



# Session 8

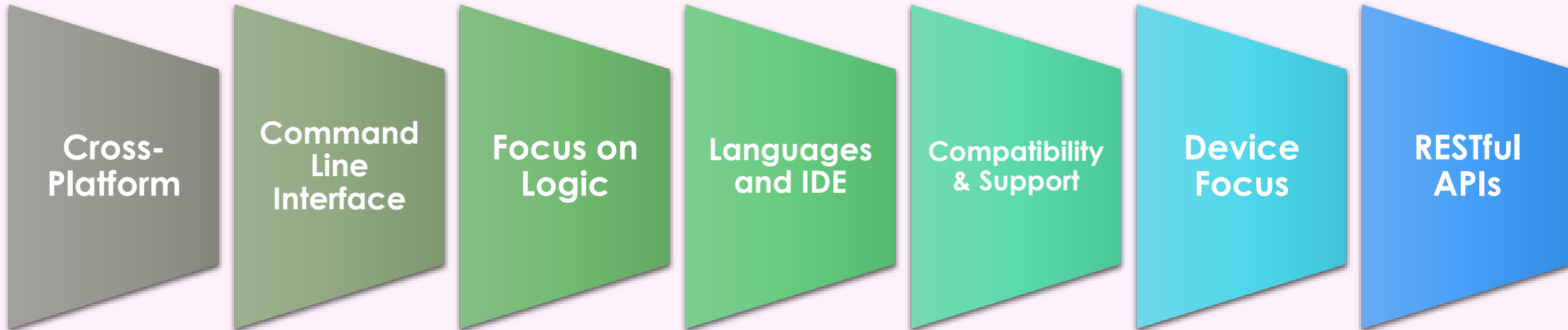
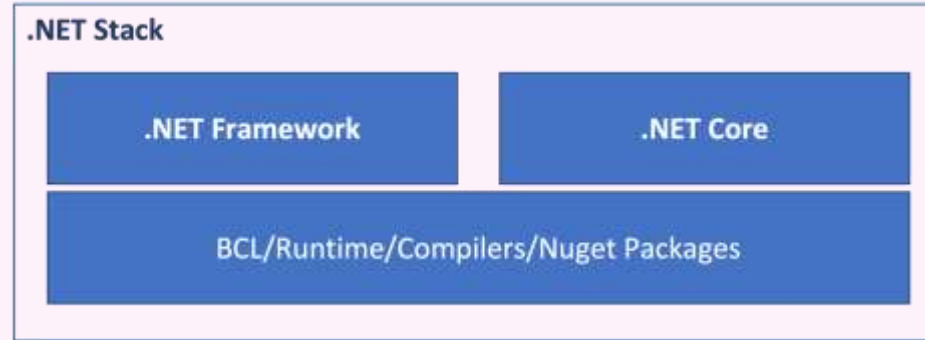
*.NET Core  
Architecture  
and Kestrel Web  
Server  
Implementation*

# Session Overview

- Describe .NET Core architecture
- Detail the execution of Main method
- Describe the Kestrel server
- Describe the OWIN architecture
- Explain REST API architecture

# .NET Core Architecture

**Figure 8.1: .NET Stack**



**Features of .NET Core**


# Main Method in ASP.NET Core Applications

```
12  public class Program
13  {
14      public static void Main(string[] args)
15      {
16          CreateHostBuilder(args).Build().Run();
17      }
18  }
```

**Figure 8.2: Main Method**

```
public static void Main(string[] args)
{
    CreateHostBuilder(args).Build().Run();
}
```

