

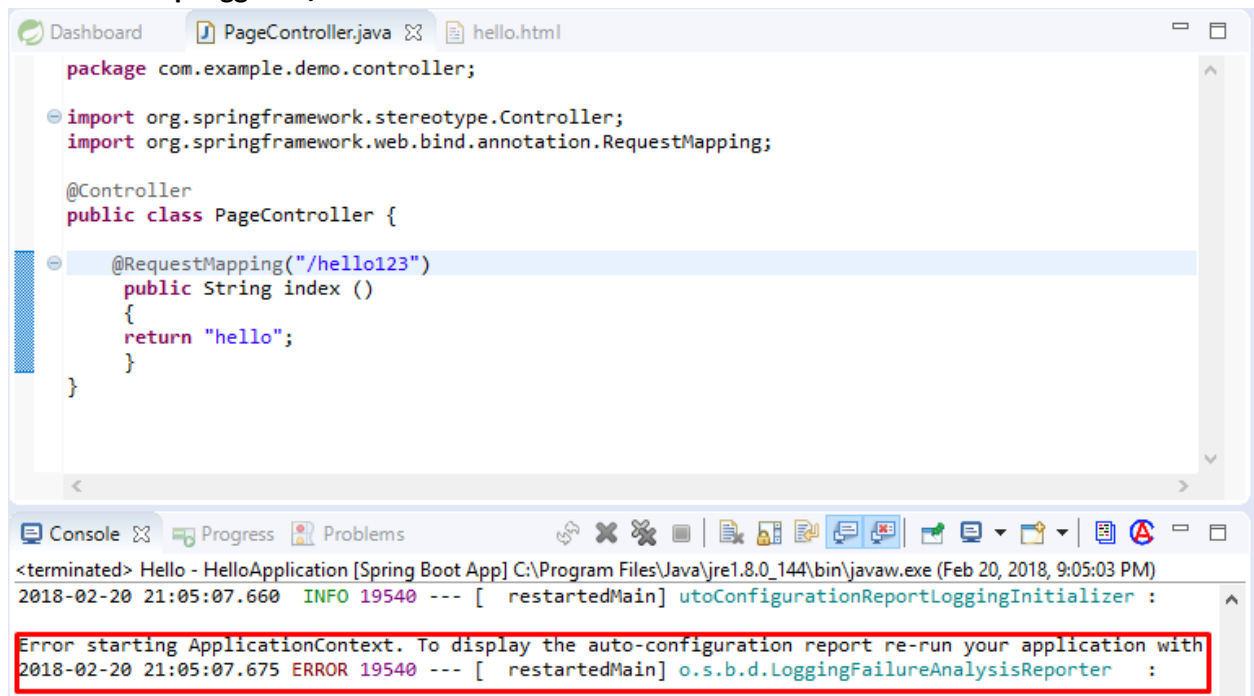
Poppy Rosaline 1606954956

Pada tutorial 2 ini, mempelajari model pemrograman MVC. Aplikasi yang digunakan dalam pemrograman ini adalah JDK, Eclipse, Maven, dan Spring Tools Suite. Framework yang di jelaskan pada tutorial ini yaitu spring, spring boot, dan spring mvc. Ketiga frame work ini memiliki kesamaan dan saling terkait dan biasanya digunakan untuk membangun suatu aplikasi berskala perusahaan. Nah! Pada tutorial ini saying menggunakan STS (Spring Tool Suit) dimana pada aplikasi ini saya dapat membuat program dan akan di jalankan dalam user interface website. Proses pemrograman pada tutuorial ini lebih menekankan bagaimana pemrograman dengan menggunakan controller.

Latihan 1 Project Hello World

1. 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?

Jawab : Terjadi error. Error karena @requestmapping nya adalah /hello123 sedangkan pada web browser dipanggil url /hello.



```
package com.example.demo.controller;

import org.springframework.stereotype.Controller;
import org.springframework.web.bind.annotation.RequestMapping;

@Controller
public class PageController {

    @RequestMapping("/hello123")
    public String index ()
    {
        return "hello";
    }
}
```

Console

<terminated> Hello - HelloApplication [Spring Boot App] C:\Program Files\Java\jre1.8.0_144\bin\javaw.exe (Feb 20, 2018, 9:05:03 PM)
2018-02-20 21:05:07.660 INFO 19540 --- [restartedMain] utoConfigurationReportLoggingInitializer :
Error starting ApplicationContext. To display the auto-configuration report re-run your application with
2018-02-20 21:05:07.675 ERROR 19540 --- [restartedMain] o.s.b.d.LoggingFailureAnalysisReporter :



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Whitelabel Error Page

This application has no explicit mapping for /error, so you are seeing this as a fallback.

