```
using Microsoft.AspNetCore.Http;
using Microsoft.AspNetCore.Mvc;
using System.Reflection.Metadata.Ecma335;

namespace ASPCoreWebAPI.Controllers
{
    //[Route("api/[controller]/[action]")] //using url with methods
    [Route("api/[controller]")]
    [ApiController]
    public class FruitsController : ControllerBase
    {
        public List<string> fruits = new List<string>()
        {
            "Apple",
            "banana",
            "Cherry",
            "Guava"
        };

        [HttpGet]
        public List<string> GetFruits()
        {
            return fruits;
        }

        [HttpGet("{id}")]
        public string GetFruitById(int id)
        {
            return fruits.ElementAt(id);
        }

        [HttpPost("{fruit}")]
        //[Route("[action]")]
        public IActionResult AddFruits(string fruit)
        {
            fruits.Add(fruit);
            return Ok("Fruit added successfully");
        }

        [HttpPut("{fruit}")]
        public IActionResult UpdateFruits(int id, [FromBody] string fruit)
        {
            if(id<0 || id >= fruits.Count)
            {
                return NotFound("Fruit Not Found");
            }

            fruits[id] = fruit;
            return Ok("Fruit added successfully");
        }

        [HttpDelete("{id}")]
        public IActionResult DeleteFruit(int id)
        {
            if (id < 0 || id > fruits.Count)
                return NotFound("Id not found");

            fruits.RemoveAt(id);
            return Ok("Fruit Deleted Sucessfully");
        }
    }
}
```

API

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- Before we understand what is Web API, let's see what is an API **(Application Programing Interface)**.
- As per Wikipedia's Definition of API: In computer programming, (API) is a set of **subroutine definitions**, **protocols**, and **tools** for building software and applications.

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Some Examples of APIs

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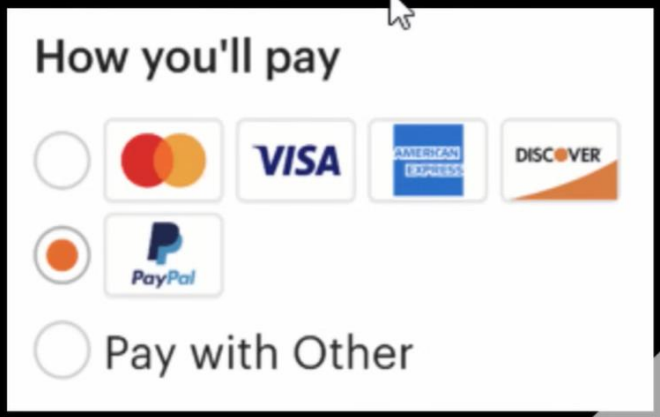
- **Pay with PayPal**



