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Veebirakenduste loomine - Spring

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Topics

- Framework
- Spring
- Demo using Spring Boot

About me

- Java and Spring dev for over two years
- Estonian Unemployment fund
- TETRIS, REDIS, EMPIS
- AngularJS, REST, Intellij, Gradle, Spring, Aranea, Tomcat
- Mercural, Jira, Confluence, Bamboo, Fisheye

What is a Web Framework?

- A web framework is a software framework designed to simplify your web development life.
- Frameworks exist to save you from having to re-invent the wheel and help alleviate some of the overhead when building a new site.
- Sessions and cookies
- Rest
- Database
- Template engines

Spring Framework

- Lead by pivotal
- Open source application
- Plugins and support for most web technologies
- Loads of utility API-s

Should I bother?

- Free
- Easy to use
- No XML anymore
- Extremely popular
- Java, Groovy and Kotlin support
- Good for cloud and microservices

Dependency injection

- Your code depends on abstractions, Spring handles actual implementations
- Can switch implementations easily

Example

MessageService.java

```
package com.journaldev.spring.di.services;

public interface MessageService {

    boolean sendMessage(String msg, String rec);
}
```

EmailService.java

```
package com.journaldev.spring.di.services;

public class EmailService implements MessageService {

    public boolean sendMessage(String msg, String rec) {
        System.out.println("Email Sent to "+rec+ " with 
Message="+msg);
        return true;
    }
```

Source: http://www.journaldev.com/2410/spring-dependency-injection-example-with-annotations-and-xml-configuration

Usage

```
 private MessageService service;
@Autowired
    public void setService(MessageService svc){
        this.service=svc;
    }
    public boolean processMessage(String msg, String rec){
        //some magic like validation, logging etc
        return this.service.sendMessage(msg, rec);
    }
```

Question

- How much code do I have to write in Java to do a simple DB query?

Awnser

- Interface + one line of code
- public interface UserRepository extends CrudRepository <User, Long> {
  - ✗ Long countByLastname(String lastname);
- }
- http://docs.spring.io/spring-data/jpa/docs/current/reference/html/#repositories.core-concepts

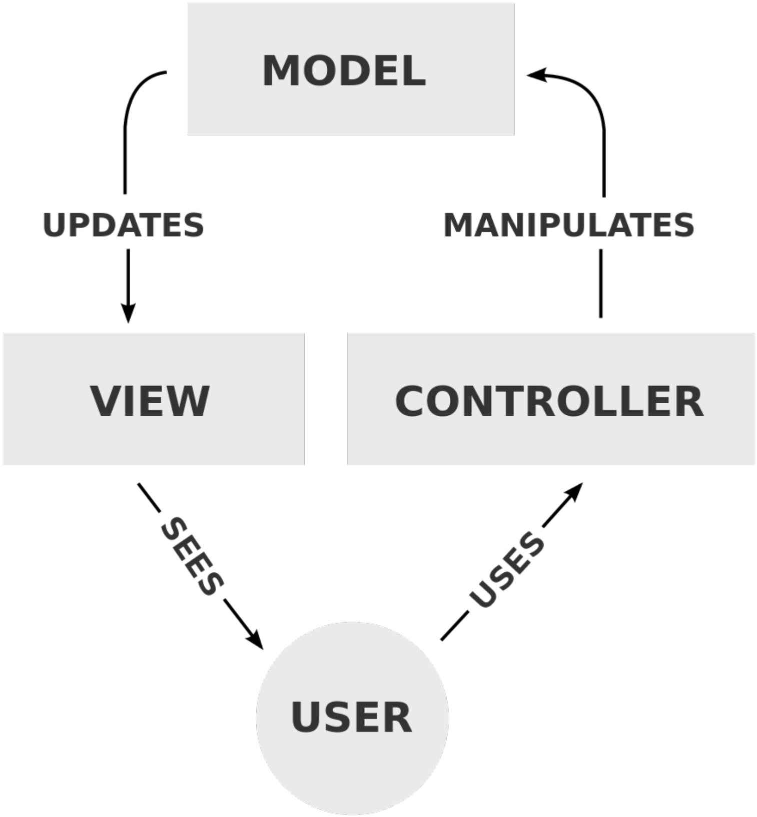
Spring trends

- Don’t have to write XML anymore
- Annotation and Bean based configuration
- Easier setup and ease of use
- New innovative features

Annotations

- @RestController
- @Autowired
- @RequestMapping("/add")
- @RepositoryRestResource
- @Scheduled(fixedRate = 5000)

