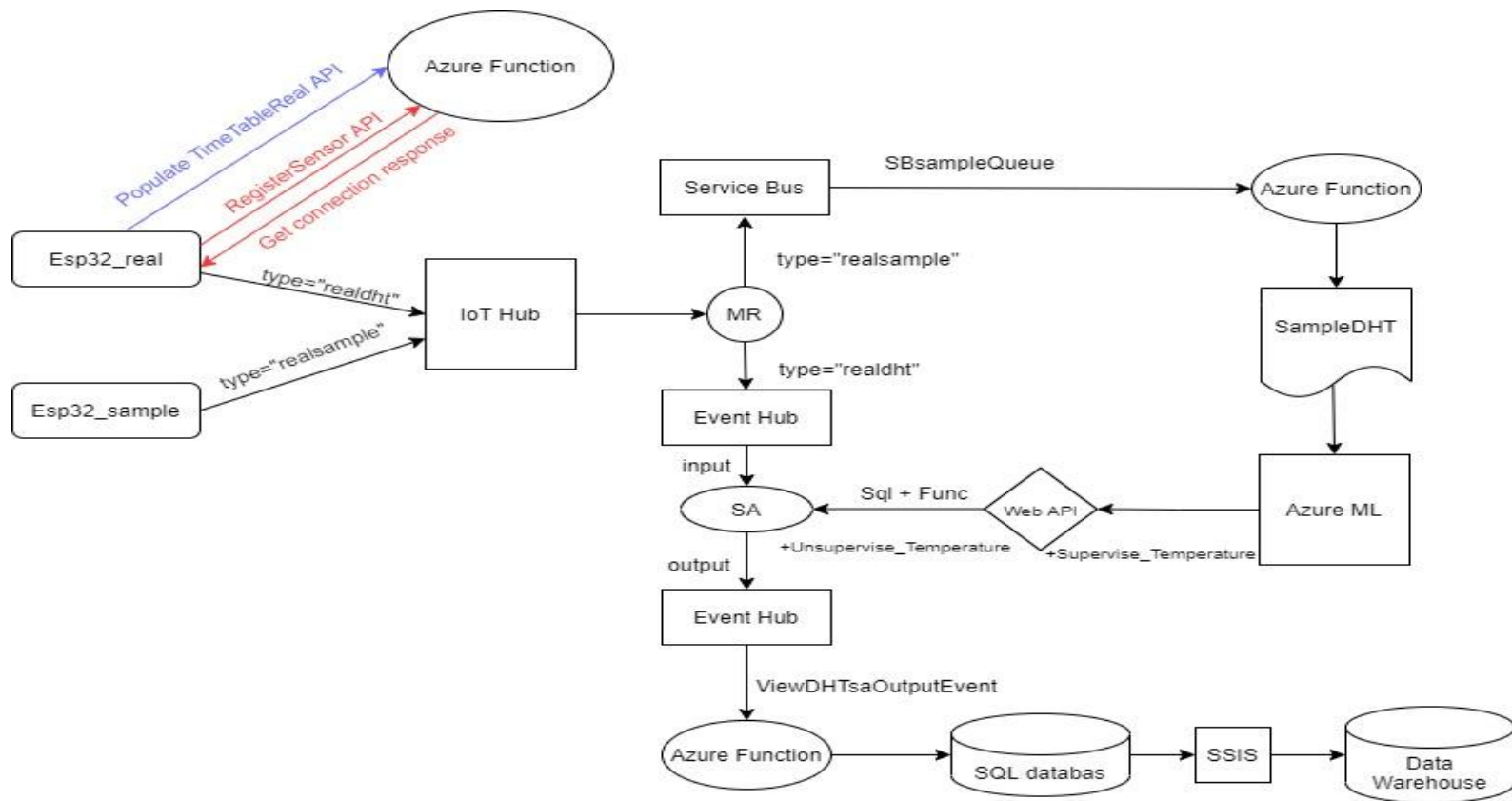


# Big Data Inlämnings uppgift 2

Julia Gu

# Projekt Översikt














# Azure konto

- skapa Azure konto - pay as you go
- skapa IoT hub
- skapa sql DB
- skapa Azure function
- skapa event hub
- skapa service bus
- skapa stream analytics

## Recent resources

### Name

	funcBigdataDemo1
	bigdatademo2SA
	bigdatademo2OLAP
	sqlBigdataDemo2Real
	sqldwbigdatademo1
	Azure subscription 1
	iothubBigdataDemo1
	bigdatademo2eventhub
	GROUP1
	bigdata2servicebus
	sqlBigdataDemo1

# Arduino sketch C++

- esp32\_1 skickar deviceId till Azure funktion api och register Device till IoT Hub och få connection response, samtidigt skapa timetabel till databas. När den kopplat till IoT Hub, skickar den DHT data till event hub.
- esp32\_2 skicka dht dummy data till sample table för att skapa big data table cirka 2000+ data.

