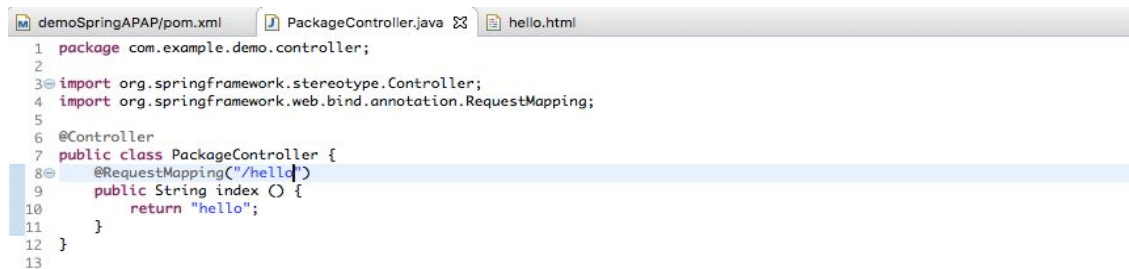


A. Ringkasan Materi

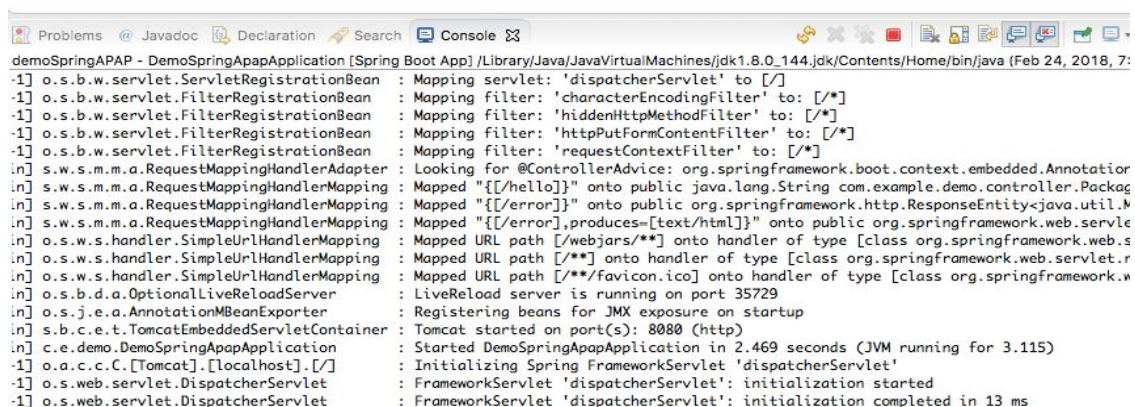
- Memahami Spring Boot MVC
- Create Project SpringBoot dengan dependencynya, dan memahami struktur folder default spring boot.
- Memahami konsep implementasi MVC di spring Boot
- View : tampilan yang direpresentasikan di folder resource
- Controller : berisi logic yang akan memapping data (dari model) apa yang akan ditampilkan, termasuk mengolah data tersebut. Selain itu, controller juga mengatur routing dari pengaksesan halaman. Sehingga controller dapat dianggap penghubung antara model dan view
- Model : data yang akan di passing ke view yang sebelumnya melalui controller
- Memahami pesan error yang berbeda untuk setiap kasus

B. Project Hello World

1. Berikut hasil compile sukses dari project **demoSpringAPAP**. Terlihat pada console, terdapat text : **"Tomcat started on port(s): 8080 (http)"**. Maka halaman dapat diakses di port 8080.