MVC



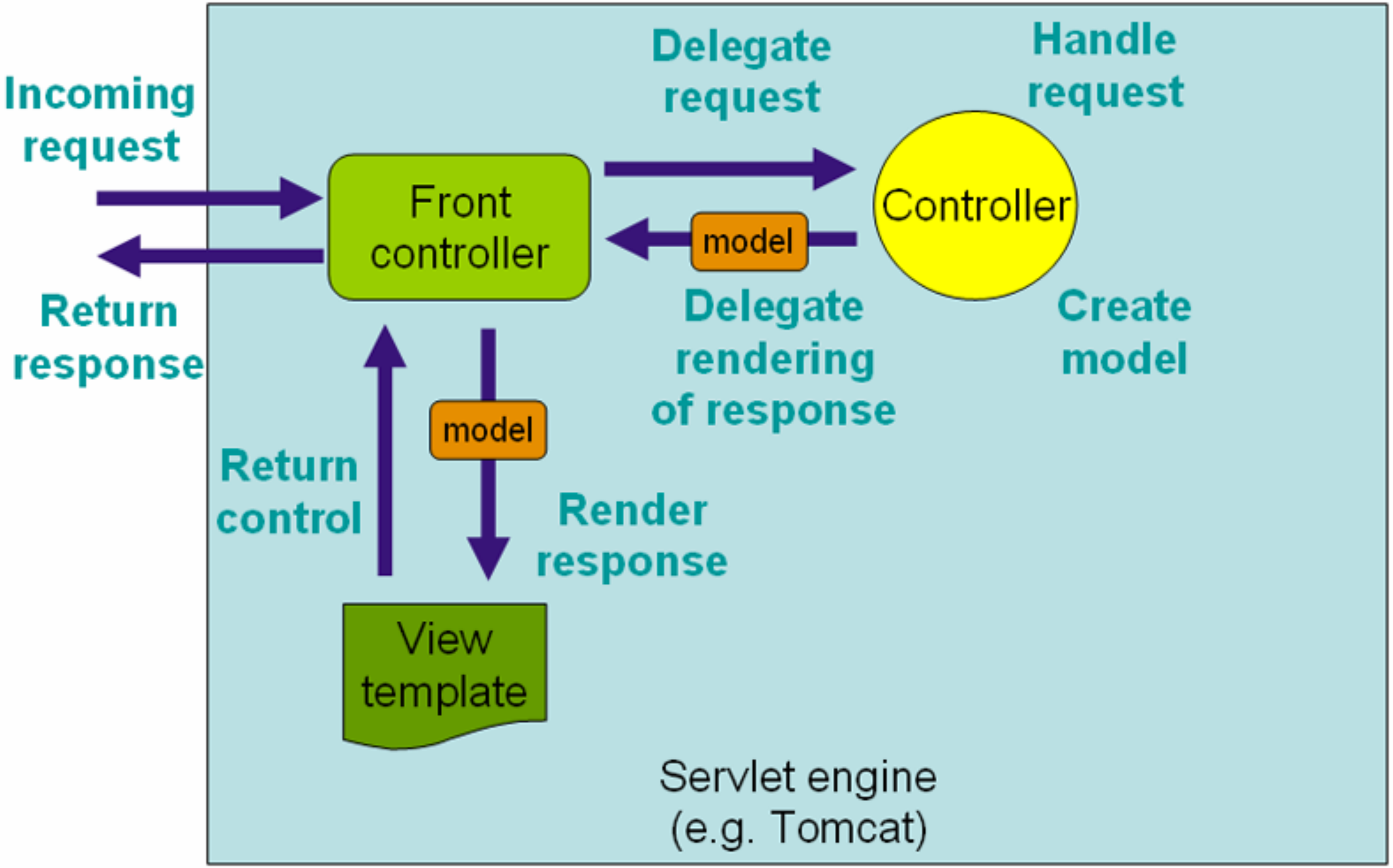
Model

- Is a Map interface
- Complete abstraction
- Integrate directly with JSP, Velocity, Freemarker, Thymeleaf
- Directly generate XML, JSON, Atom

- Extra: http://docs.spring.io/autorepo/docs/spring/4.1.x/spring-framework-reference/html/mvc.html

Controllers

- Handles requests
- Initialize and request mapping
- Declare request parameters or path variables
- @RequestParam/@PathVariable
- Allows creation of RESTful sites and apps
- Creates models
- Delegates rendering requests


