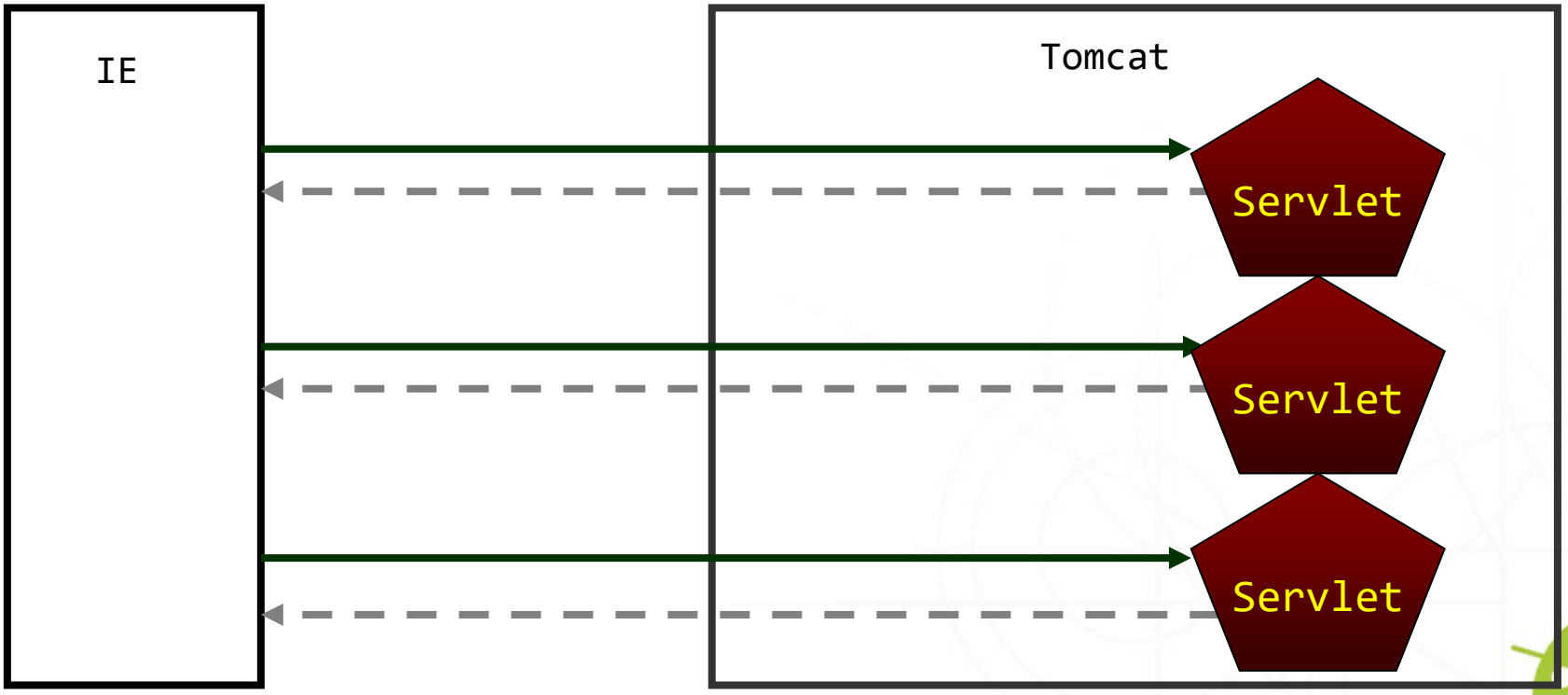
Servlet Filter 過濾器

段維瀚 老師

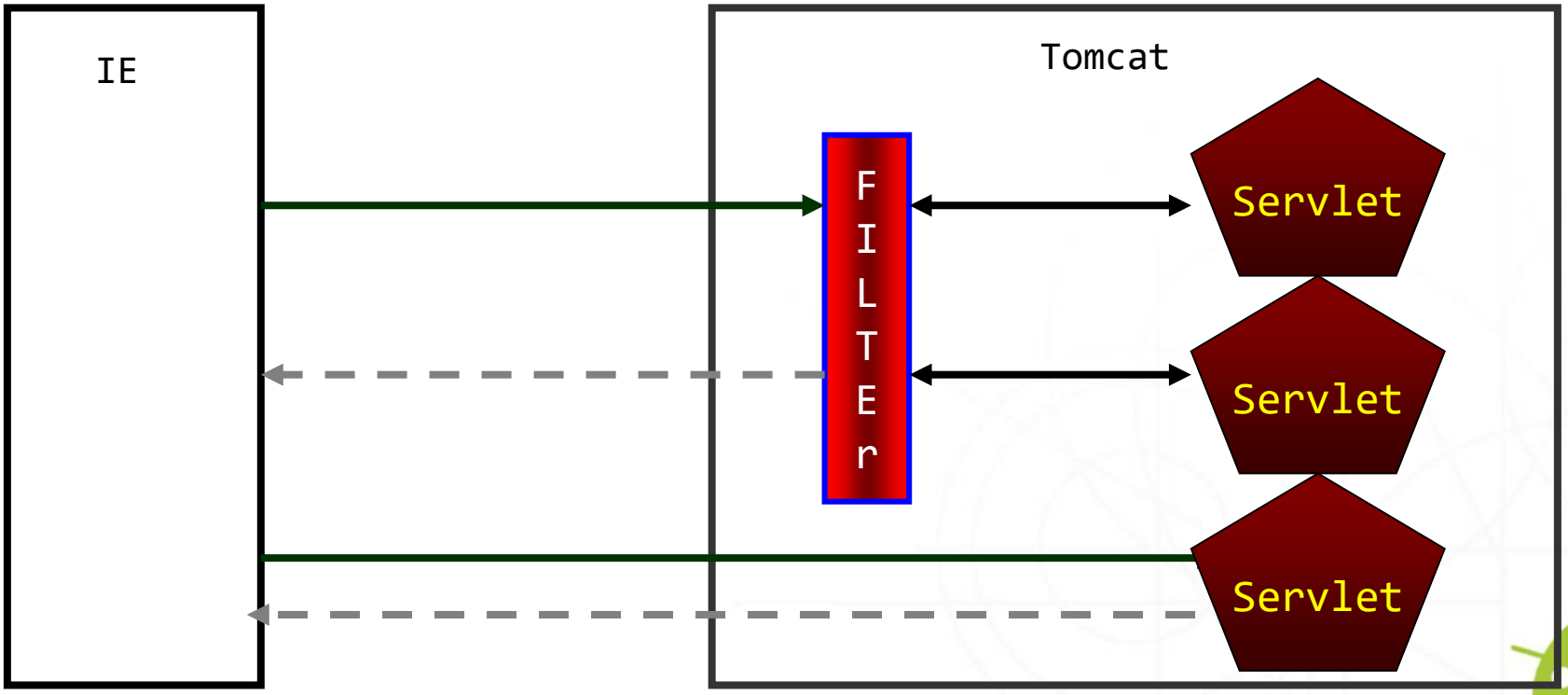
Filter

- Filter 過濾器
  - 可以擔任瀏覽器與JSP/Servlet之間的一個中介處理者，一些request的前置處理動作及一些response的後置處理，都可以交由這個中介處理者來完成
  - 例如某些網頁都需要統一的身份驗證方式時，與其在每一個網頁中都撰寫驗證的程式碼，不如直接撰寫Filter，讓它來統一進行處理。