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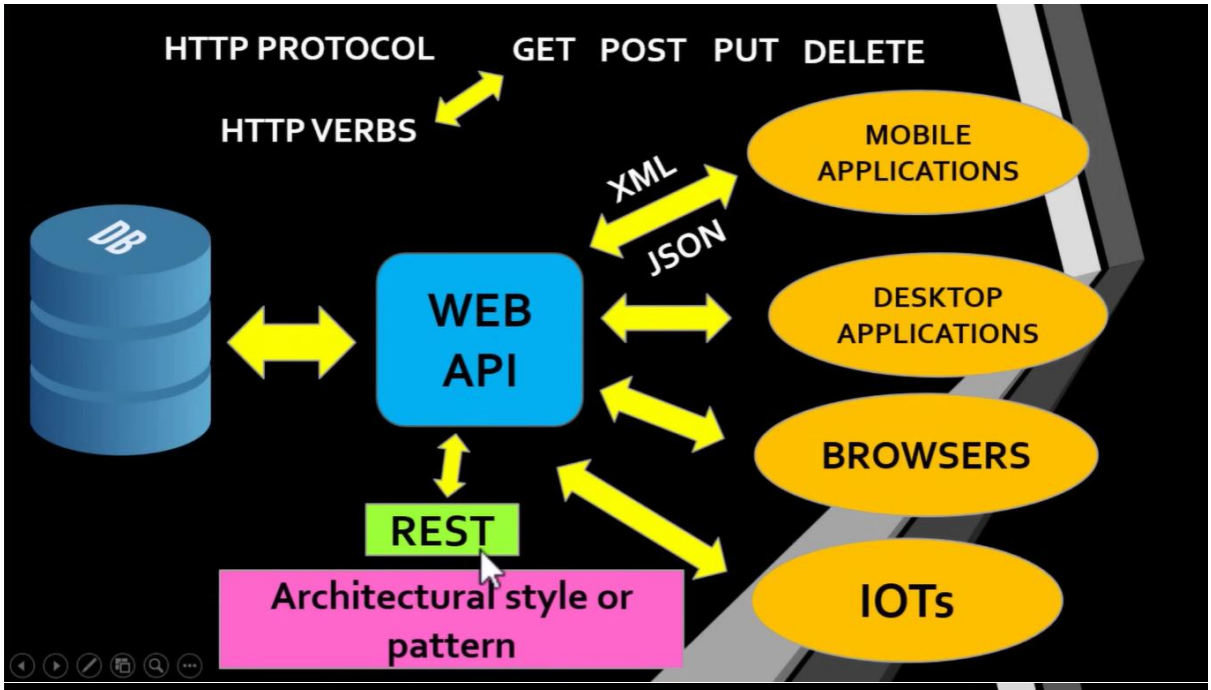
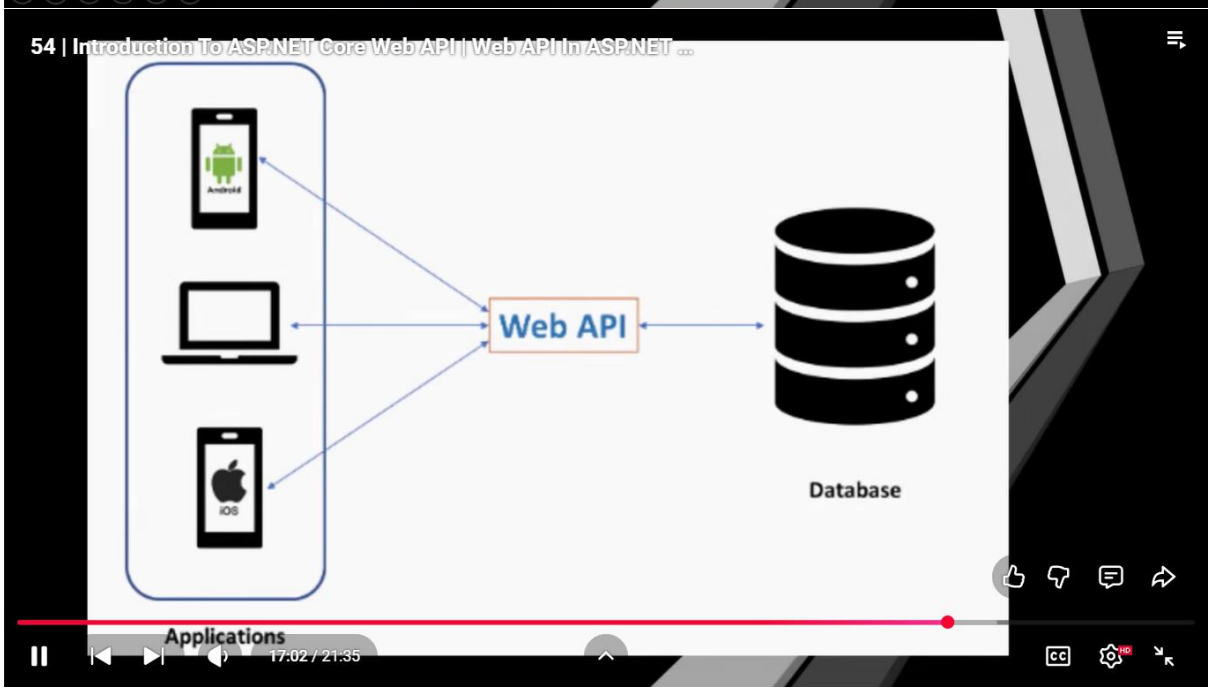

HTTP PROTOCOL
GET POST PUT DELETE
HTTP VERBS
MOBILE APPLICATIONS
XML
JSON
DB
WEB API
DESKTOP APPLICATIONS
BROWSERS
REST
Architectural style or pattern
IOTs