Tue Feb 20 21:11:37 ICT 2018

There was an unexpected error (type=Not Found, status=404).

No message available

2. 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? Kembalikan nama method menjadi index()
Jawab : Ketika di compile tidak terjadi error walaupun nama methodnya di ubah. Nama method dapat di ganti sesuai keinginan namun tidak akan mempengaruhi pada nama url.



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```
package com.example.demo.controller;

import org.springframework.stereotype.Controller;
import org.springframework.web.bind.annotation.RequestMapping;

@Controller
public class PageController {

    @RequestMapping("/hello")
    public String hello ()
    {
        return "hello";
    }
}
```

<terminated> Hello - HelloApplication [Spring Boot App] C:\Program Files\Java\jre1.8.0_144\bin\javaw.exe (Feb 20, 2018, 9:17:32 PM)
2018-02-20 21:17:36.700 ERROR 18592 --- [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

Action:

Verify the connector's configuration, identify and stop any process that's listening on port 8080, or con

2018-02-20 21:17:36.700 INFO 18592 --- [restartedMain] ationConfigEmbeddedWebApplicationContext : Clos
2018-02-20 21:17:36.700 INFO 18592 --- [restartedMain] o.s.j.e.a.AnnotationMBeanExporter : Unre

localhost:8080/hello

Hello, world!

3. 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" Pertanyaan: Menandakan apakah String yang di-return tersebut?

Jawab : Akan terjadi error, karena path hello123 tidak di temukan.



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The screenshot shows an IDE with a Java file named `PageController.java` and a web browser window. The Java code is as follows:

```
package com.example.demo.controller;

import org.springframework.stereotype.Controller;
import org.springframework.web.bind.annotation.RequestMapping;

@Controller
public class PageController {

    @RequestMapping("/hello")
    public String index ()
    {
        return "hello123";
    }
}
```

The console window shows the following output:

```
<terminated> Hello - HelloApplication [Spring Boot App] C:\Program Files\Java\jre1.8.0_144\bin\javaw.exe (Feb 20, 2018, 9:21:37 PM)
2018-02-20 21:21:41.729 ERROR 14080 --- [ 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

Action:

Verify the connector's configuration, identify and stop any process that's listening on port 8080, or con

2018-02-20 21:21:41.729 INFO 14080 --- [ restartedMain] ationConfigEmbeddedWebApplicationContext : Clos
2018-02-20 21:21:41.729 INFO 14080 --- [ restartedMain] o.s.j.e.a.AnnotationMBeanExporter : Unre
```

The browser window shows the URL `localhost:8080/hello`.

Whitelabel Error Page

This application has no explicit mapping for /error, so you are seeing this as a fallback.

Tue Feb 20 21:23:29 ICT 2018

There was an unexpected error (type=Internal Server Error, status=500).

Error resolving template "hello123", template might not exist or might not be accessible by any of the configured Template Resolvers

Latihan 2 Request Parameter (Query String)

1. Ubah nilai anotasi `RequestMapping` dari `"/greeting"` menjadi `"/hello/greeting"`. Buka `localhost:8080/hello/greeting?name=chanek`. Pertanyaan: apakah hasilnya?



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Jawab : Tidak terjadi error

```
import org.springframework.web.bind.annotation.RequestMapping;
import org.springframework.ui.Model;
import org.springframework.web.bind.annotation.RequestParam;

@Controller
public class PageController {

    @RequestMapping("/hello")
    public String index ()
    {
        return "hello";
    }

    @RequestMapping("/hello/greeting")
    public String greeting (@RequestParam(value = "nama") String nama, Model model)
    {
        model.addAttribute ("nama", nama);
        return "greeting";
    }
}
```

Console Progress Problems

Hello - HelloApplication [Spring Boot App] C:\Program Files\Java\jre1.8.0_144\bin\javaw.exe (Feb 20, 2018, 9:37:23 PM)