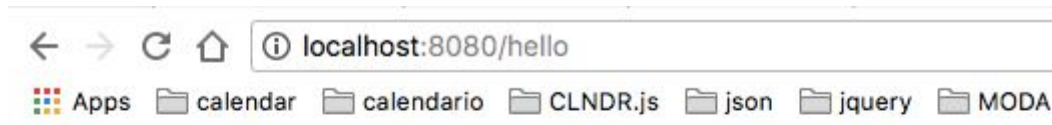


```
1 package com.example.demo.controller;  
2  
3 import org.springframework.stereotype.Controller;  
4 import org.springframework.web.bind.annotation.RequestMapping;  
5  
6 @Controller  
7 public class PackageController {  
8     @RequestMapping("/hello")  
9     public String index() {  
10         return "hello";  
11     }  
12 }  
13
```



```
demoSpringAPAP - DemoSpringApapApplication [Spring Boot App] /Library/Java/JavaVirtualMachines/jdk1.8.0_144.jdk/Contents/Home/bin/java (Feb 24, 2018, 7:  
-1- o.s.b.w.servlet.ServletRegistrationBean : Mapping servlet: 'dispatcherServlet' to [/]  
-1- o.s.b.w.servlet.FilterRegistrationBean : Mapping filter: 'characterEncodingFilter' to: [/]  
-1- o.s.b.w.servlet.FilterRegistrationBean : Mapping filter: 'hiddenHttpMethodFilter' to: [/]  
-1- o.s.b.w.servlet.FilterRegistrationBean : Mapping filter: 'httpPutFormContentFilter' to: [/]  
-1- o.s.b.w.servlet.FilterRegistrationBean : Mapping filter: 'requestContextFilter' to: [/]  
in s.w.s.m.m.a.RequestMappingHandlerAdapter : Looking for @ControllerAdvice: org.springframework.boot.context.embedded.Annotation  
in s.w.s.m.m.a.RequestMappingHandlerMapping : Mapped " [/hello]" onto public java.lang.String com.example.demo.controller.Packag  
in s.w.s.m.m.a.RequestMappingHandlerMapping : Mapped " [/error]" onto public org.springframework.http.ResponseEntity<java.util.M  
in s.w.s.m.m.a.RequestMappingHandlerMapping : Mapped " [/error],produces=[text/html]" onto public org.springframework.web.servle  
in o.s.w.s.handler.SimpleUrlHandlerMapping : Mapped URL path [/webjars/**] onto handler of type [class org.springframework.web.s  
in o.s.w.s.handler.SimpleUrlHandlerMapping : Mapped URL path [/**] onto handler of type [class org.springframework.web.servlet.r  
in o.s.w.s.handler.SimpleUrlHandlerMapping : Mapped URL path [/**/favicon.ico] onto handler of type [class org.springframework.w  
in o.s.b.d.a.OptionalLiveReloadServer : LiveReload server is running on port 35729  
in o.s.j.e.a.AnnotationMBeanExporter : Registering beans for JMX exposure on startup  
in s.b.c.e.t.TomcatEmbeddedServletContainer : Tomcat started on port(s): 8080 (http)  
in c.e.demo.DemoSpringApapApplication : Started DemoSpringApapApplication in 2.469 seconds (JVM running for 3.115)  
-1- o.a.c.c.C.[Tomcat].[localhost].[/] : Initializing Spring FrameworkServlet 'dispatcherServlet'  
-1- o.s.web.servlet.DispatcherServlet : FrameworkServlet 'dispatcherServlet': initialization started  
-1- o.s.web.servlet.DispatcherServlet : FrameworkServlet 'dispatcherServlet': initialization completed in 13 ms
```

2. Karena di controller sudah di *assign* routing nya di **"/hello"**. Kita dapat mengakses halaman **"hello.html"** dengan cara :
 - **[localhost]:[port][nama routing] = http://localhost:8080/hello**



Hello, world!

❖ Pertanyaan

- Ganti baris tersebut menjadi `@RequestMapping("/hello123")`

Pertanyaan: Apakah compile error? Jika tidak, stop Spring Boot yang sedang berjalan, run kembali dan buka localhost:8080/hello apa yang terjadi?

Kembalikan RequestMapping menjadi /hello

Jawaban:

- Ketika diganti menjadi `"/hello123"` tidak error.

