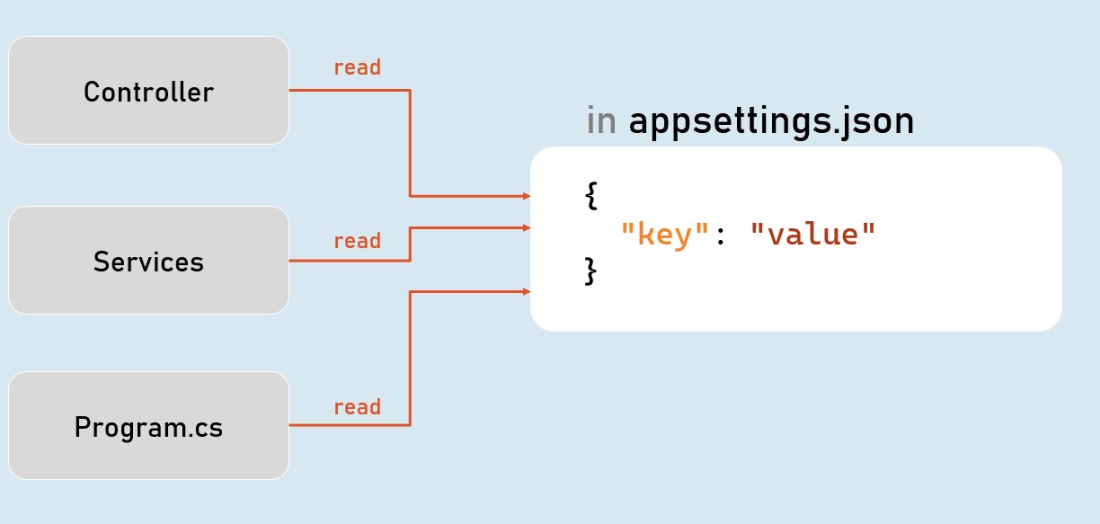
Section Cheat Sheet (PPT)

Configuration Settings

> Configuration (or configuration settings) are the constant key/value pairs that are set at a common location and can be read from anywhere in the same application.

Examples: connection strings, Client ID & API keys to make REST-API calls, Domain names, Constant email addresses etc.



Configuration Sources

1. appsettings.json
2. Environment Variables
3. File Configuration (JSON, INI or XML files)
4. In-Memory Configuration
5. Secret Manager

Access Configuration

in Program.cs:

`app.Configuration`

IConfiguration

[string key]

Gets or sets configuration value at the specified key.

GetValue<T>(string key, object defaultValue)

Gets the configuration value at the specified key; returns the default value if the key doesn't exists.

IConfiguration in Controller

in Controller and other classes

```
using Microsoft.AspNetCore.Mvc;
using Microsoft.Extensions.Configuration;

public class ControllerName : Controller
{
  private readonly IConfiguration _configuration;

  public ControllerName(IConfiguration configuration)
  {
   _configuration = configuration;
  }
}
```

Hierarchical Configuration

in appsettings.json

```
{
 "MasterKey":
 {
  "Key1": "value"
  "Key2": "value"
 }
}
```

