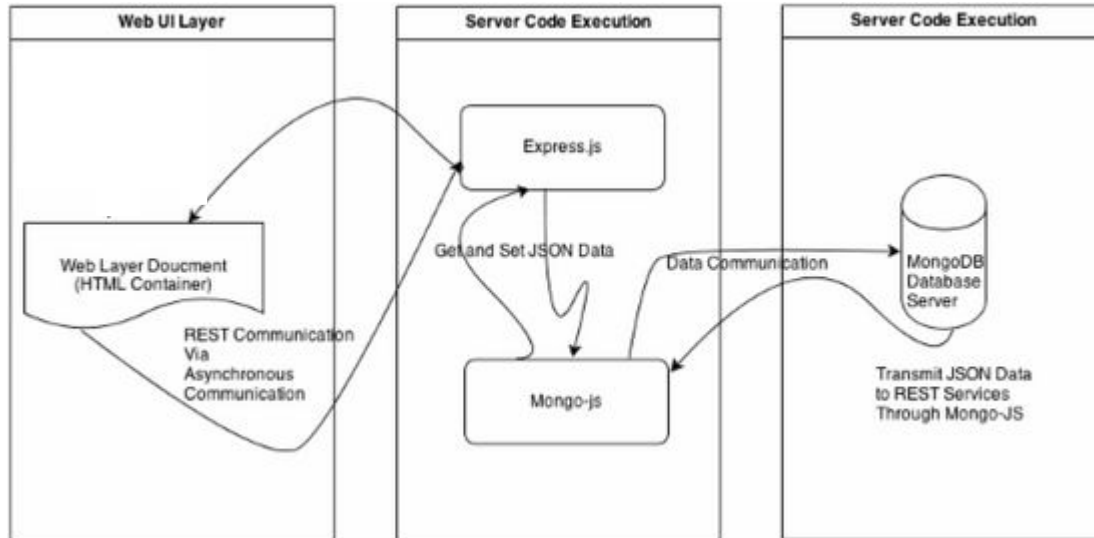# Metadata indexing/retrieval in Databases

Web application with Nodejs and MongoDB

System Architecture Review and Project Structure

- Server: Nodejs
- Client: JS, HTML/**Jade**
- DB: MongoDB (No-SQL, JSON store)

▶ 🗀 node_modules
▶ 🗀 public
▼ 🗁 routes
   📄 gallery.js
   📄 index.js
   📄 model_user.js
   📄 random.js
   📄 users.js
▼ 🗁 views
   ▶ 🗀 css
   ▶ 🗀 desigual
   ▶ 🗀 font-awesome
   ▶ 🗀 images
   ▶ 🗀 images_insta
   ▶ 🗀 js
   📄 error.jade
   📄 gallery.jade
   📄 index.jade
   📄 layout.jade
   📄 random.jade
📄 README.md
📄 app.js
📄 npm-debug.log
📄 package.json

DATA INTEGRATION: PENTAHO ETL

METADATA STRUCTURE: Images

InstaFotos	0.002 sec.	

Key	Value	Type
> 🔢 (42) ObjectId("58c46535ae0e4b04a486dea9")	{ 15 fields }	Object
∨ 🔢 (43) ObjectId("58c46535ae0e4b04a486deaa")	{ 15 fields }	Object
⬜ _id	ObjectId("58c46535ae0e4b04a486deaa")	ObjectId
"" created_time	1430250718	String
∨ 🔣 images	{ 3 fields }	Object
> 🔣 thumbnail	{ 3 fields }	Object
> 🔣 low_resolution	{ 3 fields }	Object
∨ 🔣 standard_resolution	{ 3 fields }	Object
# width	640	Int32
"" url	https://scontent.cdninstagram.com/hphotos-xfa1/t51.2885-15/e1...	String
# height	640	Int32
∨ 🔣 comments	{ 2 fields }	Object
∨ 🔣 data	[1 element]	Array
∨ 🔣 [0]	{ 4 fields }	Object
"" created_time	1430251477	String
∨ 🔣 from	{ 4 fields }	Object
"" full_name	Matilda	String
"" profile_picture	https://igcdn-photos-a-a.akamaihd.net/hphotos-ak-xfa1/t51.288...	String
"" id	23647442	String
"" username	matilda_beltran	String
"" text	❤❤	String
"" id	973342399392709703	String
# count	1	Int32
> 🔣 users_in_photo	[0 elements]	Array
"" link	https://instagram.com/p/2B-_ejoP4F/	String

MongoDB: Updating filename from ".txt" file to ".jpg"

admin   localhost:27017   INSTADB

```
var cursor = db.InstaFotos.find();
while (cursor.hasNext()) {
    var x = cursor.next();
    print("Before: "+x['filename']);
    x['filename'] = x['filename'].replace('.txt', '.jpg');
    print("After: "+x['filename']);
    db.InstaFotos.update({_id : x._id}, x);
}
```