Device ID

sampledht

A8:03:2A:EA:C9:84

# Azure Function - C#

<input type="checkbox"/> Name ↑↓	Trigger ↑↓
<input type="checkbox"/> <a href="#">AddDevice</a>	HTTP
<input type="checkbox"/> <a href="#">PopulateTimeTable</a>	HTTP
<input type="checkbox"/> <a href="#">PopulateTimeTableReal</a>	HTTP
<input type="checkbox"/> <a href="#">RegisterSensor</a>	HTTP
<input type="checkbox"/> <a href="#">RemoveDevice</a>	HTTP
<input type="checkbox"/> <a href="#">SBsampleQueue</a>	Servicebus
<input type="checkbox"/> <a href="#">ViewDHTsaOutputEvent</a>	EventHub



# Service Analytics Query

 Query language docs  Open in Visual Studio  UserVoice

Inputs (1)

  sadhtinputevent

Outputs (1)

  sadhtoutputevent

 Test query  Save query  Discard changes

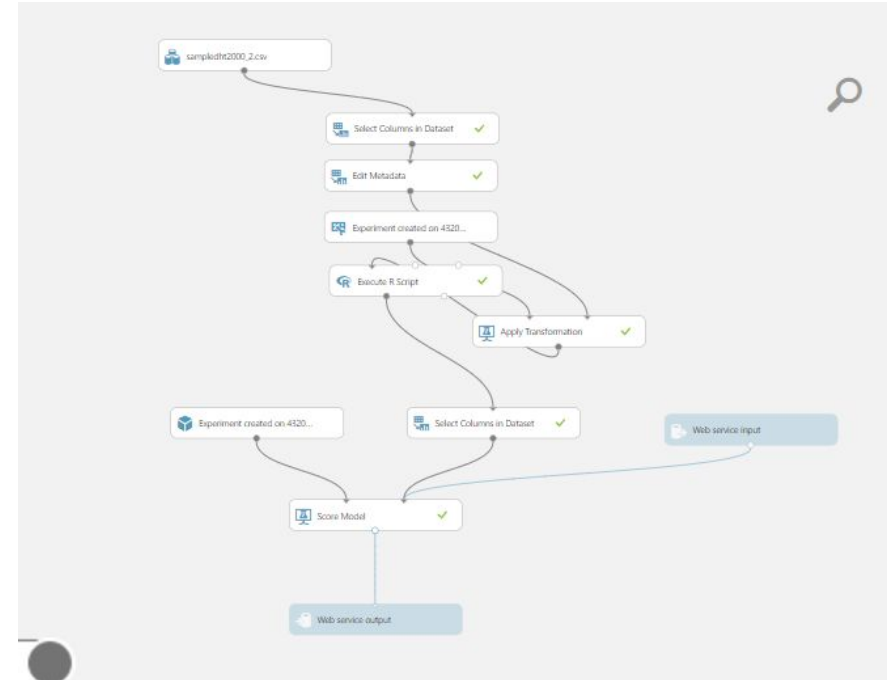
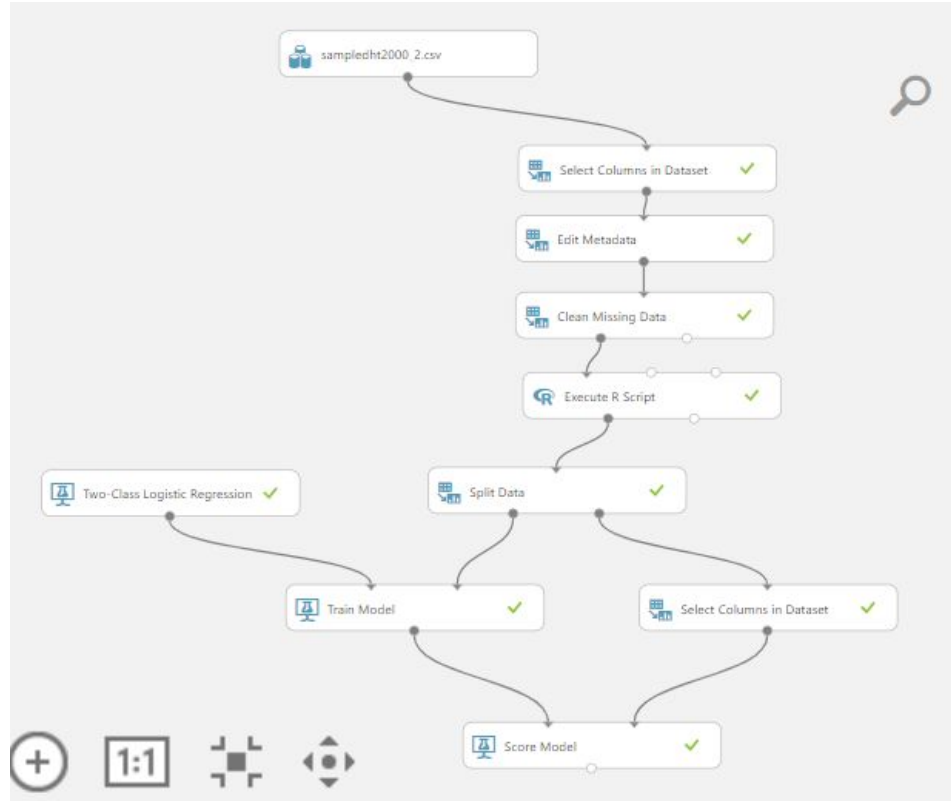
```
2  SELECT
3      deviceName,
4      unixutctime,
5      temperatureAlertStatus,
6      humidityAlertStatus,
7      GetMetadataPropertyValue(sadhtinputevent, '[User]') AS userprops,
8      mlfunction(temperature, humidity) AS result,
9      AnomalyDetection_SpikeAndDip(CAST(temperature AS FLOAT), 95, 97, 'spikesanddips')
10     | OVER(LIMIT DURATION(second, 120)) AS temperatureAnomaly,
11      AnomalyDetection_SpikeAndDip(CAST(humidity AS FLOAT), 95, 97, 'spikesanddips')
12     | OVER(LIMIT DURATION(second, 120)) AS humidityAnomaly
13  FROM sadhtinputevent
14  )
15
16  SELECT *
17  INTO sadhtoutputevent
```

