Azure Functions

Azure Functions is a serverless service provided by Azure. Azure functions are simple blocks of logical code that runs in response to many events.
These events can be raised by other Azure services for example, Blob Storage, Queue Storage, Cosmos DB, Scheduled Timer, Http Request from an app service, etc.

Azure functions let us integrate with these services easily through the available templates, so you focus only on implementation logic.

Azure functions have triggers and bindings for integrating with other Azure services.

- Triggers are simply the events that make the functions executes. An Azure function can have only one trigger.

- Bindings can be defined as the data from other services that we can pass in the function or return it as a value. Bindings can be of input and output binding or both. An Azure function can have multiple input and output bindings.

On the basis of triggers, Azure functions are of following types:

1. **Timer Trigger:** Timer functions are functions that are triggered according to a schedule. These functions can be used to run some cleanup or maintenance code that is required to be executed in regular intervals of time.

2. **Blob Trigger:** Blobs Trigger are the functions that are triggered on adding or modifying any files in any blob storage. Azure also providings both input and output bindings for blob storage.

3. **Queue Trigger:** These functions are triggered when a new item is added in Queue Storage. Queue Storage also provides output binding for Azure Functions. These functions can be used when we want something to happen when a new message comes in the queue.

4. **HTTP and webhook Trigger:** HTTP Trigger functions are the functions that can be triggered using a http request. These functions can be used in similar ways in which an API is used through a browser or by using the URL.

5. **Event Grid Trigger:** Event Grid is a service provided by Azure that allows us to generate an event to an activity in any azure service. For example, a blob getting added. Event Grid Trigger is used to invoke an Azure function whenever Event Grid emits a new event.

6. **Cosmos DB Trigger**: Cosmos DB by Azure provides user a non-relational database with many pre-defined functionalities like fast access, all time availability, consumption-based pricing. The trigger helps us to invoke a function whenever a new document is added or modified in cosmos DB.

Durable Azure functions:

Durable Azure functions are extension of Azure functions made to solve some of the problems that are there in azure functions.

Azure functions are stateless, means we can't store the intermediatory data in between the execution of several functions. They act as a single entity that executes on trigger and do its work and ends. Hence, we are unable to keep track of process using only Azure functions.

Durable functions solve these issues. It allows us implement stateful Azure functions through their provided functionalities.

Azure functions have orchestrator functions which are responsible for keeping track of several activity functions data to manage the workflow. They have their own storage queue to store the state of individual functions. Each function executes on their own and returns data about their output or execution states to the orchestrator function which use this provided data to further continue the workflow.