A screenshot of an IDE (IntelliJ IDEA) showing a Java file named 'PackageController.java'. The code is as follows:

```
1 package com.example.demo.controller;  
2  
3 @import org.springframework.stereotype.Controller;  
4 @import org.springframework.web.bind.annotation.RequestMapping;  
5  
6 @Controller  
7 public class PackageController {  
8     @RequestMapping("/hello123")  
9     public String index() {  
10         return "hello";  
11     }  
12 }  
13
```

The line 8 is highlighted. Below the code editor, the 'Console' tab is open, showing a log of Spring Boot startup messages. The log indicates that the application started successfully on port 8080. The messages include: 'Starting Servlet Engine: Apache Tomcat/8.5', 'Initializing Spring embedded WebApplicationContext', 'Root WebApplicationContext: initialization completed', 'Mapping servlet: 'dispatcherServlet' to [/]', 'Mapping filter: 'characterEncodingFilter' to: [/]', 'Mapping filter: 'hiddenHttpMethodFilter' to: [/]', 'Mapping filter: 'httpPutFormContentFilter' to: [/]', 'Mapping filter: 'requestContextFilter' to: [/]', 'Looking for @ControllerAdvice: org.springframework.stereotype.Controller', 'Mapped "/hello123"/ onto public java.lang.String index() on class com.example.demo.controller.PackageController', 'Mapped "/error/" onto public org.springframework.web.servlet.mvc.annotation.annotation.AnnotationMethodHandlerAdapter', 'Mapped "/error/,produces=[text/html]" onto public org.springframework.web.servlet.mvc.annotation.annotation.AnnotationMethodHandlerAdapter', 'Mapped URL path [/webjars/**] onto handler of type org.springframework.web.servlet.mvc.annotation.AnnotationMethodHandlerAdapter', 'Mapped URL path [/**] onto handler of type org.springframework.web.servlet.mvc.annotation.AnnotationMethodHandlerAdapter', 'LiveReload server is running on port 35729', 'Registering beans for JMX exposure on startup', 'Tomcat started on port(s): 8080 (http)', 'Started DemoSpringApapApplication in 0.663s'.

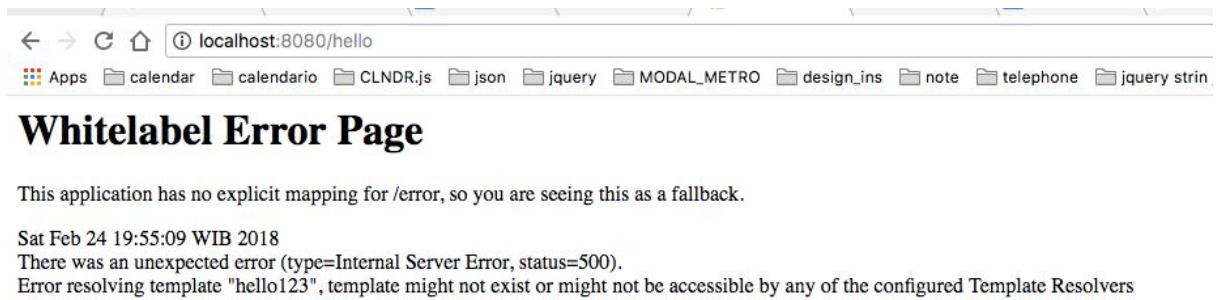
- Tetapi ketika di run sebagai Spring Boot Application, terjadi error. Karena port 8080 sudah dipakai.

```
<terminated> demoSpringAPAP - DemoSpringApapApplication [Spring Boot App] /Library/Java/JavaVirtualMachines/jdk1.8.0_144.jdk/Contents/Home/bin/java (Feb 24, 2018, 7:4
2018-02-24 19:40:21.868 INFO 4259 --- [ restartedMain] utoConfigurationReportLoggingInitializer :
Error starting ApplicationContext. To display the auto-configuration report re-run your application with 'debug' enabled.
2018-02-24 19:40:21.871 ERROR 4259 --- [ restartedMain] o.s.b.d.LoggingFailureAnalysisReporter :
*****
APPLICATION FAILED TO START
*****
Description:
The Tomcat connector configured to listen on port 8080 failed to start. The port may already be in use or the connector may be misconfigured.
Action:
Verify the connector's configuration, identify and stop any process that's listening on port 8080, or configure this application to listen on
2018-02-24 19:40:21.872 INFO 4259 --- [ restartedMain] ationConfigEmbeddedWebApplicationContext : Closing org.springframework.boot.context.e
2018-02-24 19:40:21.874 INFO 4259 --- [ restartedMain] o.s.j.e.a.AnnotationMBeanExporter : Unregistering JMX-exposed beans on shutdown
```

- Sehingga proses sekarang yang berjalan di port 8080 perlu di stop terlebih dahulu. Kemudian di re-run ulang.
- Setelah compiling berhasil dan diakses url **localhost:8080/hello**. Terdapat error 404. Hal ini menandakan halaman tidak ditemukan.



