Integrating JSON

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Alternatives to JSON

Course Conclusion

Integrating with Spring

What Is Spring?

Application framework

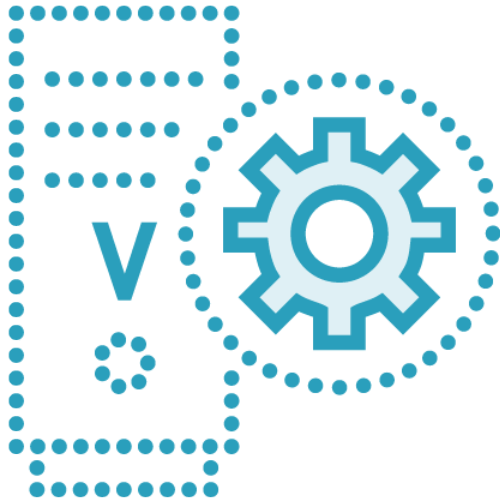Originally just IoC but evolved extensively

Very popular

Currently most popular web app framework

Integration example

We'll see how to use JSON with Spring

How Are We Using Spring?

Simple service example

Same example as before - approving and denying a bank loan

Spring Web and Boot

Example shows how to use JSON with a Spring Web or Boot webservice

```java
@RestController

public class BankApplicationController

{

    @RequestMapping(value = "/", method = POST)

    public String loanApplication()
```

Exposing an HTTP API

loanApplication() invokved when an HTTP POST request made to the url

Alternative to servlets

```
@RequestMapping(value = "/", method = POST)

public String loanApplication(

    final @RequestBody BasicLoanApplication loanApplication
```

Consuming JSON

Use @RequestBody to annotate a body to be deserialized

```java
@RequestMapping(value = "/", method = POST)

public ApplicationResponse loanApplication(

    final @RequestBody BasicLoanApplication loanApplication,

    final HttpServletResponse response)
```

Producing JSON

Return a pojo - Spring serializes for you

Can also take the ServletResponse as a parameter

Demo

- Spring demo

- Implementing the bank loan application

- Uses Spring Boot/Web

Integrating with JAX-RS/Jersey

What Is It?

JAX-RS

Official Java standard

RESTful web services

Java/Jakarta EE 6.0 onwards

Jersey

Reference implementation

Very popular

Used by Dropwizard

Jersey Web Services

```java
@Path("/")
public class BankApplicationWithJersey
{

    @POST

    public Response applyForLoan()
```

Consuming JSON

```java
@POST

@Consumes(MediaType.APPLICATION_JSON)

public Response applyForLoan(

    final BasicLoanApplication loanApplication)
```

Producing JSON

```
@POST

@Consumes(MediaType.APPLICATION_JSON)

@Produces(MediaType.APPLICATION_JSON)

public Response applyForLoan(

    final BasicLoanApplication loanApplication)
```

Demo

Jersey demo

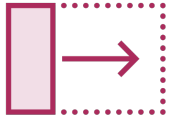**Implementing the bank loan application**

Alternatives to JSON

JSON is human readable but not performant and lacks a schema

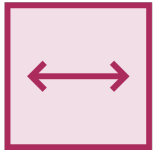# Google Protocol Buffers

Binary serialization mechanism
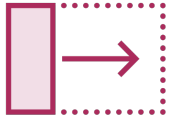
Language independent, has a schema

Alternative to JSON for server to server use cases

https://developers.google.com/protocol-buffers/

Simple Binary Encoding

High performance binary serialisation protocol

Optimal performance

Language neutral, less languages than Protobuf

https://github.com/real-logic/simple-binary-encoding

Other Java JSON Libraries

GSON
Google's JSON library

JSON Simple
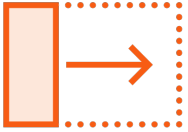Lightweight & simple

JSONP
Standardised reference implementation of JSR 353

Course Conclusion

JSON APIs

Binding – simple, great default choice

Tree/DOM – generic code that works on the whole document

Streaming – highest performance code, lowest memory consumption

Summary

JSON is popular

You learned
- The basic structure of JSON
- Three different API styles
- The dos and don'ts

Now you're a JSON master!