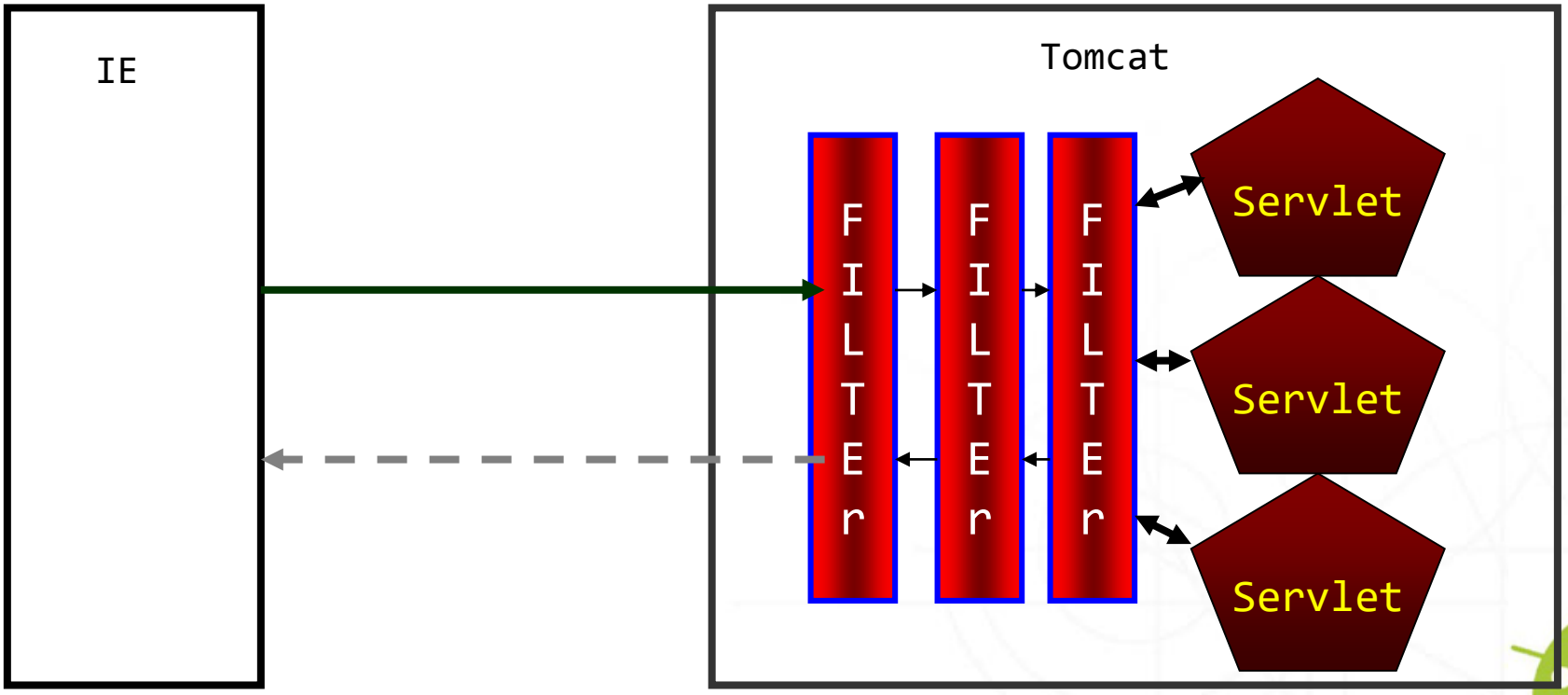
Filter 運作



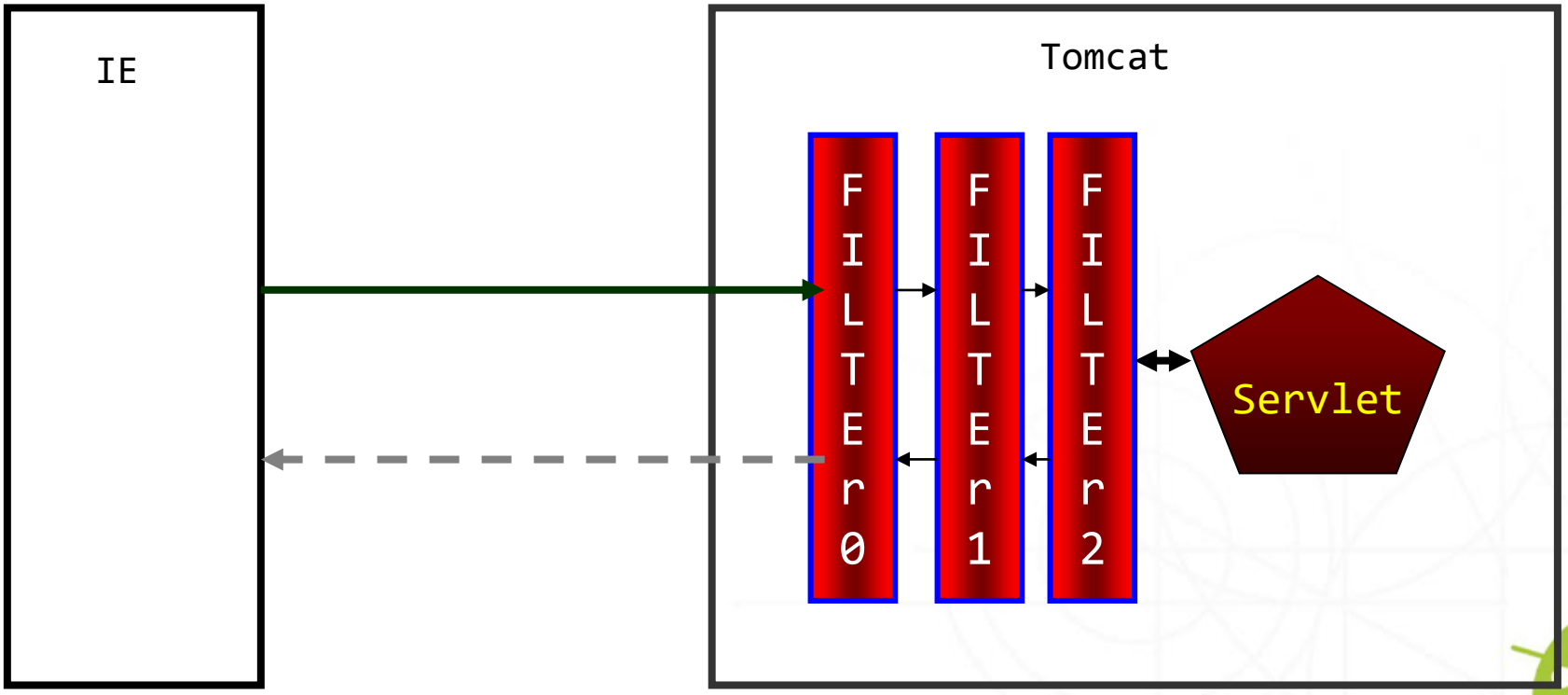
Filter 運作



Filter 運作

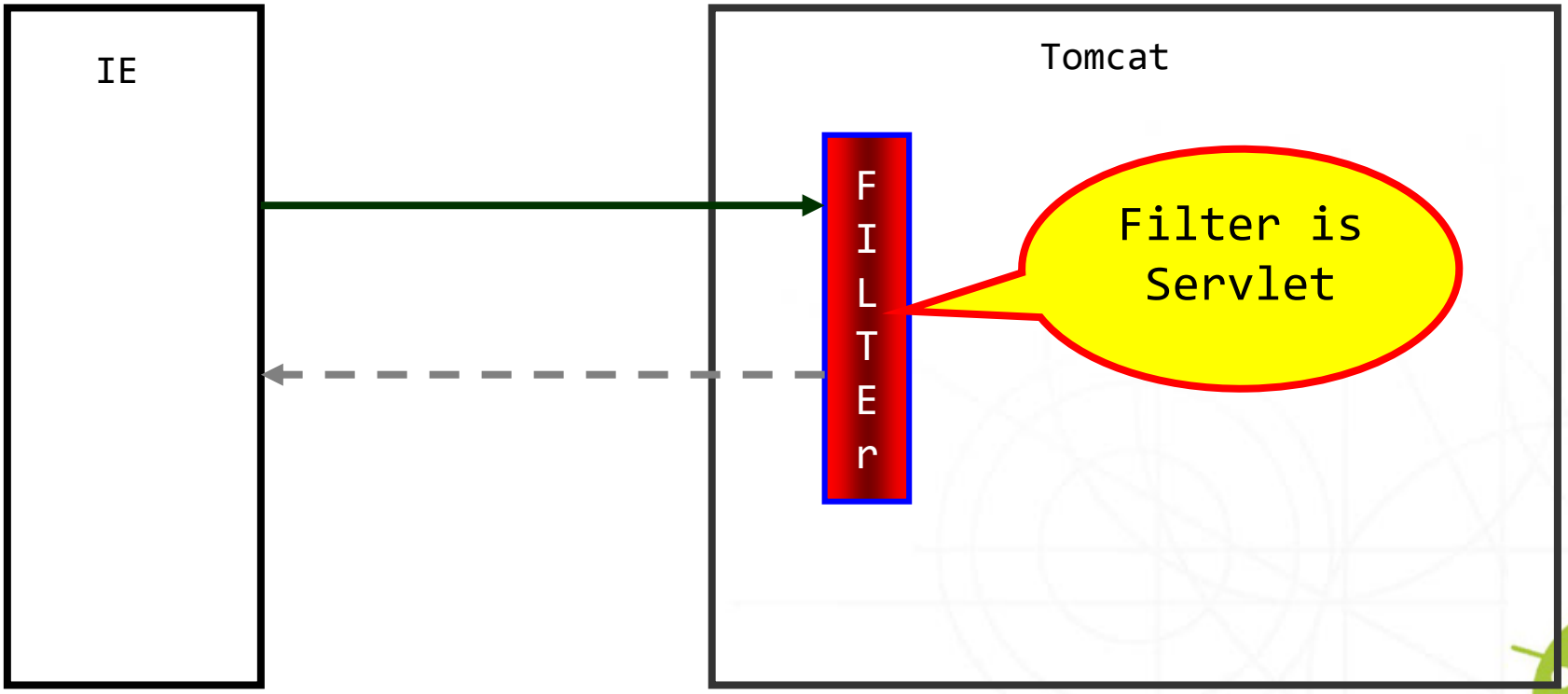


執行順序



1：根據 web.xml 中控制 filter 的位置前後來控制順序
2：若使用 @WebFilter 則是根據 Filter 的 Java 類別名稱字母大小來決定執行順序
Filter0.java -> Filter1.java -> Filter2.java

Filter 運作



Filter

- Filter 過濾器實作
  - Filter實際上是一個純粹的Java類別程式，它要實作javax.servlet.Filter介面，這個介面中有三個必須實作的方法：init()、destory()與doFilter()。init()是Filter類別被載入時會執行的方法，而destory()是 Filter物件生命週期結束時會執行的方，至於doFilter()則是實作Filter功能的核心，您想要Filter完成的工作就撰寫在其中

Filter

- Filter
  - 過濾器介面實作
    - init()是Filter類別被載入時會執行的方法
    - destory()是 Filter物件生命週期結束時會執行的方
    - doFilter()則是實作Filter功能的核心，您想要Filter完成的工作就撰寫在其中
  - GenericFilter
  - HttpFilter

Filter

- Filter 過濾器實作
  - init()是Filter類別被載入時會執行的方法
  - destory()是 Filter物件生命週期結束時會執行的方
  - doFilter()則是實作Filter功能的核心，您想要Filter完成的工作就撰寫在其中

HttpFilter

- Servlet 4.0
  - 只需實作 doFilter()
- pom.xml 配置

```
<dependency>
    <groupId>javax.servlet</groupId>
    <artifactId>javax.servlet-api</artifactId>
    <version>4.0.1</version>
    <scope>provided</scope>
</dependency>
```

