RESTing on MVC using Node.js and Express

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Outline

Patterns

MVC

REST

Use-case

Patterns

Patterns

software construction

software architecture

framework

Patterns

Patterns

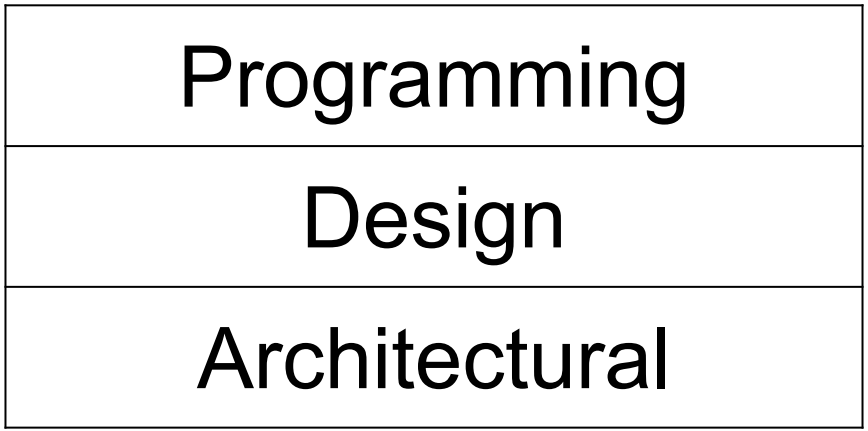
How do we define a Pattern?

A solution to a problem in a context [1].

