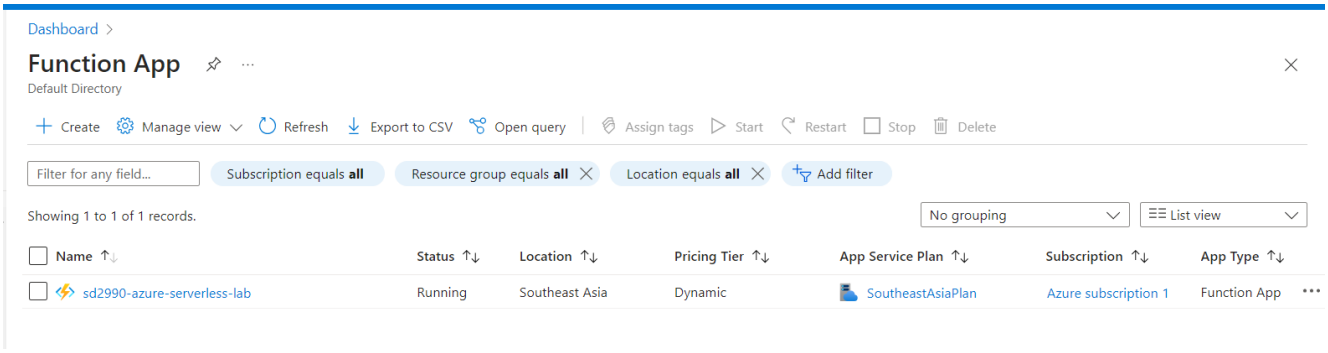
Insert sample data: *{"productId": "p100", "productName": "Widget", "quantity": 20}*

