**My Notes on this Section**

# Exam Perspective

Windowing functions will be going to dominate this section in the exam.

Also, you should understand the difference between the event hub and IoT hub.

one question can be on Reference data, which can be put on SQL Server or Blob.

# My Notes

**Stream Analytics** is a big data analytics solution that allows you to analyze real-time events simultaneously.
The input data source can be an event hub, an IoT hub, blob storage or SQL Server.

The reference input is data that never or rarely changes. Reference data can be saved in Azure SQL Database or Blob storage

Further reference What is Azure Stream Analytics?

**Event Hubs**
Event Hub is an Azure resource that allows you to stream big data to the cloud.

Event Hub accepts streaming telemetry data from other sources. It is basically a big data pipeline. It allows you to capture, retain, and replay telemetry data

It accepts streaming data over HTTPS and AMQP.

A Stream Analytics job can read data from Event Hubs and store the transformed data in a variety of output data sources, including Power BI.

**IOT Hub**
IoT Hub is an Azure resource that allows you to stream big data to the cloud.

It supports per-device provisioning.

It accepts streaming data over HTTPS, AMQP, and Message Queue Telemetry Transport (MQTT).

A Stream Analytics job can read data from IOT Hubs and store the transformed data in a variety of output data sources, including Power BI.

Choosing a real-time message ingestion technology in Azure

Choosing a stream processing technology in Azure
Choose between Azure messaging services - Event Grid, Event Hubs, and Service Bus

**Windowing function**
Introduction to Stream Analytics windowing functions

**Tumbling window**
Tumbling windows are a series of fixed-sized, non-overlapping and contiguous time intervals.

Each event is only counted once.

However, they do not check the time duration between events and do not filter out periods of time when no events are streamed.

Tumbling Window (Azure Stream Analytics)

**Hopping windows**
Hopping windows are a series of fixed-sized and contiguous time intervals. They hop forward by a specified fixed time. If the hop size is less than a size of the window, hopping windows overlap, and that is why an event may be part of several windows.

Hopping windows do not check the time duration between events and do not filter out periods of time when no events are streamed.

Hopping Window (Azure Stream Analytics)

**Sliding windows**

Sliding windows are a series of fixed-sized and contiguous time intervals. They produce output only when an event occurs, so you can filter out periods of times where no events are streamed.

However, they may overlap and that is why an event may be included in more than one window. Sliding windows also do not check the time duration between events.

Sliding Window (Azure Stream Analytics)

**Session windows**
Session windows begin when the defect detection event occurs, and they continue to extend, including new events occurring within the set time interval (timeout).

If no further events are detected, then the window will close. The window will also close if the maximum duration parameter is set for the session window, and then a new session window may begin.

The session window option will effectively filter out periods of time where no events are streamed. Each event is only counted once.

Session window (Azure Stream Analytics)

**Other Concepts**
**Event Grid**
Event Grid is a publish-subscribe platform for events. Event publishers send the events to Event Grid. Subscribers subscribe to the events they want to handle.

**Azure Relay**
Azure Relay allows client applications to access on-premises services through Azure.

**HDInsight**
HDInsight is a streaming technology that allows you to use C#, F#, Java, Python, and Scala.

It does not allow you to use a SQL-like language.

**WebJob**

WebJob runs in the context of an Azure App Service app.

It can be invoked on a schedule or by a trigger.

You can use C#, Java, Node.js, PHP, Python to implement WebJobs.

However, you cannot use a SQL-like language.

**Function App**
A function app is similar to a WebJob in that it can be invoked on a schedule or by a trigger.

You can use many different languages to create a function in a function app.

However, you cannot use a SQL-like language.