Input preview [Test results](#)

# Microsoft Sql Server Management -- SQL

- skriva SQL på Microsoft Sql Server Management så att skapa relation databas
- sqlBigdataDemo2Real och bigdatademo2OLAP databas
- kör och testa

# Azure ML Studio Projekt






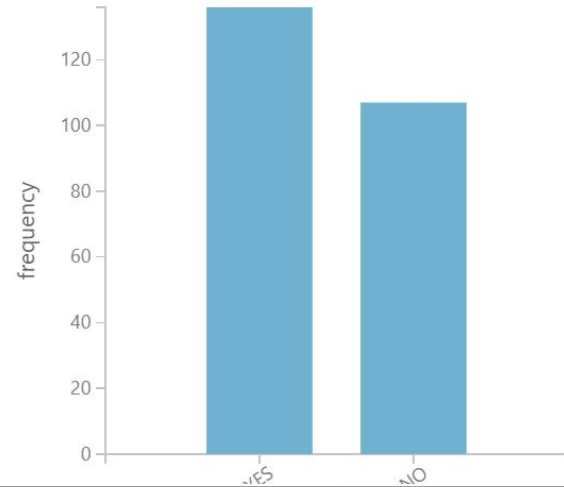
# Azure ML Studio Score Model

Experiment created on 4/3/2021 ▶ Score Model ▶ Scored dataset