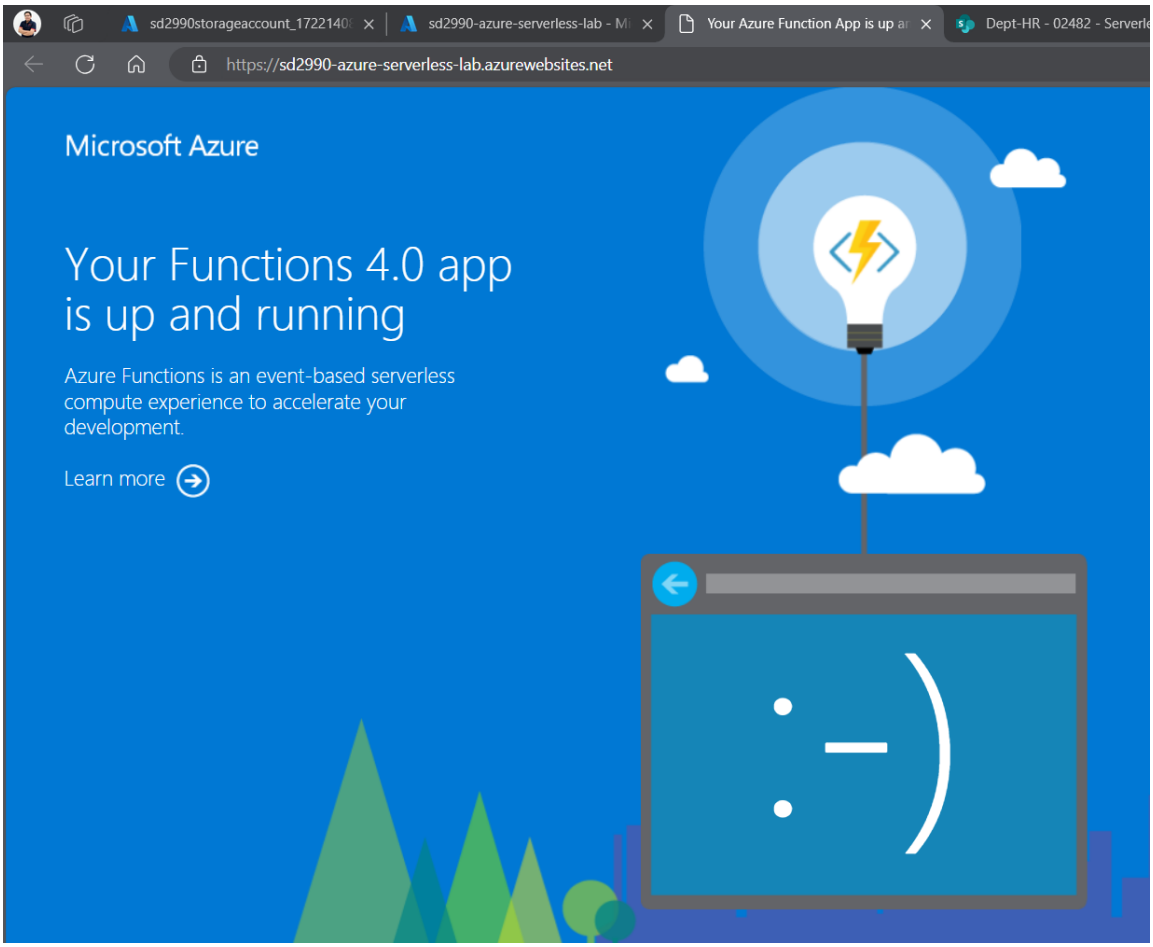


Task 2. Develop Azure Function

- 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

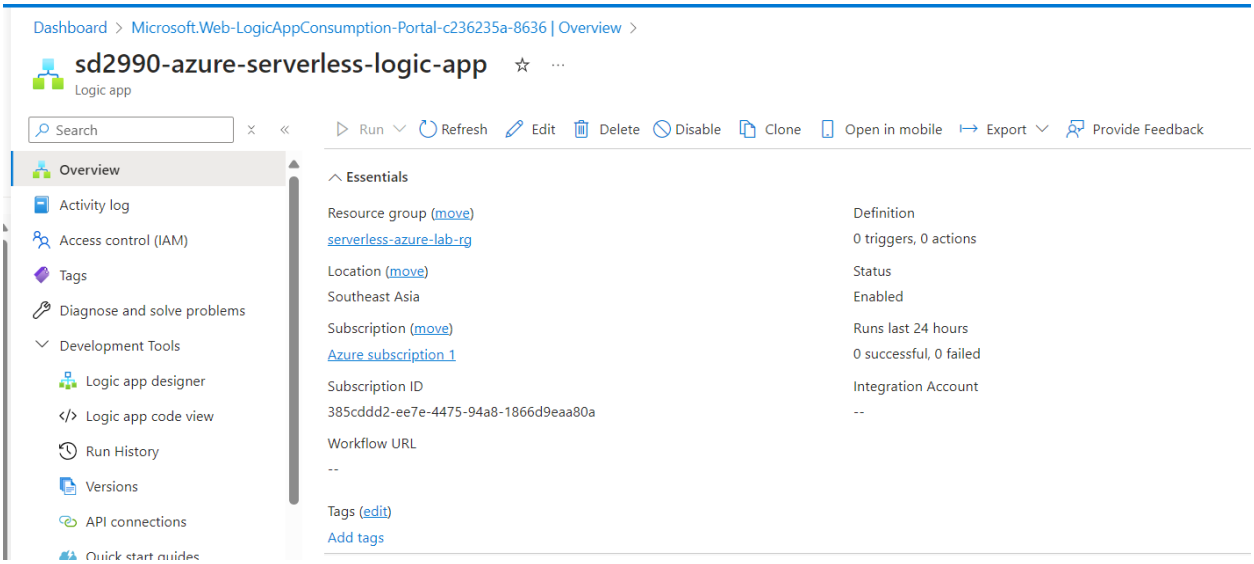

Dashboard
Function App
Default Directory
Create
Manage view
Refresh
Export to CSV
Open query
Assign tags
Start
Restart
Stop
Delete
Filter for any field...
Subscription equals all
Resource group equals all
Location equals all
Add filter
Showing 1 to 1 of 1 records.
No grouping
List view
Name
Status
Location
Pricing Tier
App Service Plan
Subscription
App Type
sd2990-azure-serverless-lab
Running
Southeast Asia
Dynamic
SoutheastAsiaPlan
Azure subscription 1
Function App