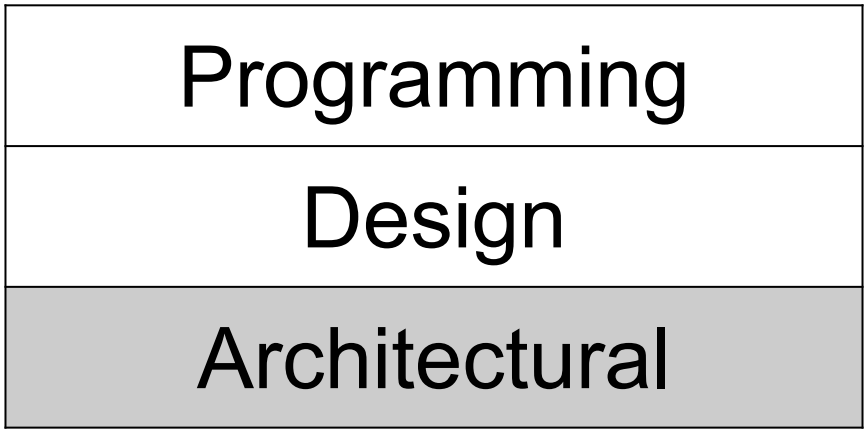
decomposing complex structures

general solution

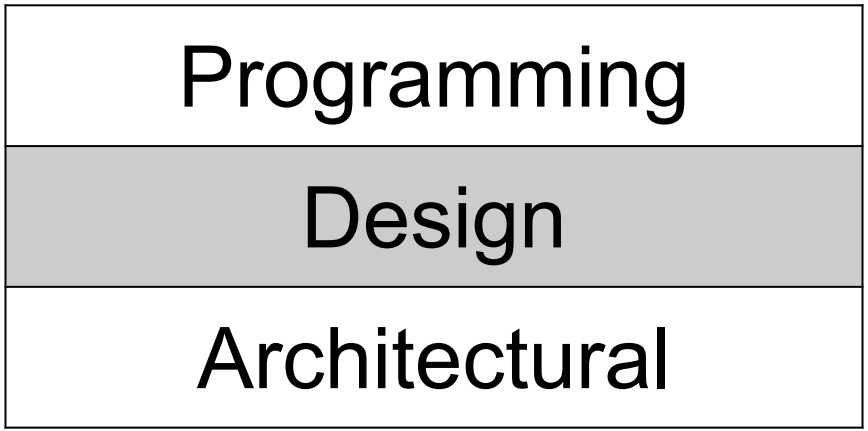
Pattern hierarchy



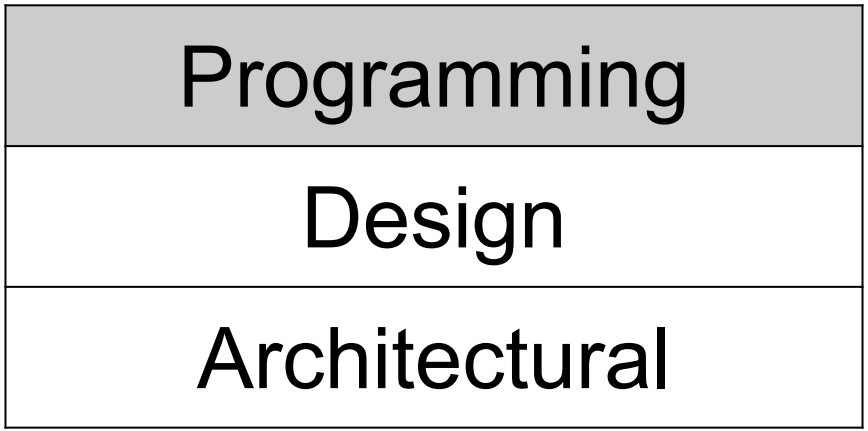
Pattern hierarchy



Pattern hierarchy



Pattern hierarchy



MVC

MVC

Programming
Design
Architectural

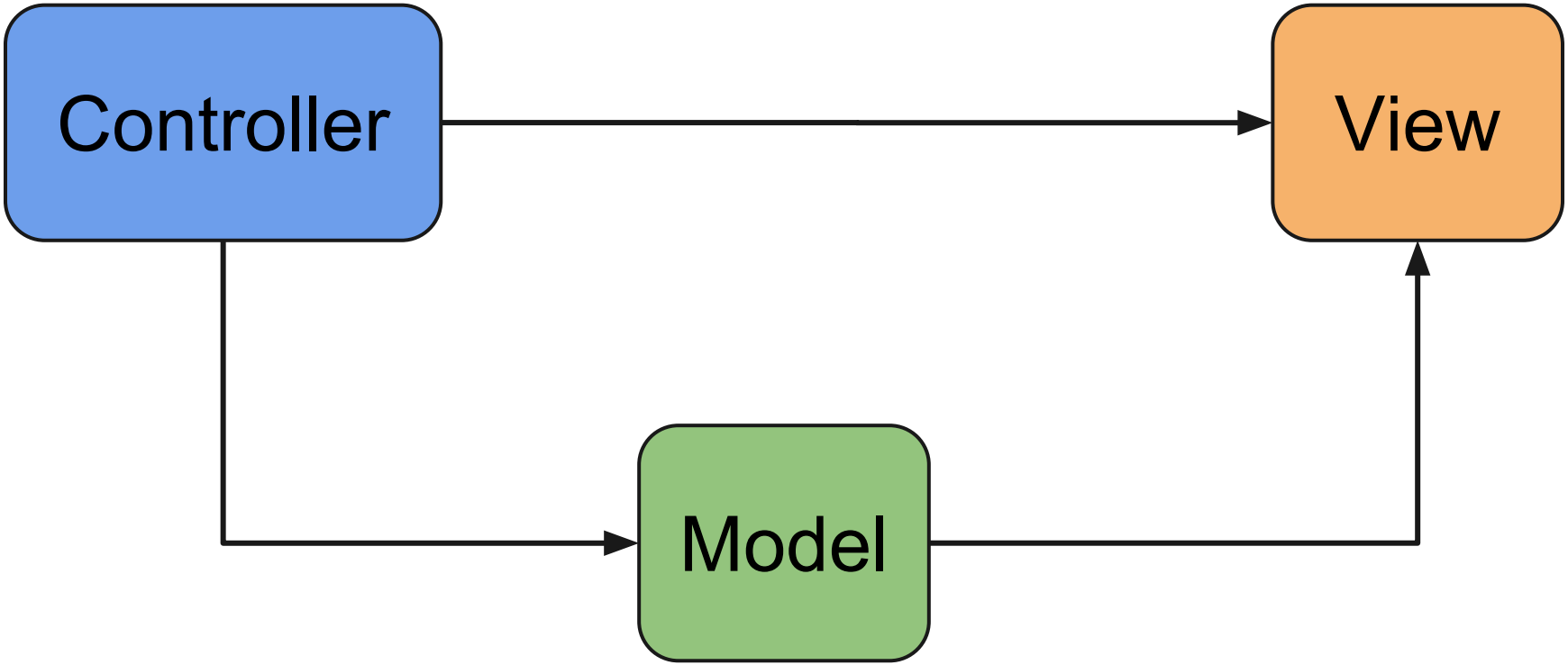
MVC

~~Programming~~

~~Design~~

Architectural

MVC



REST

REST

WADE, FII, UAIC

http://profs.info.uaic.ro/~busaco/teach/courses/wade/web-film.html#week3

REST

What is REST?

architectural style

resources vs. actions

not limited to HTTP

resources vs. representations

REST

constraints

uniform interface

stateless

cacheable

client and server

layered system

code on demand (optional)

REST

constraints

uniform interface

resources are identified by URIs

manipulation through representation

self-descriptive

HATEOAS

REST

constraints

stateless

REST

constraints

cacheable

improves scalability

REST

constraints

client and server

separation of concerns

REST

constraints

layered system

REST

constraints

code on demand

extending client functionality

executable logic

Use-case

Use-case

Online Agenda

Step 1

resource conceptualization

agenda

contact

Step 1

identifying resources (URIs)

http://authority/**agenda**

http://authority/agenda/**id**

Step 2 (Representation)

```
{ contact:
    {
        firstName: String,
        lastName: String,
        phoneNumbers: [phoneNumber],
        emails: [String],
        tags: [String]
    }
}
```

Step 2 (Representation)

```
{ phoneNumber:
    {
        type: String,
        number: String,
    }
}
```

Step 2 (Representation)

discussion

advantages and disadvantages

Step 2 (Representation)

{ agenda: [contact] }

vs.

{ agenda: [id] }

Step 2 (Representation)

discussion

advantages and disadvantages

Step 3