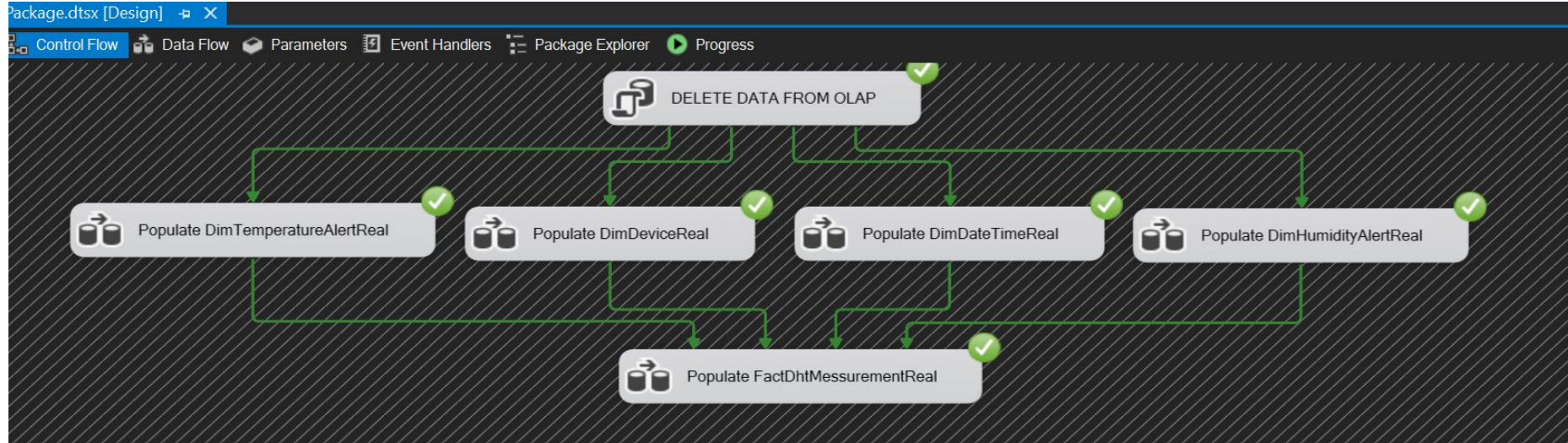
rows  
243

columns  
4

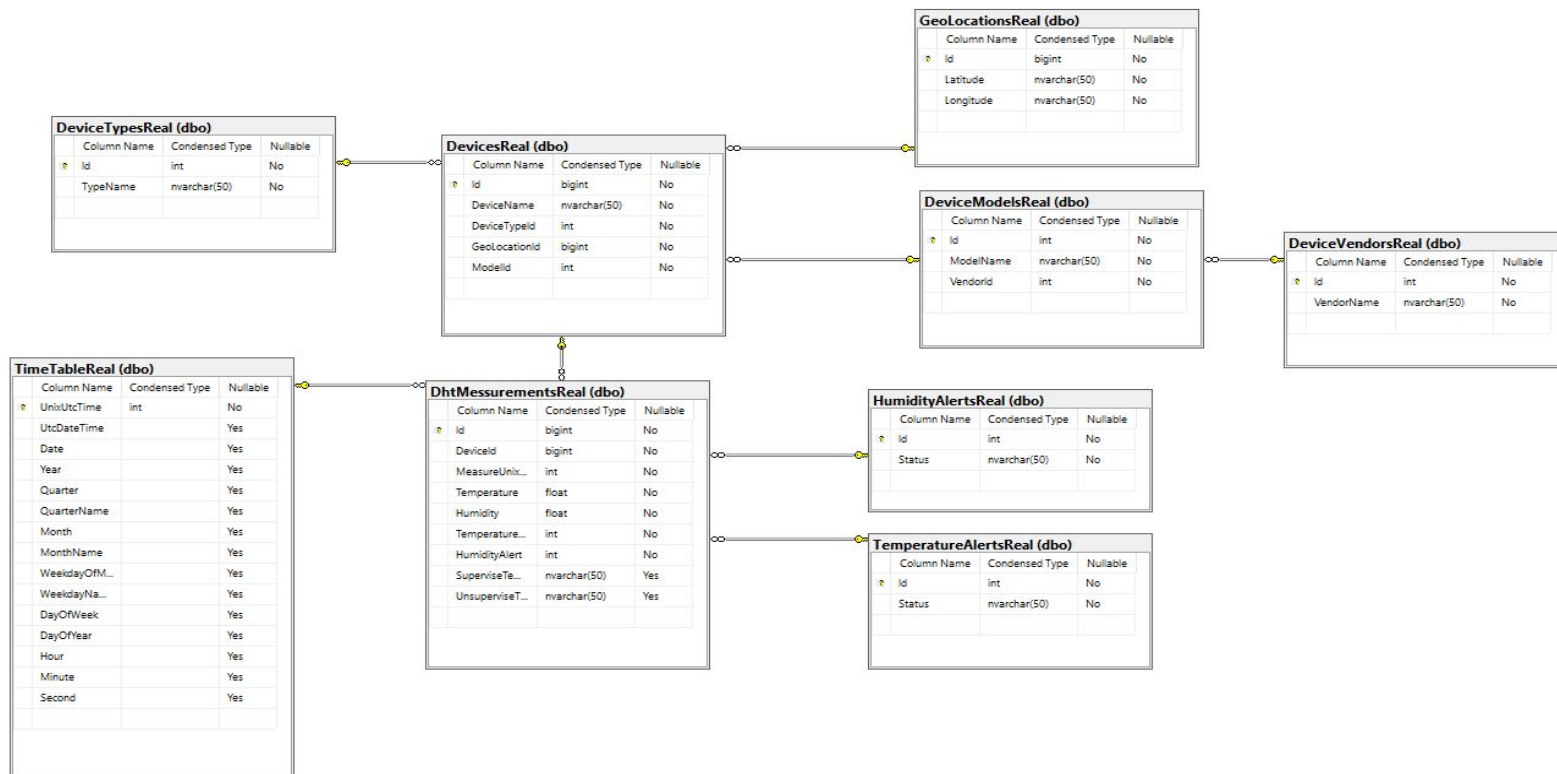
	Temperature	Humidity	Scored Labels	Scored Probabilities
view as				
	21	45	NO	0.487849
	21.79	52	NO	0.477471
	25.35	47	YES	0.516469
	16.7	27	NO	0.497185
	27	45	YES	0.533763
	28.52	31	YES	0.577711
	18.32	35	NO	0.490805