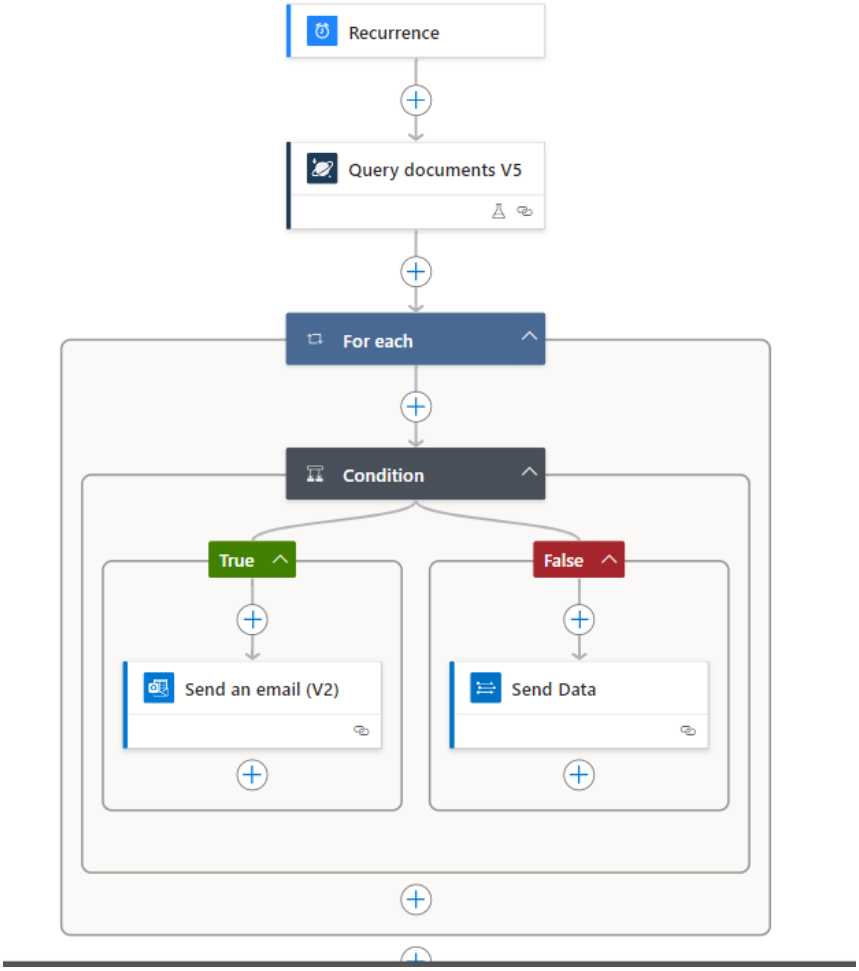
- Source code: *attachment via email*

Task 3. Implement Azure Logic App

1. Create a Logic App in Azure Portal:



2. Design the Workflow:



JSON file of the Logic App:

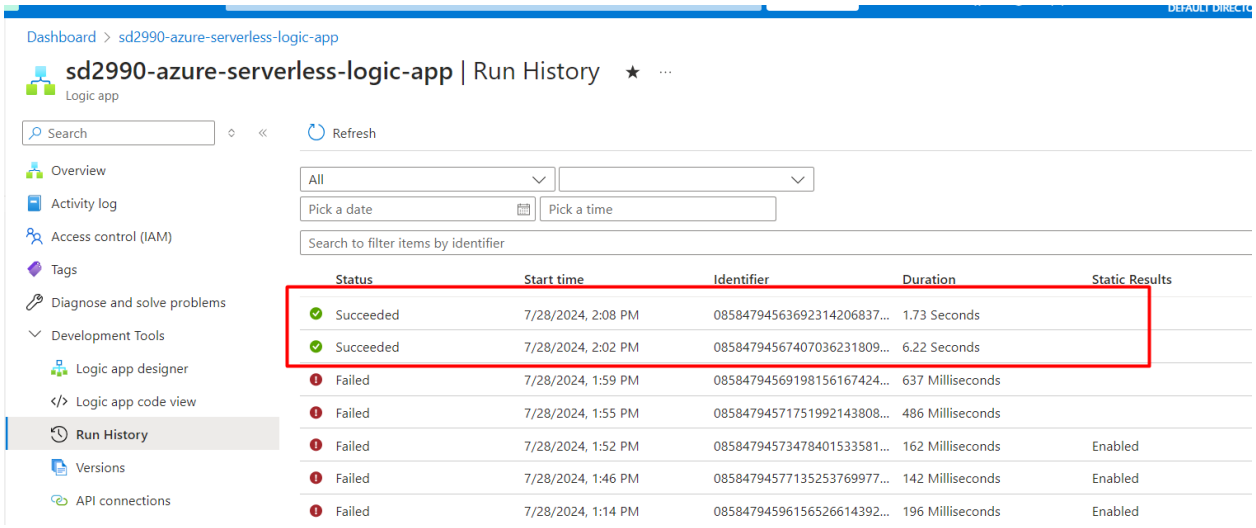
```
{
  "definition": {
    "$schema":
"https://schema.management.azure.com/providers/Microsoft.Logic/schemas/2016-06-
01/workflowdefinition.json#",
    "contentVersion": "1.0.0.0",
    "staticResults": {
      "Query_documents_V50": {
        "status": "Succeeded",
        "outputs": {
          "statusCode":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

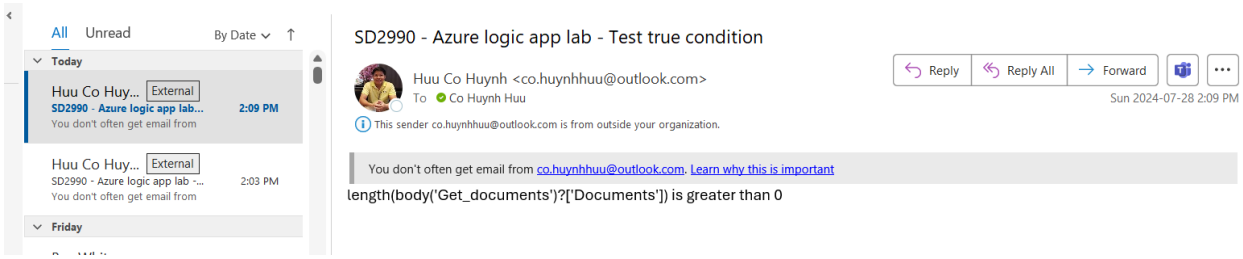
```
          "startTime": "2024-07-28T12:40:00Z"
        }
      }
    },
    "actions": {
      "Query_documents_V5": {
        "type": "ApiConnection",
        "inputs": {
          "host": {
            "connection": {
              "name": "@parameters('$connections')['documentdb']['connectionId']"
            }
          },
          "method": "get",
          "path":
"/v5/cosmosdb/@{encodeURIComponent('AccountNameFromSettings')}/dbs/@{encodeURIComponent
('ProductDB')}/colls/@{encodeURIComponent('Products')}/query",
          "queries": {
            "queryText": "SELECT * FROM c WHERE c.quantity > 5"
          }
        },
        "runAfter": {},
        "operationOptions": "DisableAsyncPattern, DisableAutomaticDecompression",
        "runtimeConfiguration": {
          "staticResult": {
            "staticResultOptions": "Disabled",
            "name": "Query_documents_V50"
          }
        }
      },
      "For_each": {
        "type": "foreach",
        "foreach": "@body('Query_documents_V5')?['value']",
        "actions": {
          "Condition": {
            "type": "If",
            "expression": {
              "and": [
                {
                  "greater": [
                    "@body('Query_documents_V5')?['Count']",
                    0
                  ]
                }
              ]
            },
            "actions": {
              "Send_an_email_(V2)": {
                "type": "ApiConnection",
                "inputs": {
                  "host": {
                    "connection": {
                      "name": "@parameters('$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/azureloganalyt
icsdatacollector",
          "connectionId": "/subscriptions/385cddd2-ee7e-4475-94a8-
1866d9eaa80a/resourceGroups/serverless-azure-lab-
rg/providers/Microsoft.Web/connections/azureloganalyticsdatacollector",
          "connectionName": "azureloganalyticsdatacollector"
        }
      }
    }
  }
}
```

Test run:





THANK YOU FOR REVIEWING!