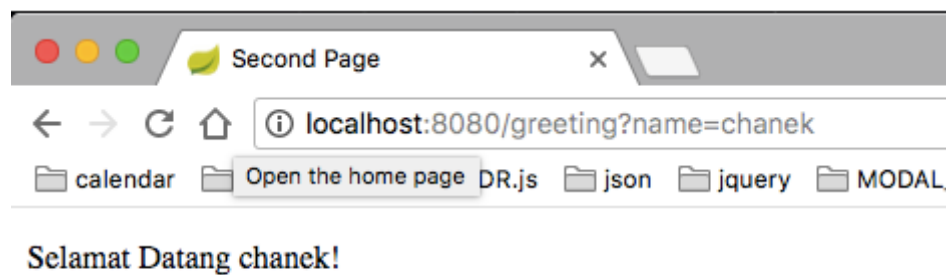
- Ketika dikembalikan RequestMapping menjadi /hello, web dapat kembali diakses. Hal ini terjadi karena routing yang diakses tidak sesuai dengan yang diassign di controller.
- b. Ganti nama method index() dengan nama method hello()
Pertanyaan: Apakah compile error? Jika tidak, Stop Spring Boot yang sedang berjalan, run kembali dan buka localhost:8080/hello apakah page hello sebelumnya masih muncul?
- Iya halaman hello masih muncul
 - Ketika dikembalikan nama method menjadi index(), halaman hello juga tetap muncul
- c. Ganti string return type menjadi return "hello123"
Pertanyaan: Apakah compile error? Jika tidak, Stop Spring Boot yang sedang berjalan, run kembali dan buka localhost:8080/hello apakah page hello sebelumnya masih muncul? Kembalikan return type menjadi "hello"
- Terdapat error 500, dengan pesan error yang tidak meneumkan template hello123.



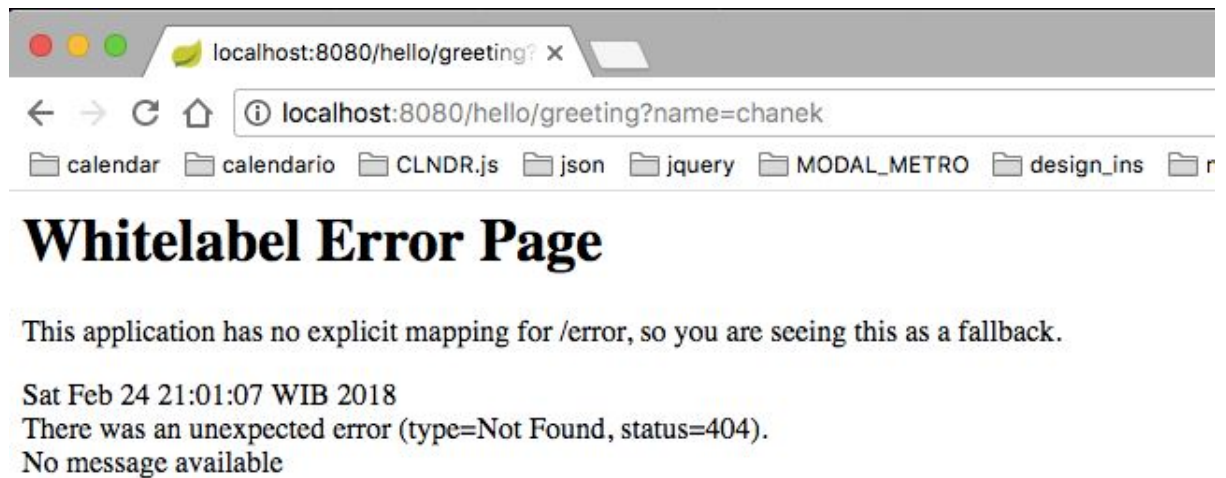
Pertanyaan: Menandakan apakah String yang di-return tersebut? Yang di return adalah template html.