1 reference

 `IHostBuilder Program.CreateHostBuilder(string[] args)`

**Figure 8.3: CreateHostBuilder () Method**

# Kestrel Server

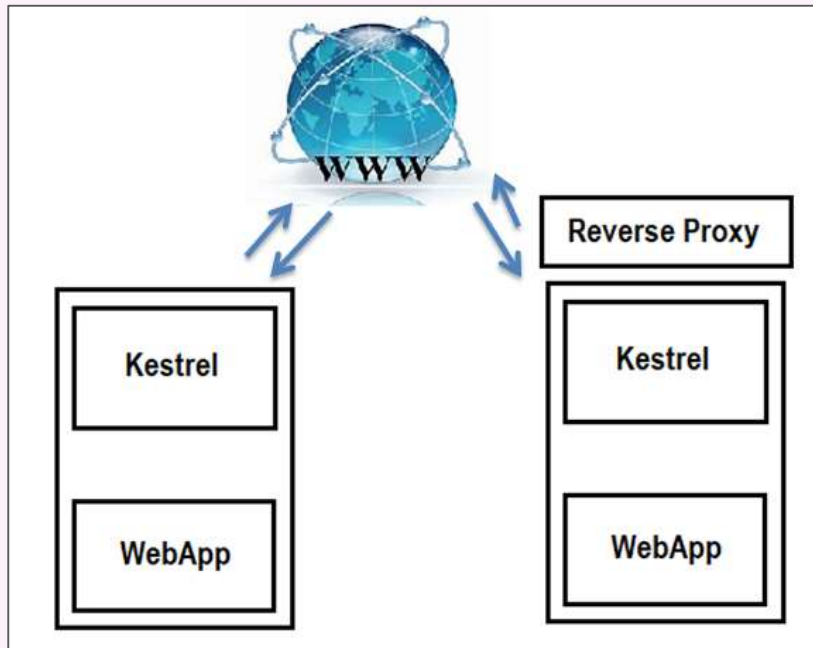


Figure 8.4: Kestrel Server

```
12  public class Program
13  {
14      0 references
15      public static void Main(string[] args)
16      {
17          CreateHostBuilder(args).Build().Run();
18      }
19
20      1 reference
21      public static IHostBuilder CreateHostBuilder(string[] args) =>
22      {
23          Host.CreateDefaultBuilder(args)
24              .ConfigureWebHostDefaults(webBuilder =>
25              {
26                  webBuilder.UseStartup<Startup>();
27              });
28      }
```