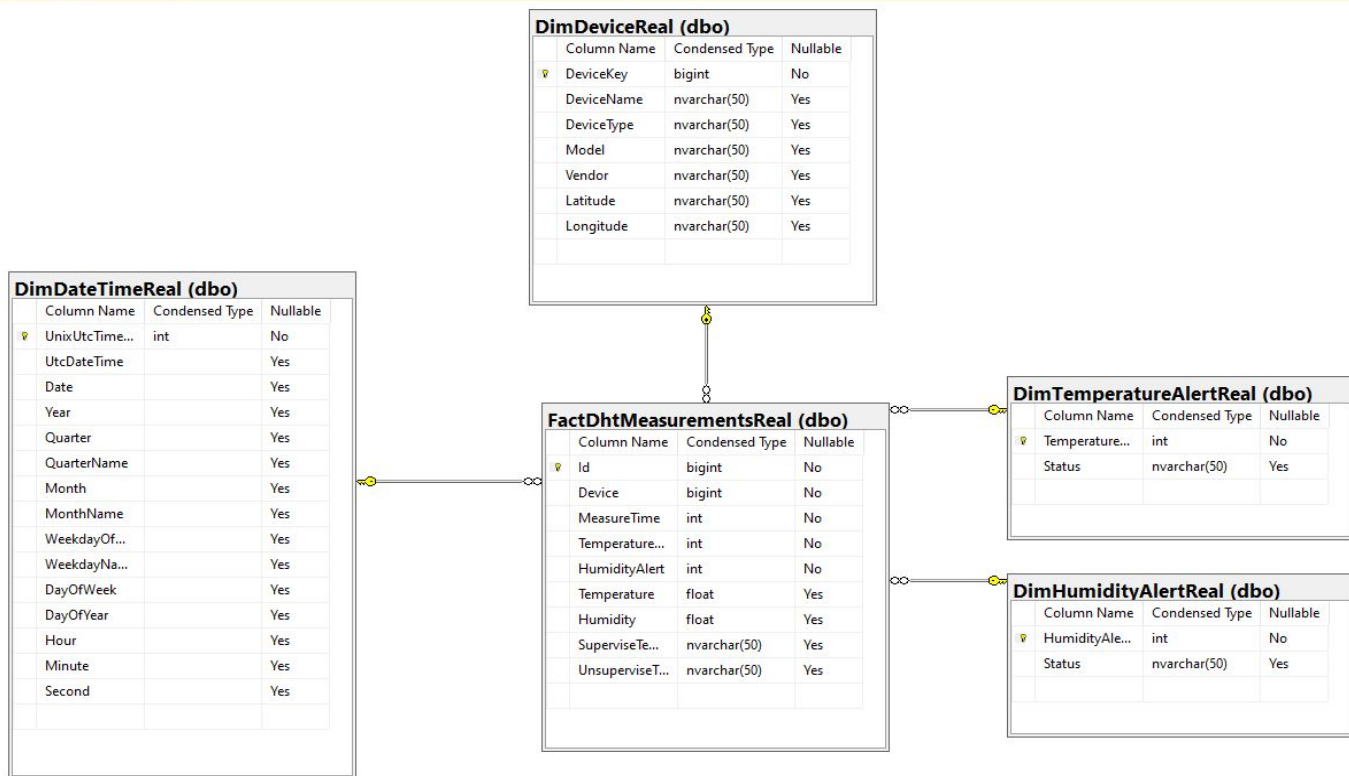
# SSIS -- Diagram



# Sql tabel



# DW tabel



# Data från Sql databas

[illegible]

# Data från Data Warehouse

olap.sql - sqlbigda...LAP (sqladmin (62))

sample\_dht.sql - sq...Real (sqladmin (76))

real\_select.sql - sq...2Real (sqladmin (61))

real\_create.sql - sq...Real (sqladmin (74))\*

100 %

Results

Messages

	DeviceKey	DeviceName	DeviceType	Model	Vendor	Latitude	Longitude
1	15	A8:03:2A:EA:C9:84	realdht	HUZZAH32	Adafruit	59.3293	18.0686

	TemperatureAlertKey	Status
1	19	false
2	20	true

	HumidityAlertKey	Status
1	16	false
2	17	true

	UnixUtcTimeKey	UtcDateTime	Date	Year	Quarter	QuarterName	Month	MonthName	WeekdayOfMonth	WeekdayName	DayOfWeek	DayOfYear	Hour	Minute	Second
13	1617558122	2021-04-04 17:42:02.000	2021-04-04	2021	2	Q2	4	April	4	Sunday	1	94	17	42	2
14	1617558123	2021-04-04 17:42:03.000	2021-04-04	2021	2	Q2	4	April	4	Sunday	1	94	17	42	3
15	1617558124	2021-04-04 17:42:04.000	2021-04-04	2021	2	Q2	4	April	4	Sunday	1	94	17	42	4
16	1617558125	2021-04-04 17:42:05.000	2021-04-04	2021	2	Q2	4	April	4	Sunday	1	94	17	42	5
17	1617558126	2021-04-04 17:42:06.000	2021-04-04	2021	2	Q2	4	April	4	Sunday	1	94	17	42	6