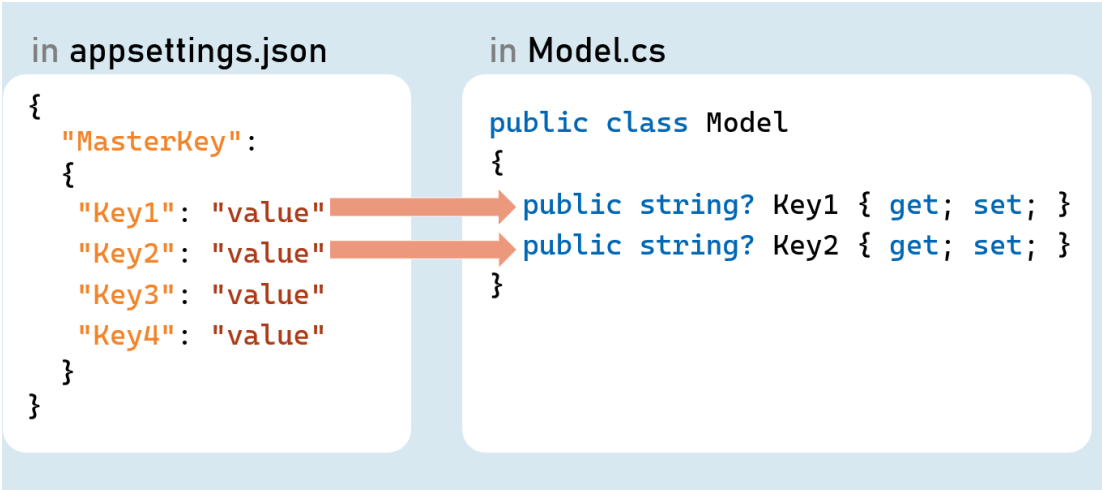
to read configuration

`Configuration["MasterKey:Key1"]`

IConfiguration.GetSection(string key)

Returns an IConfigurationSection based on the specified key.

Options Pattern



Options pattern uses custom classes to specify what configuration settings are to be loaded into properties.

Examples: Reading the specific connections strings out of many configuration settings.

The option class should be a non-abstract class with a public parameterless constructor.

Public read-write properties are bound.

Fields are not bound.

IConfiguration.GetSection(string key)

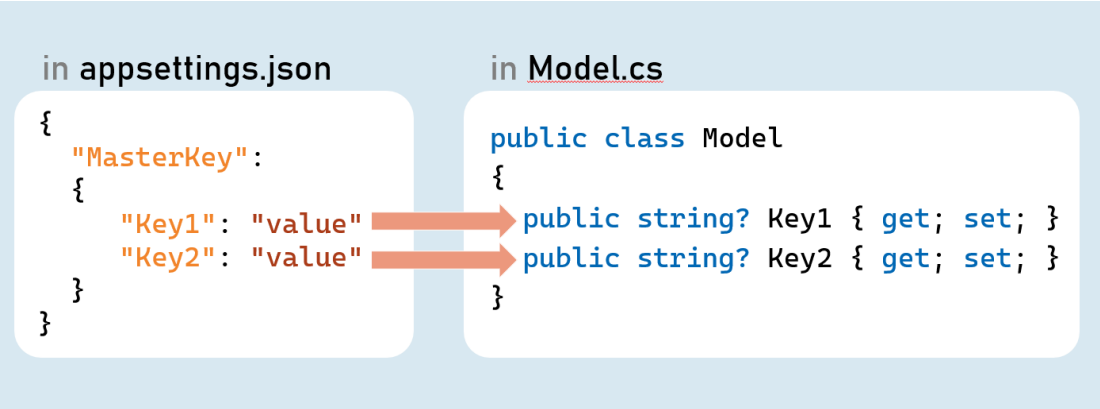
Returns an IConfigurationSection based on the specified key.

IConfiguration.Bind(object instance) and IConfiguration.Get<T>()

Binds (loads) configuration key/value pairs into a new object of the specified type.

Configuration as Service

Inject Configuration as Service



Add Configuration as Service

in Program.cs:

```
builder.Services.Configure<Model>
(builder.Configuration.GetSection("MasterKey"));
```