C. Request Parameter (Query String)

1. Setelah menambahkan paramter pada `@RequestParam(value = "[namaparameter]")` , dan di pass ke model. Maka view akan menerima value dari parameter tersebut.



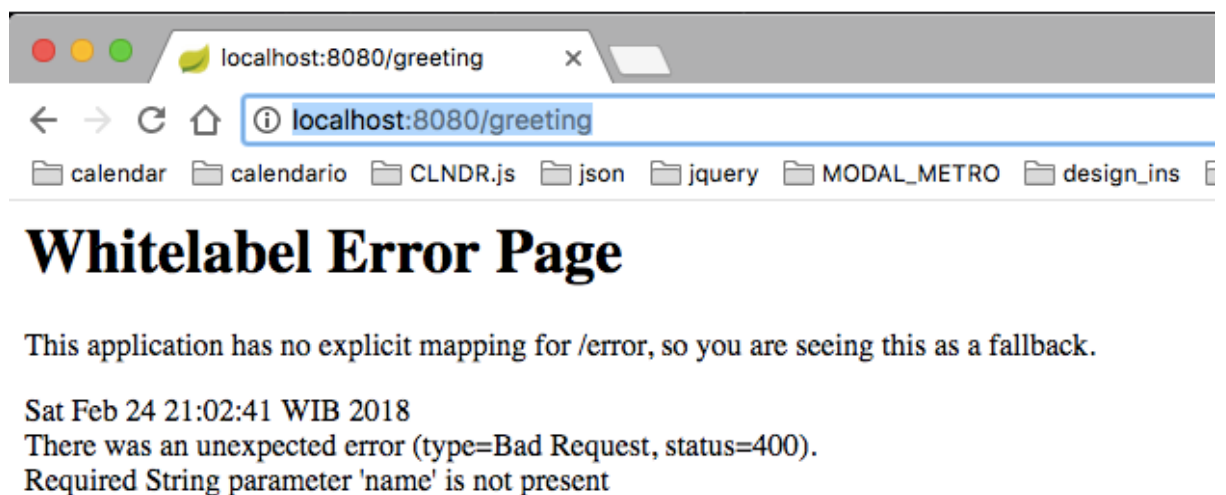
- Ubah nilai anotasi RequestMapping dari `"/greeting"` menjadi `"/hello/greeting"`
Buka `localhost:8080/hello/greeting?name=chanek`



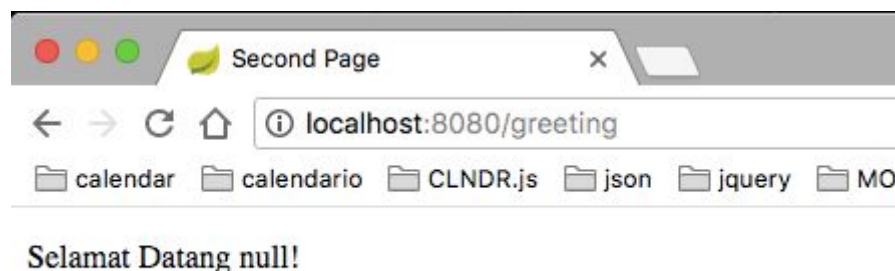
Pertanyaan: apakah hasilnya?

Routing **/hello/greeting?name=chanek** tidak ditemukan sehingga muncul error 404

- Akses **localhost:8080/greeting**
Muncul error 400, karena parameter **name** tidak ada.



Ketika method greeting ditambah "required=false", maka parameter "name" tidak harus ada. Tetapi akan dianggap sebagai null.

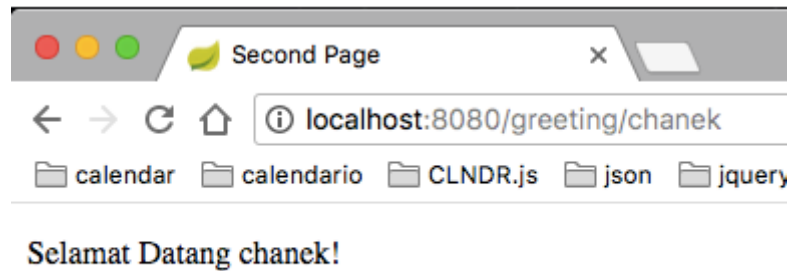


- Mengapa tulisan “Sapaan untuk user” tidak pernah muncul?