Figure 8.5: ConfigureWebHostDefaults Method

# OWIN Architecture

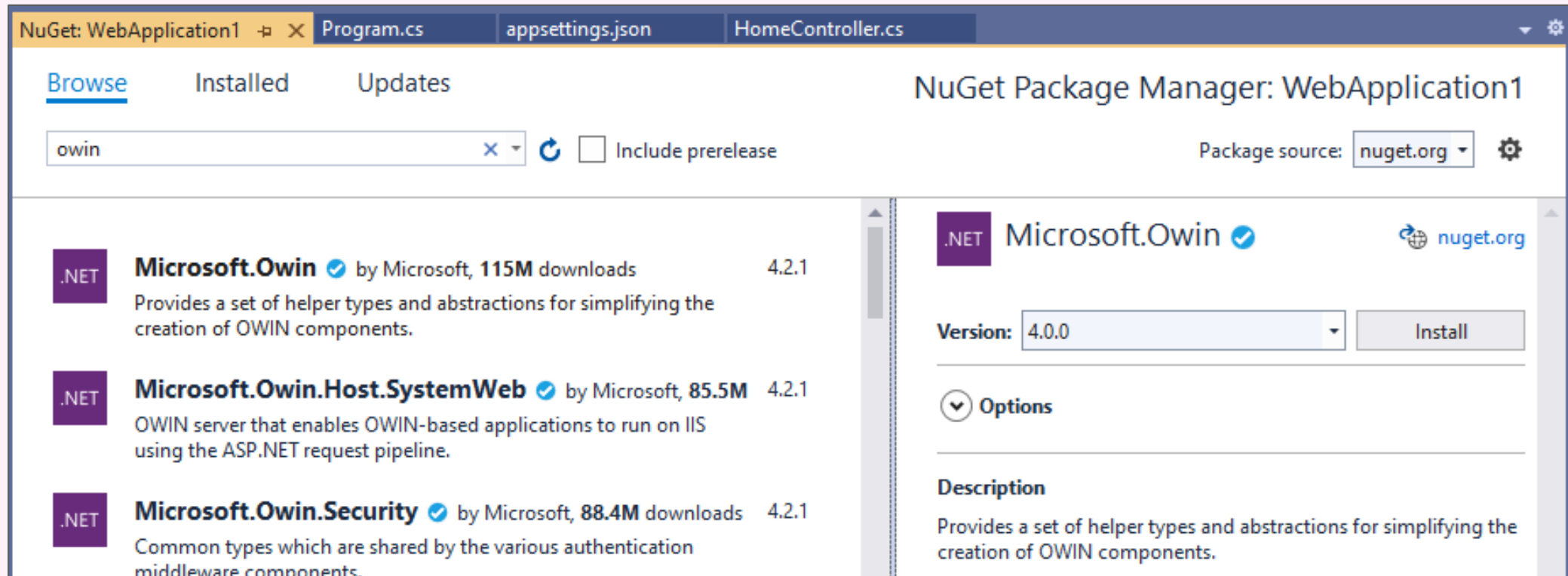


Figure 8.6: NuGet Package Manager

# RESTful Web API

**GET**

To access a resource in a read-only mode

**POST**

To create a new resource

**DELETE**

To delete a resource

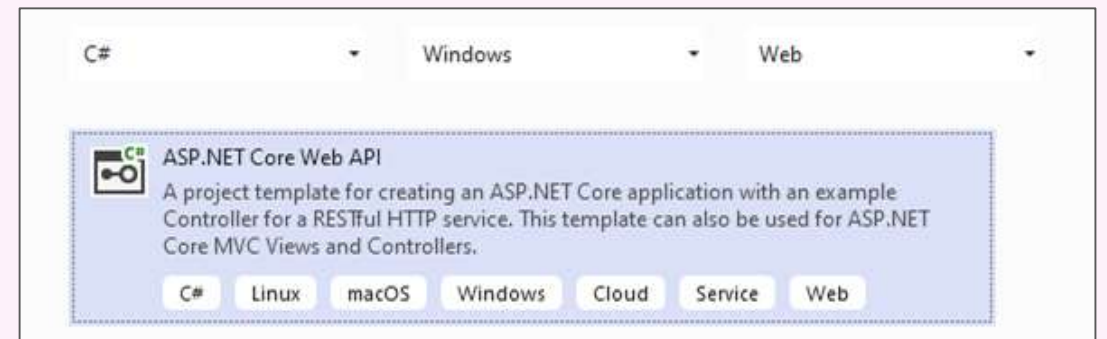
**PUT**

To update an existing resource or create a new one

## Core HTTP Attributes in REST System



**Figure 8.7: RESTful Web API**



**Figure 8.8: RESTful API Template**

# Summary(1-2)

- .NET Core is a platform where frameworks such as ASP.NET Core and Universal Windows Platform can use and extend the functionalities of the platform.
- Cross-Platform and architecture, Command Line Tools, Flexible CI/CD, Languages and IDEs, and Compatibility and Support are some of the features of .NET Core.
- The Main method is the entry point of the application in the ASP.NET Core application, which starts the execution from there.
- When the Main() method configures ASP.NET Core, the application becomes an ASP.NET Core Web application.
- Kestrel is a cross-platform Web server for ASP.NET Core that works with all .NET Core platforms and versions.



# Summary(2-2)

- Kestrel is the internal Web server included by default in the .NET Core application.
- OWIN for .NET is an open-source framework that provides interface requirements to allow Web servers and applications to communicate.
- OWIN-based applications, servers, and middleware may communicate with ASP.NET Core applications and middleware.
- REST is an architectural approach for establishing standards among Web-based applications, allowing them to communicate more easily.
- Built on the REST architecture, RESTful API is a lightweight, maintainable, and scalable service.