Lab: Integrating Azure Stream Analytics and Azure Machine Learning to enable real-time predictive analytics

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Overview

Summary

In this lab we explore the integration between Azure Stream Analytics and Azure Machine Learning to enable real-time predictive analytics. This lab will take about 15 minutes to complete. You will be using a predefined predictive Machine Learning web service and using that to predict crop growth based on the temperature from your IoT device. The last step lets you visualize that information in Power BI.

Step 1: Adding a function to Stream Analytics

Open up the same Stream Analytics job you created in the earlier lab. Be sure to stop it before making the following changes.

Click **Functions** and select **Add a machine learning function**. Enter an **alias** and under Subscription select **Provide Machine Learning setting manually**. You will need to enter the following information (also available in a txt file for easier copying):

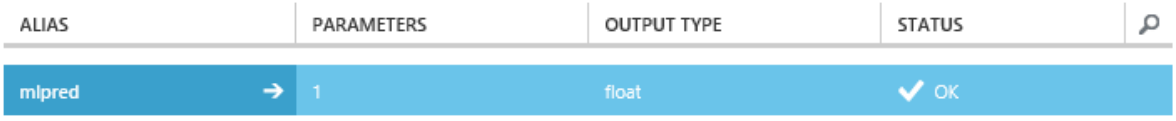
URL

```
https://ussouthcentral.services.azureml.net/workspaces/5ffd86531efc471fbc77e262d640b19b/services/da416318b57d4931b9b4439bf6db84a3/execute?api-version=2.0&details=true
```

Key

L6mHGdUb/WxBu+WMz6MGgLzcyyqrYZkATFb+QWORgFsvwK5toE/5vG1SR1a81I+Y4qctTrCx+CeumowAHSxt2g==

Click **Complete** to accept these settings. Your function will be tested and added. Wait until the status shows OK.



Now update your query to make use of the function by adding the function to your select statement. You will need to use the alias you provide and pass in the name of the temperature column as parameter. See the new query below (the change as marked in bold)

```
SELECT
    CAST(time as datetime) as time,
    CAST(temperature as float) as temperature,
    CAST(lumen as float) as lumen,
    20 as baselinetemperature,
    CAST(mlpred(temperature) as float) as predictedgrowth
INTO
    PBIoutput
FROM
    InputStream
```

Lastly make sure to save the query and Start to restart your Stream Analtyics job. After a while the new column with the crop growth prediction should flow into your PowerBI dataset.

Step 2: Changing Power BI visuals

Update your Power BI accordingly to add the predicted growth to the graphs. Refer to the last lab for a quick how-to. You can explore the various options on your own to create interesting graphs. You could even create custom visuals if you have the time.