Introduction to Azure Function Apps

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1. What is Azure Function App?

An **Azure Function App** is a **serverless compute service** in Microsoft Azure that allows you to run small pieces of code (functions) in the cloud **without worrying about infrastructure**.

> Think of it like: "**Run code only when needed and pay only for the time it runs.**"

2. Key Concepts

Concept	Description
Function App	A container/environment that hosts one or more related Azure Functions
Azure Function	A single piece of code that performs a task (like a microservice or logic block)
Trigger	Defines **when** a function runs (e.g., HTTP request, timer, message queue)
Binding	Connects functions to other Azure services (e.g., Blob Storage, Cosmos DB)
Runtime	The language environment (.NET, Node.js, Python, Java, etc.)

3. Features of Azure Functions

- 🖥️ **Serverless** – No server management, auto-scalable
- ⏱️ **Event-driven** – Functions run on triggers (like HTTP request, file upload, message)
- 💵 **Pay-per-use** – Charged only when functions are running
- 🔌 **Integration** – Easily integrates with other Azure services
- 📈 **Monitoring** – Built-in support for logging, diagnostics, and Application Insights

4. When to Use Azure Functions

- Run background tasks
- Respond to events (upload to storage, database changes, etc.)
- Scheduled jobs (e.g., daily data cleanup)
- Webhooks & APIs
- Automation tasks

5. How to Create an Azure Function App (Quick Steps)

Through Azure Portal:

1. Go to https://portal.azure.com
2. Click "**Create a resource**"
3. Search for and select "**Function App**"
4. Fill in the **Basics**:
    - Subscription
    - Resource Group
    - Function App Name
    - Runtime Stack (e.g., .NET, Node.js, Python)
    - Region

6. Types of Triggers

Trigger	Description
HTTP Trigger	Runs when a request hits a URL (like a mini API)
Timer Trigger	Runs on a schedule (like a cron job)
Blob Trigger	Runs when a file is added to Blob Storage
Queue Trigger	Runs when a message is added to a queue
Event Grid Trigger	Reacts to events from Azure resources
Cosmos DB Trigger	Runs when data changes in Cosmos DB

7. Monitoring and Logging

- Azure Functions integrate with **Application Insights** for:
  - Real-time logging
  - Exception tracking
  - Performance metrics

Access it via the "**Monitor**" tab in your Function App.

9. Advantages of Azure Function Apps

Benefit	Description
No infrastructure	Focus on code, Azure handles the rest
Scalability	Automatically scales with usage
Cost-effective	Pay only for time your function runs
Flexible	Supports multiple languages and integrations

10. Things to Remember

- Use **Resource Groups** to manage related Azure resources
- Group multiple functions inside a **Function App**
- Choose **Consumption Plan** for true serverless experience
- Set **Authentication & Authorization** for production APIs
- Always monitor function behavior using **Application Insights**