Incoming request
Delegate request
Handle request
Front controller
Controller
model
Return response
Delegate rendering of response
Create model
model
Return control
Render response
View template
Servlet engine (e.g. Tomcat)

Non-intrusive

- Very important feature of a framework is non-intrusiveness
- String MVC normally lets you do stuff according to the MVC pattern
- But id doesn't’t prevent you from violating MVC if you really want to

Front end

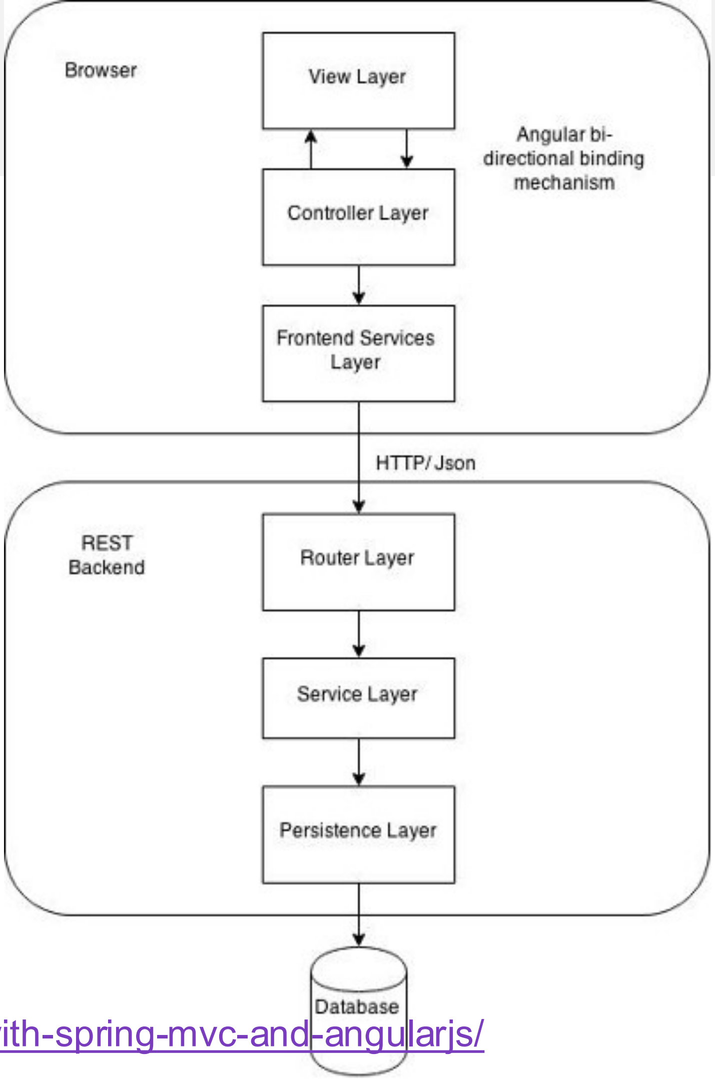
- What disappears and what is replaced
- What role does Spring MVC play
- Where will development shift?
- Front End vs Back end
- Isomorphic javascript and project Nashhorn

REST

- Representational state transfer
- Stateless design
- Software architecture style consisting of guidelines and best practices for scalable web services
- RESTful system
- Communicate over HTTP with GET,POST,PUT,DELETE

What Changes

- Controller moves
- Rest Services
- Stateless



http://blog.jhades.org/developing-a-modern-java-8-web-app-with-spring-mvc-and-angularjs/

Spring + JS framework or templating engine

- Conventions and backwards compability
- Flexible designs, reusable
- Different schools of thoughts
- More technologies
- Singe-page application
- Data transfer objects

Spring boot

- @SpringBootApplication
- Demo: https://github.com/kristjant/Spring-demo
- Stand-alone Spring apps
- Embedded web server, no war
- Automatically configure Spring whenever possible
- Absolutely **no code generation** and **no requirement for XML** configuration
- Link and documents:
- http://projects.spring.io/spring-boot/

Useful links

- Spring has excellent documentation:
- http://docs.spring.io/spring/docs/current/spring-framework-reference/htmlsingle/
- Tutorials:
- https://spring.io/guides
- Sample apps:
- https://github.com/spring-projects/spring-boot/tree/master/spring-boot-samples
- MVC: http://docs.spring.io/autorepo/docs/spring/4.2.x/spring-framework-reference/html/mvc.html

Thank you!

- Questions and answers
- Contact: kristjan.talvar@nortal.com