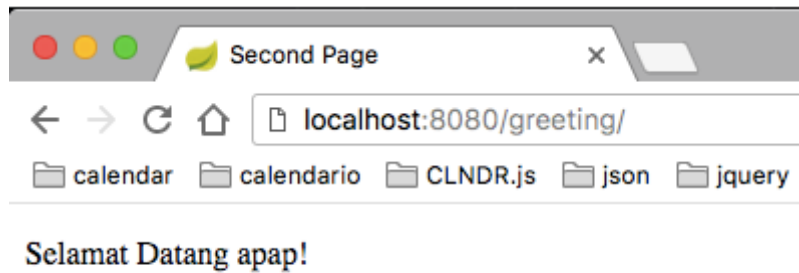
Karena value dari tag `<p>` sudah si replace dengan isi dari “th:text” yang merupakan bawaan thymeleaf untuk mengassign value ke tag html .

D. Latihan Path Variable

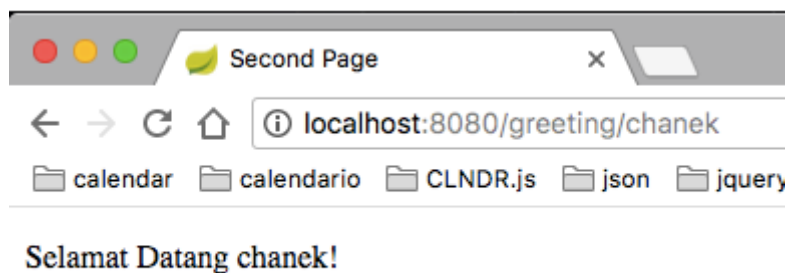
1. localhost:8080/greeting/chanek apakah hasilnya?



2. Akses localhost:8080/greeting/ setelah dilakukan perubahan dengan menambahkan Optional

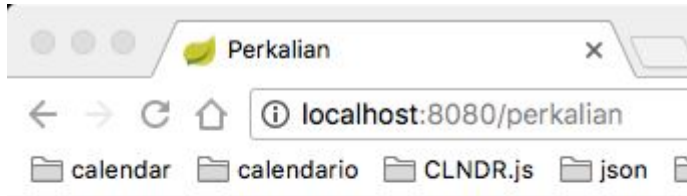


3. Akses localhost:8080/greeting/chanek



E. Latihan

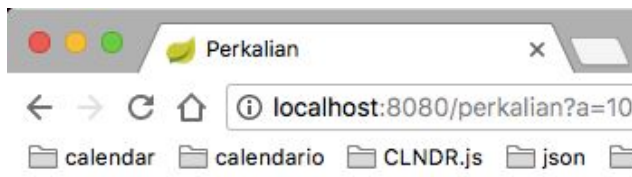
a. localhost:8080/perkalian



Perkalian

$$0 \times 0 = 0$$

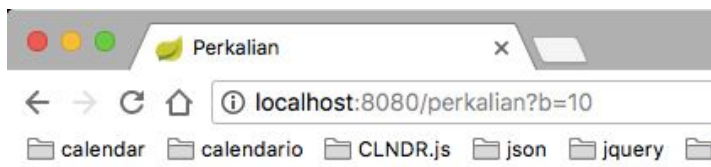
b. localhost:8080/perkalian?a=10



Perkalian

$$10 \times 0 = 0$$

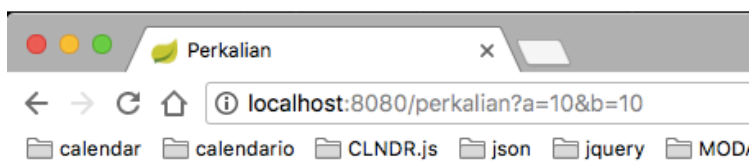
c. localhost:8080/perkalian?b=10



Perkalian

$$0 \times 10 = 0$$

d. localhost:8080/perkalian?a=10&b=10



Perkalian

$$10 \times 10 = 100$$