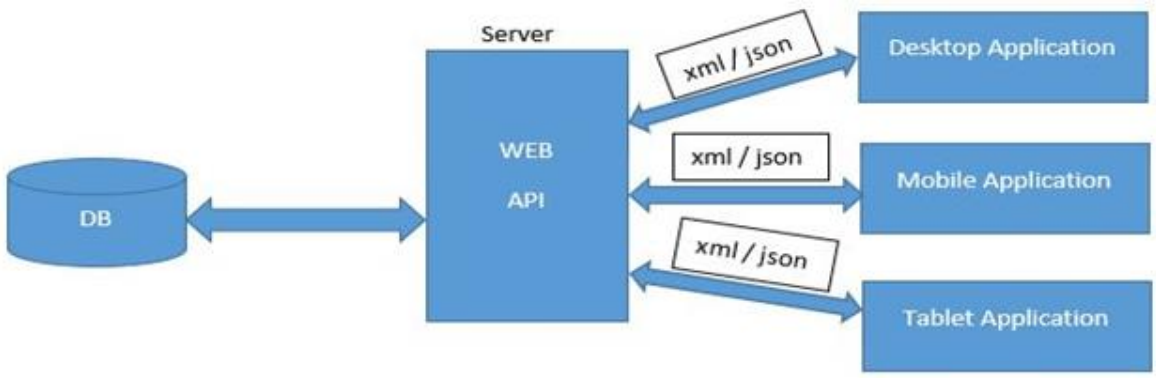
WEB API (APPLICATION PROGRAMMING INTERFACE)

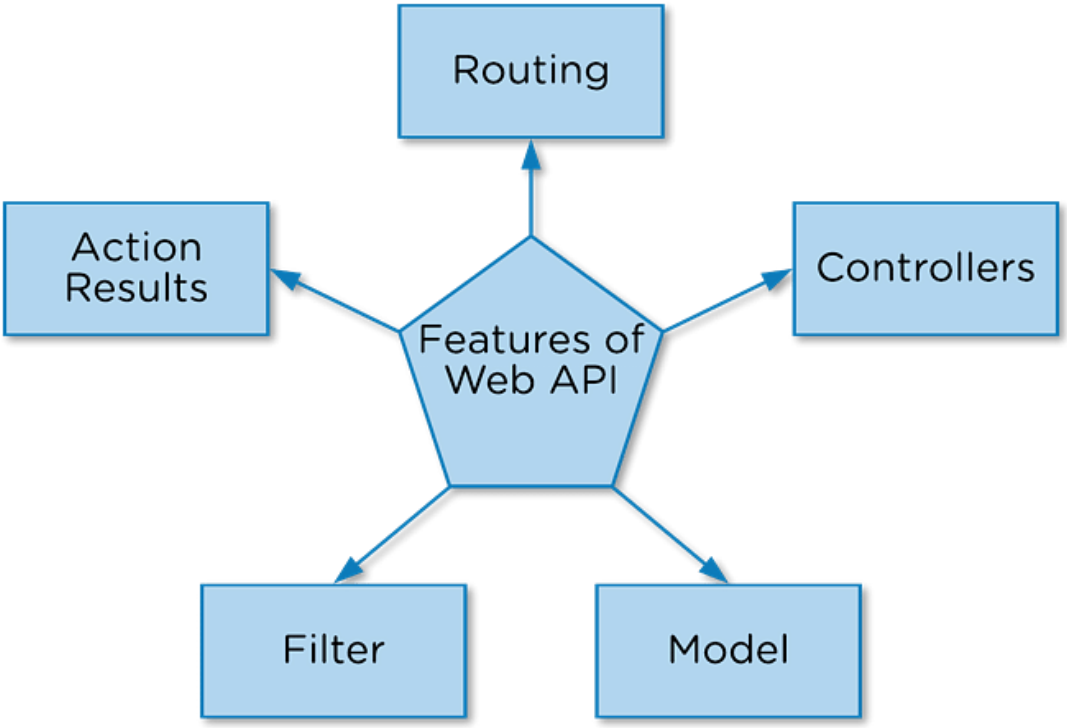
- ASP.NET Web API is a robust framework for developing HTTP-enabled service APIs that expose services and data. It may be accessed by a wide range of clients, including browsers, mobile devices, desktop computers, and tablets. Because it is an HTTP service, it may reach many clients
- A Web API in C# is typically built using ASP.NET Core or older ASP.NET Web **API** frameworks. It allows you to expose data and services over HTTP, so clients like browsers, mobile apps, or other servers can consume your data using standard protocols like JSON over REST**.**



Why Do You Need C# Web API?

- Web API allows access to service data from web browsers, mobile apps, and other devices.
- Web API aids in the development of lightweight, maintainable web services.
- Web API also supports JSON, XML, and other data formats.
- Web API helps develop services that support caching, request/response headers, versioning, etc.

Features of C# Web API



There are five features of C# Web API, they are:

1. **Routing**: It helps in routing through different APIs.
2. **Controller**: It gives functional capabilities to the web application.
3. **Model**: It gives the structural capabilities to the web application.
4. **Filter**: It gives filters to the web application.
5. **Action Result**: It can keep the action logos user, such as data retrieval.

Real-World Example: Online Shopping App

Scenario:

You're building an **online store** (like Amazon). The **front-end (web/mobile)** needs to interact with the server to:

- Show product listings
- Get product details
- Add an item to the cart
- Place an order

This is where a **Web API** comes in.

Example API Endpoints:

Action	HTTP Method	URL	Description
Get all products	GET	/api/products	Returns a list of all products
Get product by ID	GET	/api/products/5	Returns details of product with ID = 5
Add product to cart	POST	/api/cart	Adds a product to the shopping cart
Place an order	POST	/api/orders	Creates a new order
Get order status	GET	/api/orders/123/status	Gets the status of order #123

How it works:

Client (Browser / Mobile App):

Sends an HTTP request:

http

Copy code

GET /api/products

Web API (Backend in ASP.NET Core):

Returns a JSON response:

json

Copy code

```
[
  { "id": 1, "name": "Laptop", "price": 999.99 },
  { "id": 2, "name": "Phone", "price": 699.99 }
]
```

Client:

Parses the JSON and displays the products to the user.

In Summary:

A **Web API** acts like the **bridge between the front-end and back-end**, enabling real-time interactions like browsing products, ordering, and checking status — all using simple HTTP requests and JSON data.