Inject Configuration as Service in Controller in Controller and other classes

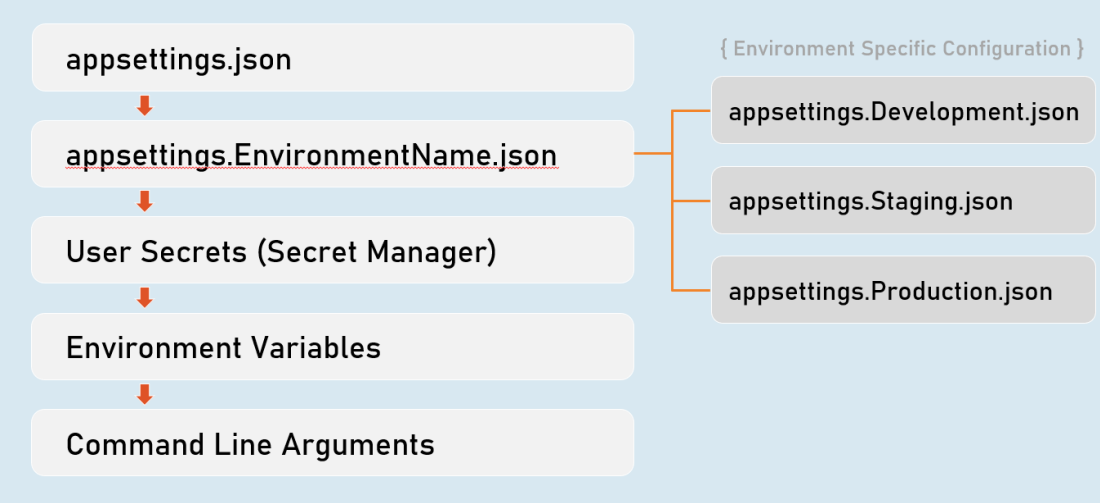
```
using Microsoft.AspNetCore.Mvc;
using Microsoft.Extensions.Options;

public class ControllerName : Controller
{
  private readonly Model _options;

  public ControllerName(IOptions<Model> options)
  {
   _options = options.Value;
  }
}
```