```
2018-02-21 09:02:28.993 INFO 824 --- [ restartedMain] o.s.w.s.m.m.a.RequestMappingHandlerAdapter : Loo
2018-02-21 09:02:29.000 INFO 824 --- [ restartedMain] s.w.s.m.m.a.RequestMappingHandlerMapping : Map
2018-02-21 09:02:29.001 INFO 824 --- [ restartedMain] s.w.s.m.m.a.RequestMappingHandlerMapping : Map
2018-02-21 09:02:29.003 INFO 824 --- [ restartedMain] s.w.s.m.m.a.RequestMappingHandlerMapping : Map
2018-02-21 09:02:29.003 INFO 824 --- [ restartedMain] s.w.s.m.m.a.RequestMappingHandlerMapping : Map
2018-02-21 09:02:29.010 INFO 824 --- [ restartedMain] o.s.w.s.handler.SimpleUrlHandlerMapping : Map
2018-02-21 09:02:29.010 INFO 824 --- [ restartedMain] o.s.w.s.handler.SimpleUrlHandlerMapping : Map
2018-02-21 09:02:29.022 INFO 824 --- [ restartedMain] o.s.w.s.handler.SimpleUrlHandlerMapping : Map
2018-02-21 09:02:29.059 INFO 824 --- [ restartedMain] o.s.b.d.a.OptionalLiveReloadServer : Liv
2018-02-21 09:02:29.110 INFO 824 --- [ restartedMain] o.s.j.e.a.AnnotationMBeanExporter : Reg
2018-02-21 09:02:29.159 INFO 824 --- [ restartedMain] s.b.c.e.t.TomcatEmbeddedServletContainer : Tom
2018-02-21 09:02:29.161 INFO 824 --- [ restartedMain] com.example.demo.HelloApplication : Sta
2018-02-21 09:03:16.941 INFO 824 --- [nio-8080-exec-1] o.a.c.c.C.[Tomcat].[localhost].[/] : Ini
2018-02-21 09:03:16.941 INFO 824 --- [nio-8080-exec-1] o.s.web.servlet.DispatcherServlet : Frai
2018-02-21 09:03:16.945 INFO 824 --- [nio-8080-exec-1] o.s.web.servlet.DispatcherServlet : Frai
```

← → ↺ 🏠 ⓘ localhost:8080/hello/greeting?nama=chanek

Selamat datang chanek!

2. Akses localhost:8080/greeting Pertanyaan: Apakah hasilnya? Ubah header method greeting

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Jawab: Tampilan “Selamat datang null!” karena parameter telah ditambahkan required = false

```

    }
    return hello;
}

@RequestMapping("/greeting")
public String greeting (@RequestParam(value = "name", required = false) String name, Model model)
{
    model.addAttribute("name", name);
    return "greeting";
}

```

Console Progress Problems

Hello - HelloApplication [Spring Boot App] C:\Program Files\Java\jre1.8.0_144\bin\javaw.exe (Feb 21, 2018, 10:47:33 PM)