hypermedia controls (agenda)

```
{ hypermediaControlsAgenda:
    [
        {link: {rel: 'self', method: 'GET', uri: '/agenda}},
        {link: {rel: 'add', method: 'POST', uri: '/agenda}},
        {link: {rel: 'filter', method: 'GET', uri: '/agenda?filter=tag}},
    ]
}
```

Step 3

hypermedia controls (contact)

```
{ hypermediaControlsContact:
    [
        {link: {rel: 'self', method: 'GET', uri: '/agenda/id'}},
        {link: {rel: 'update', method: 'PUT', uri: '/agenda/id'}},
        {link: {rel: 'add', method: 'POST', uri: '/agenda}},
    ]
}
```

Step 4

dereferencing – representations

Resource	GET	PUT	POST	DELETE
/agenda	contact-list	—	contact contact-list	—
/contact/id	contact	contact	—	—

Step 4

dereferencing – status codes

Resource	GET	PUT	POST	DELETE
/agenda	200, 404, 500	405	201, 400	200, 204, 500
/contact/id	200, 404, 500	204, 400	405	204, 409, 500

HATEOAS

discussion

problems

Online Agenda

required software and structure

MongoDB

NoSQL storage

Online Agenda

required software and structure

Node.js

runtime environment

Online Agenda

required software and structure

Express-generator

application generator tool

creates application skeleton

$ npm install express-generator -g

Online Agenda

required software and structure

Generate app. structure

$ express wade-test

Express-generator **!=** Express framework

Online Agenda

required software and structure

Dependencies

package.json

$ npm install

Online Agenda

required software and structure

Mongoose

object modelling layer

validation, casting, boilerplate code

Online Agenda

developing the application

create the Schema and Model for the Contact

Online Agenda

developing the application

add the required middleware that handles access to the resources

Thank you

!

Questions

?

Bibliography

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