18	1617558127	2021-04-04 17:42:07.000	2021-04-04	2021	2	Q2	4	April	4	Sunday	1	94	17	42	7
19	1617558128	2021-04-04 17:42:08.000	2021-04-04	2021	2	Q2	4	April	4	Sunday	1	94	17	42	8
20	1617558129	2021-04-04 17:42:09.000	2021-04-04	2021	2	Q2	4	April	4	Sunday	1	94	17	42	9

	Id	Device	MeasureTime	TemperatureAlert	HumidityAlert	Temperature	Humidity	SuperviseTemperatureAlert	UnsuperviseTemperatureAlert
17	1...	15	1617558126	19	16	27,2000007629395	41	NO	NO
18	1...	15	1617558127	19	17	27,7000007629395	79	NO	YES
19	2...	15	1617558128	20	17	28,6000003814697	86	YES	YES
20	2...	15	1617558129	20	17	29,5	80	YES	YES
21	2...	15	1617558130	20	17	30,2999992370605	73	YES	YES
22	2...	15	1617558131	20	17	31	73	YES	YES
23	2...	15	1617558132	20	17	31,6000003814697	69	YES	YES
24	2...	15	1617558133	20	17	32	65	YES	NO

Query executed successfully.

sqlbigdatademo1server.datab...

sqladmin (62)

bigdatademo2OLAP

00:00:00

1

Query executed successfully.

# Sammanfattning

- Jag lärt mig mycket för Azure route feature
- Jag gör en forskning för hur kan använda stream analytics från event hub till annan event hub
- Jag expandera Sql tabel för att addera Supervise och Unsupervise kolum
- Det är lärolik för ML som är inte bara att mata in och mata ut