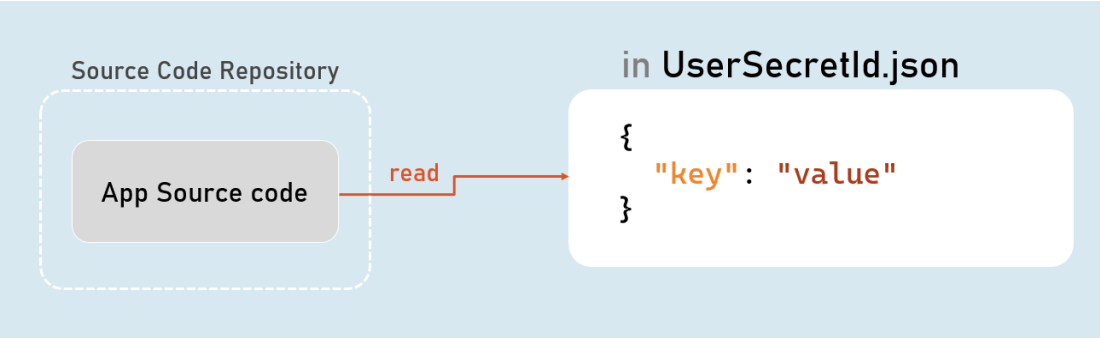
Environment Specific Configuration

Order of Precedence of Configuration Sources



Secrets Manager

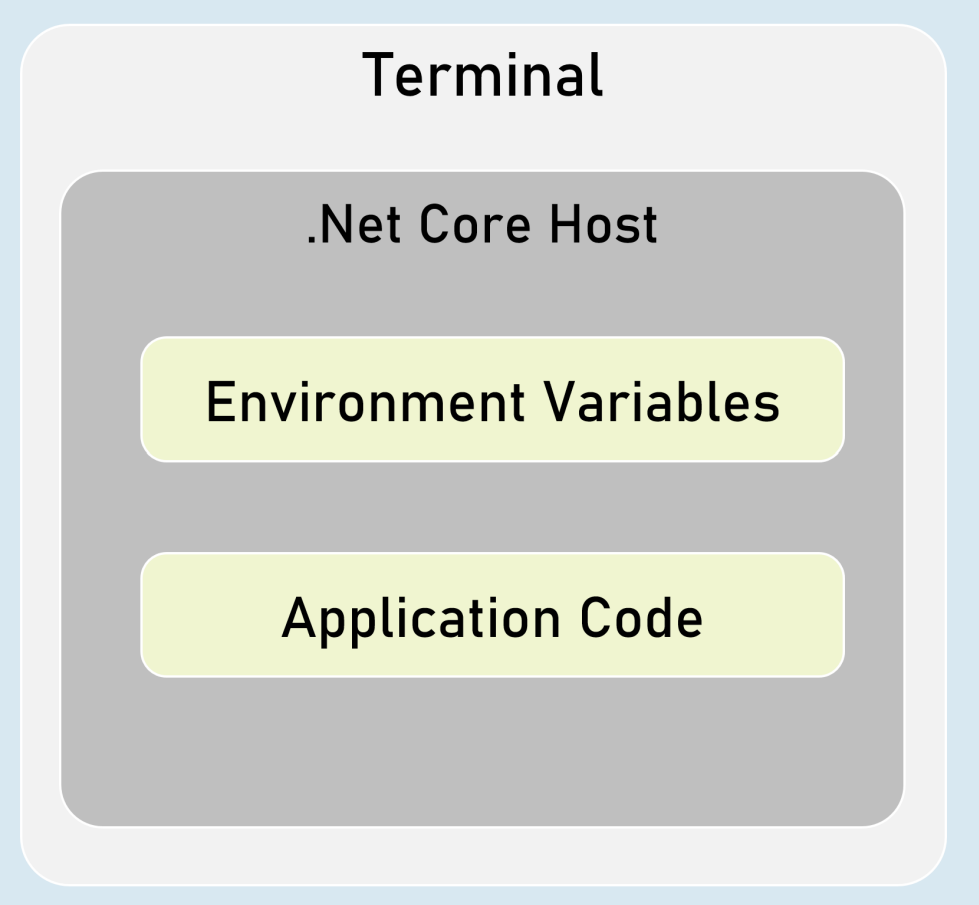
The 'secrets manager ' stores the user secrets (sensitive configuration data) in a separate location on the developer machine.



Enable Secrets Manager in "Windows PowerShell" / "Developer PowerShell in VS"

```
dotnet user-secrets init
dotnet user-secrets set "Key" "Value"
dotnet user-secrets list
```

Environment Variables Configuration



You can set configuration values as in-process environment variables.

Set Configuration as Environment Variables

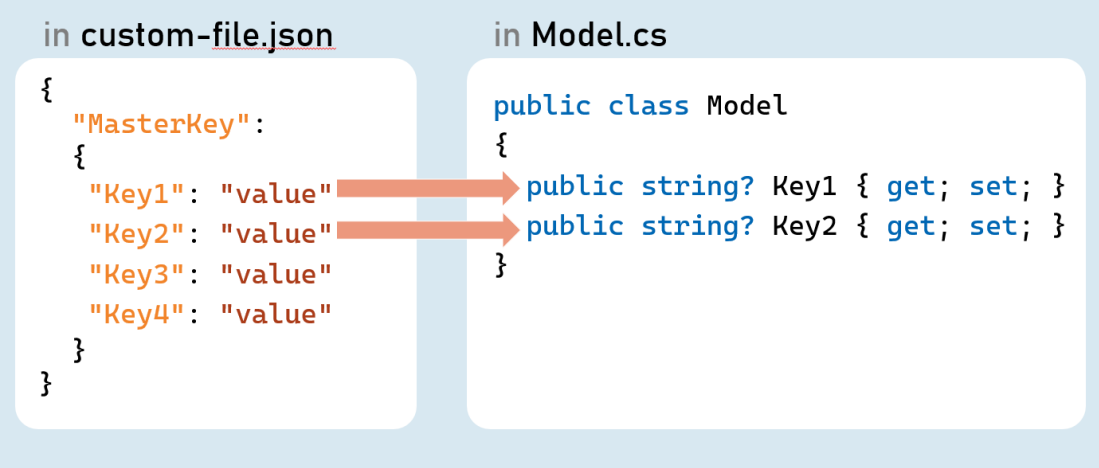
in "Windows PowerShell" / "Developer PowerShell in VS":

```
$Env:ParentKey__ChildKey="value"
dotnet run --no-launch-profile
```

It is one of the most secured way of setting-up sensitive values in configuration.