54 | Introduction To ASP.NET Core Web API | Web API In ASP.NET ...
Android
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Database
iOS
Applications
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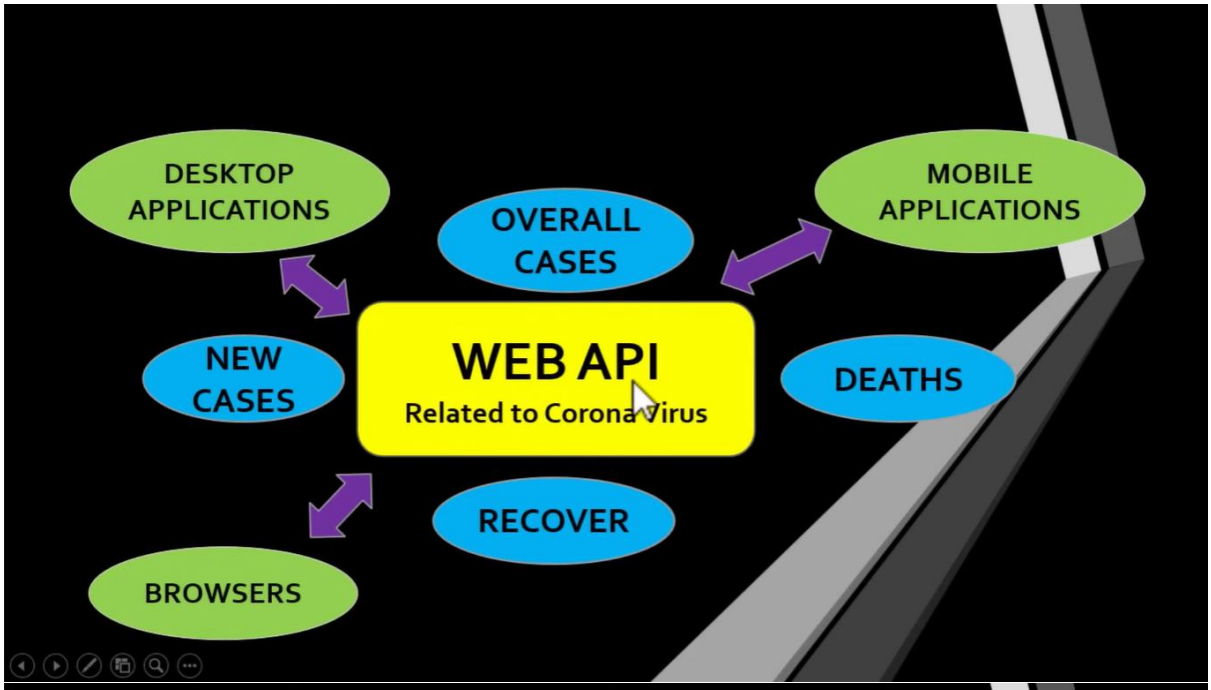

Web API

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- A **Web API** (Application Programming Interface) is a set of **endpoints** that allow different software applications to **communicate with each other over the internet.**

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Web API

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ASP.NET Core Web API

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- ASP.NET Core Web API is a **framework** developed by **Microsoft** that allows you to build and create **RESTful APIs** (Application Programming Interfaces) using the ASP.NET Core platform.
- It's designed to facilitate the development of lightweight, fast, and efficient APIs that can be consumed by **various clients**, such as **web applications, mobile apps, or other services.**

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ASP.NET Core Web API

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- Web API allows users to access a particular resource using **HTTP protocol**.
- We can build Web API using different technologies like **.NET, PHP, JAVA, PYTHON etc**
- In **.Net** Microsoft has created a framework for web API called **ASP.NET Core WEB API**.
- ASP.NET Core Web API is a **framework** that makes it easy to build HTTP web services **(Restful HTTP services).**

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ASP.NET Core Web API

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- It is provided by **Dot Net Framework.**
- That web services reaches a broad range of clients, including browser, mobile applications, Desktop application and IOTs.
- It is very similar to **ASP.NET MVC** since it contains the **MVC features**.

