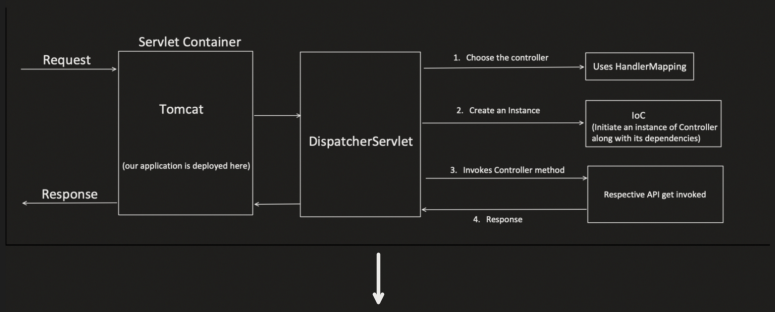
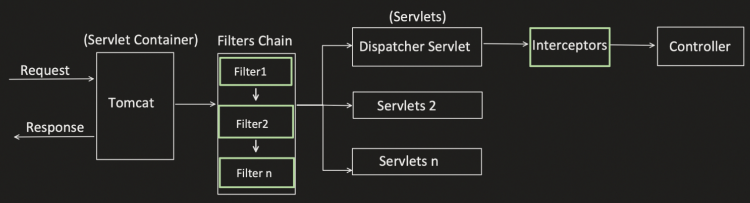
Springboot: Filters Vs Interceptors

Filter:
It intercept the HTTP Request and Response, before they reach to the servlet.

Interceptor:
Its specific to Spring framework, and intercept HTTP Request and Response, before they reach to the Controller.

Lets see this diagram again:





What is servlet:

Servlet is nothing but a Java class, which accepts the incoming request, process it and returns the response.

We can create multiple servlets like:

Servlet 1: can be configured to handle REST APIs
Servlet 2 : can be configured to handle SOAP APIs etc....

Similarly like this, **"DispatcherServlet"** is kind of servlet provided by spring, and by default its configured to handle all APIs "/*".

Filter:
Is used when we want to intercept HTTP Request and Response and add logic agnostic of the underlying servlets.
We can have many filters and have ordering between them too.

Interceptors:
Is used when we want to intercept HTTP request and response and add logic specific to a particular servlet.
We can have many Interceptors and have ordering between them too.

Multiple Interceptors and its Ordering:

In previous video, we already saw, how to add 1 interceptor.
How "preHandle" , "postHandle" and "afterCompletion" comes into the picture.

Now here, will show how to add more than 1.

Also, if "preHandle" returns false, next interceptor and controller will not get invoked itself.

```
@Configuration
public class AppConfig implements WebMvcConfigurer {

    @Autowired
    MyCustomInterceptor1 myCustomInterceptor1;

    @Autowired
    MyCustomInterceptor2 myCustomInterceptor2;


    @Override
    public void addInterceptors(InterceptorRegistry registry) {
        //below order is maintained while calling interceptors
        registry.addInterceptor(myCustomInterceptor1)
                .addPathPatterns("/api/*") // Apply to these URL patterns
                .excludePathPatterns("/api/updateUser", "/api/deleteUser"); // Exclude for these URL patterns

        registry.addInterceptor(myCustomInterceptor2)
                .addPathPatterns("/api/*") // Apply to these URL patterns
                .excludePathPatterns("/api/updateUser");
    }
}
```

Output:

```
2024-09-02T17:01:11.719+05:30  INFO 7162 --- [nio-8080-exec-1] o.s.web.servlet.DispatcherServlet
2024-09-02T17:01:11.720+05:30  INFO 7162 --- [nio-8080-exec-1] o.s.web.servlet.DispatcherServlet
inside pre handle Method - MyCustomInterceptor1
inside pre handle Method - MyCustomInterceptor2
hitting db to get the userdata
inside post handle method- MyCustomInterceptor2
inside post handle method- MyCustomInterceptor1
inside after completion method - MyCustomInterceptor2
inside after completion method- MyCustomInterceptor1
```

How to Add Filters:

```
import jakarta.servlet.*;
import java.io.IOException;

public class MyFilter1 implements Filter {
    @Override
    public void init(FilterConfig filterConfig) throws ServletException {
        Filter.super.init(filterConfig);
    }

    @Override
    public void doFilter(ServletRequest servletRequest, ServletResponse servletResponse, FilterChain filterChain)
            throws IOException, ServletException {

        System.out.println("MyFilter1 inside");
        filterChain.doFilter(servletRequest, servletResponse);
        System.out.println("MyFilter1 completed");
    }

    @Override
    public void destroy() {
        Filter.super.destroy();
    }
}
```

```
import jakarta.servlet.*;
import java.io.IOException;

public class MyFilter2 implements Filter {
    @Override
    public void init(FilterConfig filterConfig) throws ServletException {
        Filter.super.init(filterConfig);
    }

    @Override
    public void doFilter(ServletRequest servletRequest, ServletResponse servletResponse, FilterChain filterChain)
            throws IOException, ServletException {

        System.out.println("MyFilter2 inside");
        filterChain.doFilter(servletRequest, servletResponse);
        System.out.println("MyFilter2 completed");
    }

    @Override
    public void destroy() {
        Filter.super.destroy();
    }
}
```

```
@Configuration
public class AppConfig {

    @Bean
    public FilterRegistrationBean<MyFilter1> myFirstFilter() {
        FilterRegistrationBean<MyFilter1> filterRegistrationBean = new FilterRegistrationBean<>();
        filterRegistrationBean.setFilter(new MyFilter1());
        filterRegistrationBean.addUrlPatterns("/*");
        filterRegistrationBean.setOrder(2);
        return filterRegistrationBean;
    }

    @Bean
    public FilterRegistrationBean<MyFilter2> mySecondFilter() {
        FilterRegistrationBean<MyFilter2> filterRegistrationBean = new FilterRegistrationBean<>();
        filterRegistrationBean.setFilter(new MyFilter2());
        filterRegistrationBean.addUrlPatterns("/*");
        filterRegistrationBean.setOrder(1);
        return filterRegistrationBean;
    }
}
```

Output:

```
2024-09-02T17:30:39.279+05:30  INFO 7350 --- [nio-8080-exec-1]
2024-09-02T17:30:39.280+05:30  INFO 7350 --- [nio-8080-exec-1]
MyFilter2 inside
MyFilter1 inside
hitting db to get the userdata
MyFilter1 completed
MyFilter2 completed
```

If both Interceptor and Filter used together, Output will look like this.

```
2024-09-02T17:32:25.643+05:30  INFO 7373 --- [nio-8080-exec-1] o.s.web.servlet.DispatcherServlet
2024-09-02T17:32:25.644+05:30  INFO 7373 --- [nio-8080-exec-1] o.s.web.servlet.DispatcherServlet
MyFilter1 inside
MyFilter2 inside
inside pre handle Method - MyCustomInterceptor1
inside pre handle Method - MyCustomInterceptor2
hitting db to get the userdata
inside post handle method- MyCustomInterceptor2
inside post handle method- MyCustomInterceptor1
inside after completion method - MyCustomInterceptor2
inside after completion method- MyCustomInterceptor1
MyFilter2 completed
MyFilter1 completed
```