__ (underscore and underscore) is the separator between parent key and child key.

Custom Json Configuration



Add Custom Json file as Configuration Source

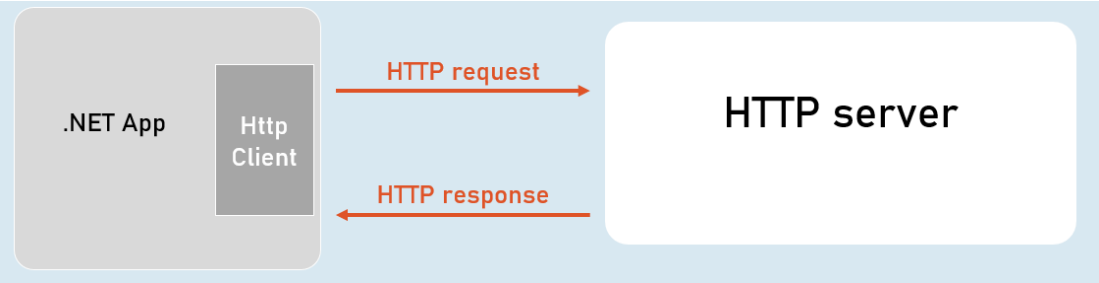
in Program.cs:

```
builder.Host.ConfigureAppConfiguration( (hostingContext, config) => {
    config.AddJsonFile("filename.json", optional: true, reloadOnChange: true);
});
```

Http Client

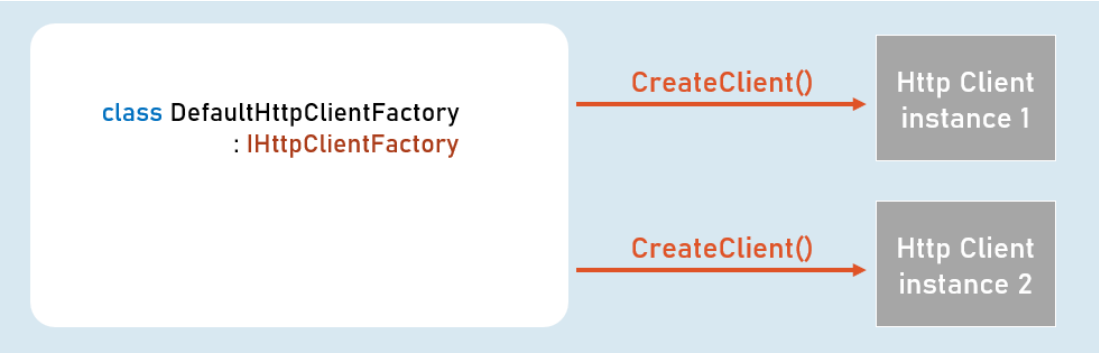
HttpClient is a class for sending HTTP requests to a specific HTTP resource (using its URL) and receiving HTTP responses from the same.

Examples: Making a request to a third-party weather API, ChatGPT etc.



IHttpClientFactory

IHttpClientFactory is an interface that provides a method called CreateClient() that creates a new instance of HttpClient class and also automatically disposes the same instance (closes the connection) immediately after usage.



HttpClient

Properties

- BaseAddress
- DefaultRequestHeaders

Methods

- GetAsync()
- PostAsync()
- PutAsync()
- DeleteAsync()