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ASP.NET Core Web API

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- Web API is a programming interface/application type that provides communication or interaction between **software applications**.
- Web API is often used to provide an interface for web sites and client applications to have **data access**.
- Web APIs can be used to **access data from a database** and **save data back to the database.**

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RESTFUL Architecture:

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- ASP.NET Core Web API follows the principles of **Representational State Transfer (REST).**
- It uses HTTP methods like **GET, POST, PUT, and DELETE** to interact with resources identified by **URLs (Uniform Resource Locators).**

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RESTFUL Architecture:

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- Rest Stands for **"Representational state transfer".**
- Its introduce in **2000** by **Roy Fielding**.
- In REST architecture, a **REST Server** simply provides access to resources and the **REST client** accesses and presents the resources.
- Here each resource is identified by **URIs/ Global IDs.**

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RESTFUL Architecture:

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- A **resource** is any information that has name like **image, entity, document etc.**
- REST uses various representations to represent a resource like **Text, JSON and XML.**
- **JSON** is now the most popular format being used in Web Services.

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RESTFUL Architecture:

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- A Restful system consists of:
  - **client** who requests for the resources.
  - **server** who has the resources.

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What is Restful Services

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- REST architectural pattern specifies a set of **constraints** that a system adhere to.

1. Uniform Interface
2. Client Server
3. Stateless
4. Cacheable
5. Layered system
6. Code on demand

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Restful API

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RESOURCE	VERB	RESULT
/Students	GET	Gets list of students
/Students/1	GET	Gets student with id = 1
/Students	POST	Creates a new student
/Students/1	PUT	Updates student with id = 1
/Students/1	DELETE	Deletes student with id = 1

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What Is Swagger ?

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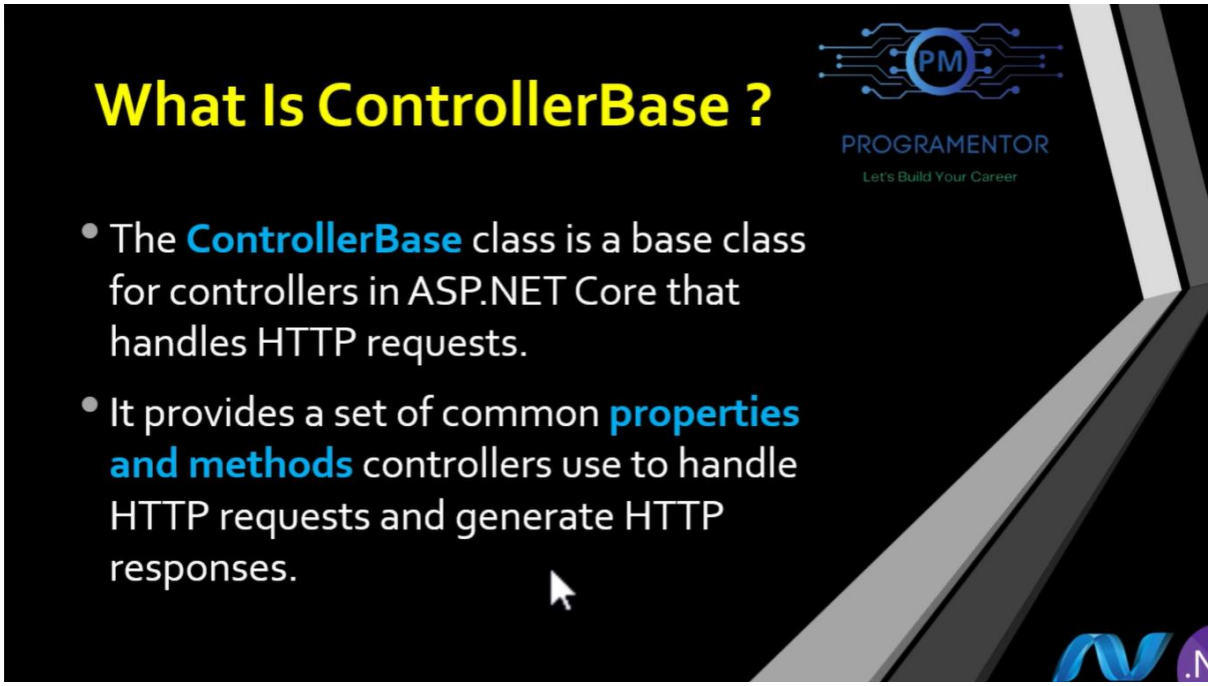
- Swagger is used to **describe** Restful APIs.
- Swagger allows developer to create interactive and human-readable API **documentation**.
- Swagger is used to **Test** the APIs.


What Is ControllerBase ?
PM
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The ControllerBase class is a base class for controllers in ASP.NET Core that handles HTTP requests.
It provides a set of common properties and methods controllers use to handle HTTP requests and generate HTTP responses.