Exercise 1:

Create an Azure IoT Hub, and a device ID, using the Microsoft Azure portal

1. Create free trial azure subscription or sandbox access.

2. Next step, login to the azure sandbox or subscription. Create Azure IoT Hub and device using the below details,

**Subscription**: one you have created

**Resource Group** :IoTAgriBusiness

**Region:** Central India / West US

**IoT Hub Name**:IoTAgriHub001

**Pricing and scale tier** to **F1:** Free tier

**IoT Hub units**:1

**Azure Security Center**: disable

**Device ID**: IoTDev001

Please find the link below where the creation of the IoT Hub and device using sandbox is explained

<https://docs.microsoft.com/en-us/learn/modules/remotely-monitor-devices-with-azure-iot-hub/2-create-iot-hub-device-id?pivots=node>

Please note down the connection string of the IoT Hub for next Assignment.

Exercise 2 -

To simulate the Temperature IoT device in the agriculture system. The program will connect to the IoT hub and also send the telemetry data

1. Please reuse the resources created in Assignment 1.

2. Next step, we can develop the app which will send the data to IoT hub using the device SDK.

You can use either Python/C#/Node.js/Java for development. This app should simulate data from a temperature sensor and humidity sensor and send the data to the IoThub.

For example

{{"temperature": 12,"humidity": 32}}

3. Write python script by following the main below steps

* importing the azure.iot.device from IoTHubDeviceClient

* Get the connection string of IoT hub from the previous exercise
* Create an IoT Hub client

client = IoTHubDeviceClient.create\_from\_connection\_string(CONNECTION\_STRING)

* create the message in the below format

{{"temperature": 12,"humidity": 32}}

* send the message to IoT hub using the Send function in the IoTHubDeviceClient

client.send\_message(message)

* Run your program
* Check the output using Azure explorer

Please find the tutorial for Azure Explorer.

[https://docs.microsoft.com/en-us/azure/iot-pnp/howto-install-iot-explorer#install-azure-iot- explorer](https://docs.microsoft.com/en-us/azure/iot-pnp/howto-install-iot-explorer%23install-azure-iot-explorer)

Please find below the exercise to send and receive data using sandbox from IoT Hub

<https://docs.microsoft.com/en-us/learn/modules/remotely-monitor-devices-with-azure-iot-hub/4-exercise-write-code-device-telemetry?pivots=vscode-csharp>