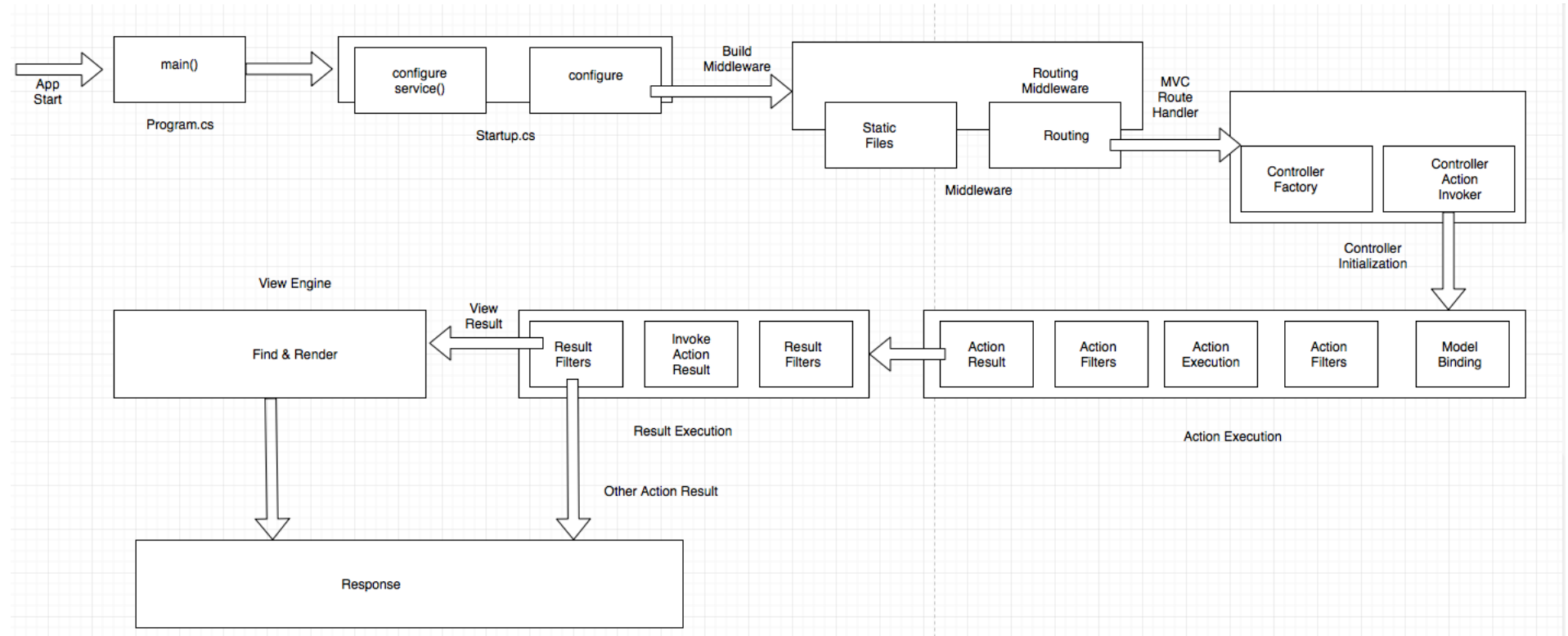




## ASP.NET CORE: THE MVC REQUEST LIFE CYCLE


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Application start and hit the main() method inside the Program.cs.



```
public class Program
{
    public static void Main(string[] args)
    {
        var host = new WebHostBuilder()
            .UseKestrel()
            .UseContentRoot(Directory.GetCurrentDirectory())
            .UseIISIntegration()
            .UseStartup<Startup>()
            .Build();

        host.Run();
    }
}
```

## WebHostBuilder

The **WebHostBuilder** class is the helper class to create and configure a host for a web application.

### UseKestrel()

The `UseKestrel()` method is an extension method which specifies **Kestrel** as an internal web server. The **Kestrel** is an open-source, cross-platform web server for ASP.NET Core.

### UseContentRoot()

The `UseContentRoot()` method specifies the current directory as a root directory which will be **src** folder in the default ASP.NET Core project. The content root directory determines where the content files are located such as MVC view files, CSS, images etc.

### UseIISIntegration()

The `UseIISIntegration()` method specifies the IIS as the external web server or the reverse proxy server.

### UseStartup<startup>()

The `UseStartup<startup>()` method specifies the Startup class to be used by the web host. This Startup class is like Global.asax of .NET framework where you can configure request pipeline (middleware).



## Run()

The `Run()` method starts the web application and blocks the calling thread till the host is shutdown.

The startup class can be configured using `UseStartup<T>()` method at the time of configuring the host in the `Main()` method of `Program` class.

## ConfigureServices():

The `ConfigureServices` method is a place where you can register your dependent classes with the built-in IoC container. After registering dependent class, it can be used anywhere in the application. You just need to include it in the parameter of the constructor of a class where you want to use it. The IoC container will inject it automatically.

## Configure():

The `Configure` method is a place where you can configure application request pipeline for your application using `IApplicationBuilder` instance that is provided by the built-in IoC container.

ASP.NET Core introduced the middleware components to define a request pipeline, which will be executed on every request. You include only those middleware components which are required by your application and thus increase the performance of your application.

## Middleware

MVC application in .NET Core are built on top of a concept called **middleware**. Middleware components form the basic building block of the application's HTTP pipeline, such as the ability to serve the files and route requests.

## Routing Middleware

MVC is actually implements through this routing middleware components, which acts as sort of a gateway into the framework.

A class called MVC Route Handler is used to handling incoming URL's that match a certain route template. These requests are then handed to MVC framework.



## MVC Route Handler

MVC Route Handler begins the process of initialising and executing a Controller. Route data obtained from the incoming URL is converted into a concrete controller that can handle request.

## Controller Factory

Controller Factory which is responsible for creating an instance of the controller class.

## Controller Action Invoker

Controller Action Invoker a component which find and selects an appropriate Action Method on that controller to process the request. Before the method is called Model Binding takes place, which maps additional data from our HTTP requests to parameters on our Action Methods.

## Action Filter

Action Filters are also called before and after the method produces an Action Result.

## Action Result

After our Action Result has been prepared, the next stage triggers which is Result Execution. MVC separates declaring the result from executing the result. If the result is of type view, then View Engine will be called and is responsible for finding and rendering our view. If the result is not View, the Action Result will usually execute and generate its own response. This result Execution is what finally generates the response to the original HTTP request that goes back to the Client.



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