```

2018-02-21 22:47:36.173 INFO 3756 --- [ost-startStop-1] o.s.b.w.s.servlet.FilterRegistrationBean : Mapping filter: 'characterEncodingFilter' onto servlet: '/*'
2018-02-21 22:47:36.173 INFO 3756 --- [ost-startStop-1] o.s.b.w.s.servlet.FilterRegistrationBean : Mapping filter: 'hiddenHttpMethodFilter' onto servlet: '/*'
2018-02-21 22:47:36.173 INFO 3756 --- [ost-startStop-1] o.s.b.w.s.servlet.FilterRegistrationBean : Mapping filter: 'httpPutFormContentFilter' onto servlet: '/*'
2018-02-21 22:47:36.173 INFO 3756 --- [ost-startStop-1] o.s.b.w.s.servlet.FilterRegistrationBean : Mapping filter: 'requestContextFilter' onto servlet: '/*'
2018-02-21 22:47:36.414 INFO 3756 --- [ restartedMain] s.w.s.m.m.a.RequestMappingHandlerAdapter : Looking for @ControllerAdvice: org.springframework.boot.autoconfigure.web.servlet.mvc.annotation.AnnotationMethodRoutingControllerAdvice
2018-02-21 22:47:36.457 INFO 3756 --- [ restartedMain] s.w.s.m.m.a.RequestMappingHandlerMapping : Mapped "[]{/hello}" onto public void org.springframework.boot.autoconfigure.web.servlet.mvc.annotation.AnnotationMethodRoutingControllerAdvice.hello()
2018-02-21 22:47:36.459 INFO 3756 --- [ restartedMain] s.w.s.m.m.a.RequestMappingHandlerMapping : Mapped "[]{/greeting}" onto public String org.springframework.boot.autoconfigure.web.servlet.mvc.annotation.AnnotationMethodRoutingControllerAdvice.greeting(String name)
2018-02-21 22:47:36.462 INFO 3756 --- [ restartedMain] s.w.s.m.m.a.RequestMappingHandlerMapping : Mapped "[]{/error}" onto public void org.springframework.boot.autoconfigure.web.servlet.mvc.annotation.AnnotationMethodRoutingControllerAdvice.error()
2018-02-21 22:47:36.462 INFO 3756 --- [ restartedMain] s.w.s.m.m.a.RequestMappingHandlerMapping : Mapped "[]{/error},produces=[text/html]" onto public void org.springframework.boot.autoconfigure.web.servlet.mvc.annotation.AnnotationMethodRoutingControllerAdvice.error()
2018-02-21 22:47:36.486 INFO 3756 --- [ restartedMain] o.s.w.s.handler.SimpleUrlHandlerMapping : Mapped URL path [/{webjars/**}] onto handler method: org.springframework.boot.autoconfigure.web.servlet.mvc.annotation.AnnotationMethodRoutingControllerAdvice.webjars()
2018-02-21 22:47:36.487 INFO 3756 --- [ restartedMain] o.s.w.s.handler.SimpleUrlHandlerMapping : Mapped URL path [/**] onto handler method: org.springframework.boot.autoconfigure.web.servlet.mvc.annotation.AnnotationMethodRoutingControllerAdvice.error()
2018-02-21 22:47:36.518 INFO 3756 --- [ restartedMain] o.s.w.s.handler.SimpleUrlHandlerMapping : Mapped URL path [/**/favicon.ico] onto handler method: org.springframework.boot.autoconfigure.web.servlet.mvc.annotation.AnnotationMethodRoutingControllerAdvice.error()
2018-02-21 22:47:36.866 INFO 3756 --- [ restartedMain] o.s.b.d.a.OptionalLiveReloadServer : LiveReload server is running on port 35729
2018-02-21 22:47:36.901 INFO 3756 --- [ restartedMain] o.s.j.e.a.AnnotationMethodRoutingControllerAdvice : Registering beans for JMX exposure
2018-02-21 22:47:36.944 INFO 3756 --- [ restartedMain] s.b.c.e.t.TomcatEmbeddedServletContainer : Tomcat started on port(s): 8080
2018-02-21 22:47:36.955 INFO 3756 --- [ restartedMain] com.example.demo.HelloApplication : Started HelloApplication in 2.111 seconds

```

Second Page

localhost:8080/greeting

Selamat datang null!

3. Akses localhost:8080/greeting/

Jawaban: Tampilan “Selamat datang dunia!” karena path variable {name} sesuai dengan parameter yang ada yaitu name

Second Page

localhost:8080/greeting

Selamat datang dunia!

4. Perhatikan bahwa pada berkas greeting.html, tag paragraf yang kita tambahkan adalah sebagai berikut:

```
<p th:text="'Selamat datang ' + ${name} + '!'" >Sapaan untuk user</p>
```

Pertanyaan: Mengapa tulisan “Sapaan untuk user” tidak pernah muncul?



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Jawaban: Karena controller tidak memanggil

Latihan 3 Path Variable

1. Akses localhost:8080/greeting/

Jawab : Terjadi error karena terdapat method yang ambigu dan pemanggilan tidak dipanggil yaitu /greeting dan path variable

The screenshot shows an IDE with a Java file named `PageController.java`. It contains two methods for the `/greeting` path:

```
@RequestMapping("/hello")
public String index ()
{
    return "hello";
}

@RequestMapping("/greeting")
public String greeting (@RequestParam(value = "name", required = false, defaultValue = "dunia") String name, Model model)
{
    model.addAttribute ("name", name);
    return "greeting";
}

@RequestMapping(value = { "/greeting", "greeting/{name}" })
public String greetingPath (@PathVariable Optional<String> name, Model model)
{
    if (name.isPresent()){
        model.addAttribute("name", name.get());
    }else {
        model.addAttribute("name", "apap");
    }
    return "greeting";
}
```

The `greetingPath` method is highlighted with a red box. Below the code, the console shows an error:

```
2018-02-24 14:13:14.029 INFO 7308 --- [nio-8080-exec-1] o.s.web.servlet.DispatcherServlet : FrameworkServlet 'dispatcherServlet'
2018-02-24 14:13:14.294 ERROR 7308 --- [nio-8080-exec-1] o.a.c.c.C.[.[/].[dispatcherServlet] : Servlet.service() for servlet
java.lang.IllegalStateException: Ambiguous handler methods mapped for HTTP path 'http://localhost:8080/greeting/': {public java.lang.String
at org.springframework.web.servlet.handler.AbstractHandlerMethodMapping.lookupHandlerMethod(AbstractHandlerMethodMapping.java:100)
at org.springframework.web.servlet.handler.AbstractHandlerMethodMapping.getHandlerInternal(AbstractHandlerMethodMapping.java:125)
at org.springframework.web.servlet.handler.AbstractHandlerMethodMapping.getHandlerInternal(AbstractHandlerMethodMapping.java:125)
at org.springframework.web.servlet.handler.AbstractHandlerMethodMapping.getHandler(AbstractHandlerMethodMapping.java:352)
at org.springframework.web.servlet.DispatcherServlet.getHandler(DispatcherServlet.java:1160) ~[spring-webmvc-4.3.14.RELEASE:4.3.14.RELEASE]
at org.springframework.web.servlet.DispatcherServlet.doDispatch(DispatcherServlet.java:940) ~[spring-webmvc-4.3.14.RELEASE:4.3.14.RELEASE]
```

The browser address bar shows `localhost:8080/greeting/`.

Whitelabel Error Page

This application has no explicit mapping for /error, so you are seeing this as a fallback.

Sat Feb 24 14:13:14 ICT 2018

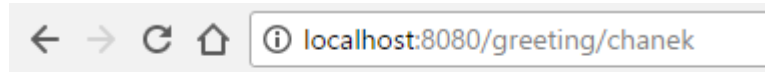
There was an unexpected error (type=Internal Server Error, status=500).

Ambiguous handler methods mapped for HTTP path 'http://localhost:8080/greeting/': {public java.lang.String com.example.demo.controller.PageController.greeting(java.lang.String,org.springframework.ui.Model), public java.lang.String com.example.demo.controller.PageController.greetingPath(java.util.Optional,org.springframework.ui.Model)}

2. Akses localhost:8080/greeting/chaneK

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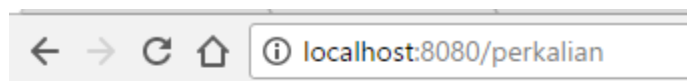
Jawab : Tampilannya tidak error karena path yang di panggil sesuai url.



Selamat datang chanek!

LATIHAN PERKALIAN

```
@RequestMapping("/perkalian")
public String perkalian(@RequestParam(value = "a", required = false, defaultValue = "0")Integer a,
    @RequestParam(value = "b", required = false, defaultValue = "0")Integer b, Model model) {
    model.addAttribute("a", a);
    model.addAttribute("b", b);
    model.addAttribute(a*b);
    return "perkalian";
}
```



Perkalian

0 x 0 = 0



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← → ↻ 🏠 ⓘ localhost:8080/perkalian?a=20

Perkalian

$20 \times 0 = 0$

← → ↻ 🏠 ⓘ localhost:8080/perkalian?b=30

Perkalian

$0 \times 30 = 0$

← → ↻ 🏠 ⓘ localhost:8080/perkalian?a=30&b=10

Perkalian

$30 \times 10 = 300$