量測執行效能過濾器

```
@WebFilter("/servlet/*")
public class PerformanceFilter extends HttpFilter {

  @Override
  protected void doFilter(HttpServletRequest request,
                  HttpServletResponse response, FilterChain chain)
                  throws IOException, ServletException {
    long begin = System.currentTimeMillis();
    chain.doFilter(request, response);
    long end = System.currentTimeMillis();
    System.out.println( chain.getClass() + " : " + (begin - begin) + " ms");
  }
}
```

@Filter

- @WebFilter("/*")
- @WebFilter(servletNames={"SomeServlet"})
-
```
@WebFilter(
    urlPatterns={"/*"},
    initParams={
        @WebInitParam(name = "PARAM1", value = "VALUE1"),
        @WebInitParam(name = "PARAM2", value = "VALUE2")
    })
```

web.xml

- Filter 過濾器實作(web.xml)-part I
  - <filter>
    <filter-name>FilterA</filter-name>
    <filter-class>filters.FilterA</filter-class>
    </filter>
  - <filter-mapping>
    <filter-name>FilterA</filter-name>
    <url-pattern>/*</url-pattern>
    </filter-mapping>

web.xml

- Filter 過濾器實作(web.xml)-part II
  - <filter>
    <filter-name>FilterA</filter-name>
    <filter-class>filters.FilterA</filter-class>
    </filter>
  - <filter-mapping>
    <filter-name>FilterA</filter-name>
    <servlet-name>RedServlet</servlet-name>
    </filter-mapping>

web.xml

- Filter 過濾器實作(web.xml)-part III
  - ```
    <filter>
      <filter-name>FilterA</filter-name>
      <filter-class>filters.FilterA</filter-class>
      <init-param>
        <param-name>PARAM1</param-name>
        <param-value>VALUE1</param-value>
      </init-param>
      <init-param>
        <param-name>PARAM2</param-name>
        <param-value>VALUE2</param-value>
      </init-param>
    </filter>
    <filter-mapping>
      <filter-name>FilterA</filter-name>
      <url-pattern>/*</url-pattern>
    </filter-mapping>
    ```


    ```

web.xml

- Filter 過濾器實作(web.xml)-part VI
  - <filter>
    <filter-name>FilterA</filter-name>
    <filter-class>filters.FilterA</filter-class>
    </filter>
  - <filter-mapping>
    <filter-name>FilterA</filter-name>
    <url-pattern>/*</url-pattern>
    <dispatcher>REQUEST</dispatcher>
    <dispatcher>FORWARD</dispatcher>
    <dispatcher>INCLUDE</dispatcher>
    <dispatcher>ERROR</dispatcher>
    </filter-mapping>

Filter

- extends HttpServletResponseWrapper
  - 繼承 HttpServletResponseWrapper 讓Filter可以容易取得 out 的內容物。
  - 用以達成變更 HTTP 相關資料內容

MyResponse.java

```
public class MyResponse extends HttpServletResponseWrapper {

   private PrintWriter out;
   private CharArrayWriter bufferedWriter;

   public MyResponse(HttpServletResponse response) {
      super(response);
      bufferedWriter = new CharArrayWriter();
      out = new PrintWriter(bufferedWriter);
   }

   @Override
   public PrintWriter getWriter() {
      return out;
   }

   public String getResult() {
      return bufferedWriter.toString();
   }
}
```

WatermarkFilter.java

```
@WebFilter("/report/*")
public class WatermarkFilter implements Filter {

   @Override
   public void doFilter(ServletRequest req, ServletResponse resp,
                        FilterChain chain)
                        throws IOException, ServletException {

      MyResponse myResp = new MyResponse((HttpServletResponse)resp);
      chain.doFilter(req, myResp);
      String html = myResponse.getResult();
      html = html.replaceAll("<body",
                  "<body background=\"../images/watermark.jpg\"");
      resp.getWriter().println(html);
   }

}
```


JUnit
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SPATIAL
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spring
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jQuery
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