0.391 sec.

```
Before: D:\insta\NodeJS_Photo_Metadata-master\views\instagram_desigual\2015_04_29_00\10865116_716555311824601_1840891508_n.txt
After: D:\insta\NodeJS_Photo_Metadata-master\views\instagram_desigual\2015_04_29_00\10865116_716555311824601_1840891508_n.jpg
Updated 1 existing record(s) in 36ms
Before: D:\insta\NodeJS_Photo_Metadata-master\views\instagram_desigual\2015_04_29_00\11137873_1643924289173669_1520910361_n.txt
After: D:\insta\NodeJS_Photo_Metadata-master\views\instagram_desigual\2015_04_29_00\11137873_1643924289173669_1520910361_n.jpg
Updated 1 existing record(s) in 1ms
Before: D:\insta\NodeJS_Photo_Metadata-master\views\instagram_desigual\2015_04_29_00\11176027_1382103798786630_1253543576_n.txt
After: D:\insta\NodeJS_Photo_Metadata-master\views\instagram_desigual\2015_04_29_00\11176027_1382103798786630_1253543576_n.jpg
Updated 1 existing record(s) in 1ms
Before: D:\insta\NodeJS_Photo_Metadata-master\views\instagram_desigual\2015_04_29_00\11184675_417554675093228_1526443974_n.txt
After: D:\insta\NodeJS_Photo_Metadata-master\views\instagram_desigual\2015_04_29_00\11184675_417554675093228_1526443974_n.jpg
Updated 1 existing record(s) in 3ms
```

FRONT-END(I): JADE

- HTML Template, based on indentations instead of tags.
- Faster code writing.
- Dynamic content (- `each publication in list`)
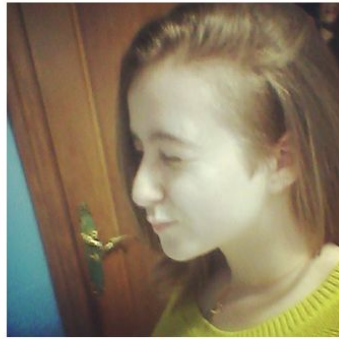
```
#content.gallery-images-container
  .box-gutter
  .box-sizer
  each publication in list
    .box
      a(href=publication.photo)
        img(alt='Agra picture', src=publication.photo)
      center
        p
          | #{publication.user}

        p #{publication.text}
```
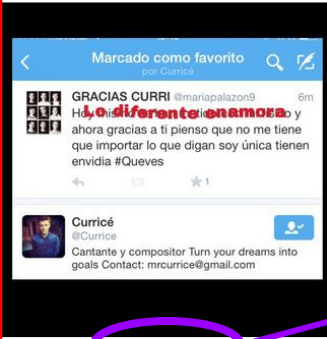
```
<div id="content" class="gallery-images
  <div class="box-gutter"></div>
  <div class="box-sizer"></div>
  <div class="box">
    <a href="desigual/2015_04_28_22/:
    desigual/2015_04_28_22/11191367_
    <center>
      <p>eva_sanchez2000</p>
      <p>"#QueVes"</p>
      <p></p>
    </center>
  </div>
  <div class="box">
    <a href="desigual/2015_04_28_22/:
    desigual/2015_04_28_22/11191416_
    <center>
      <p>adriana_sombrerita</p>
      <p>"#QueVes"</p>
      <p></p>
    </center>
  </div>
  <div class="box">
    <a href="desigual/2015_04_28_22/:
    desigual/2015_04_28_22/11192569_
    <center>
      <p>almudena_vidal</p>
      <p>"Aquello que une y separa
      #ganasdeestarenchantada #lavi
      <p></p>
    </center>
  </div>
  <div class="box">
    <a href="desigual/2015_04_28_22/:
    desigual/2015_04_28_22/11192577_
    <center>
      <p>_ofelia_roca_roman_</p>
      <p>"#QueVes veo a dos persona:
      <p></p>
    </center>
  </div>
</div>
```

FRONT-END(II): View

- Gallery example:

BACK-END: Node JS and Express

-Receiving params + MongoDB query:

```javascript
router.post('/', function(req, res, next) {
    //TODO:::::::::
    //Aqui, hem de fer la query d'alguna manera
    //Rebem els params del form
    var usr= req.body.username
    var tags= req.body.tag
```

```javascript
var query2 = { "informacio.caption.text": new RegExp('' + tags) };
db.collection('InstaFotos').find(
    { $or: [{"informacio.user.username": usr}, query2]} ,
    {filename:1, "informacio.user.full_name":1,
    "informacio.user.username":1,
    "informacio.caption.text":1}).toArray(function(err, filename){
```

BACK-END: Node JS and Express (II)

- Image path processing (absolute path to relative path):

```
for (i in filename){
    str_res_path[i]=JSON.stringify(filename[i].filename);
    str_res_path[i]=str_res_path[i].substring(47,str_res_path[i].lastIndexOf(".jpg")+4);
    str_res_path[i] = str_res_path[i].replace(/\\/g, "/");
```

```
path:
"D:\\insta\\NodeJS_Photo_Metadata-master\\views\\instagram_desigual\\2015_04_29_19\\11187072_386172014907980_933271521_n.jpg"
path processat:
/instagram_desigual/2015_04_29_19/11187072_386172014907980_933271521_n.jpg
```

- Returning results:

```
            publications.list.push({
                "photo" : temp_photo,
                "user"  : temp_usr,
                "text": temp_text     //S'ha d'afegi
            });
    }
    console.log(publications)
        res.render('gallery', publications);

    });
```

Web App Routes (I): Index

http://localhost:300/

app.js

```
app.use('/', index);
```

Route "/" to index

index.jade (html templates)

render content

```
/* GET home page. */
router.get('/', function(req, res, next) {

//YOUR CODE HERE.........
});
```

index.js

Web App Routes (II): Random

http://localhost:300/random

app.js

```
app.use('/random', random);
```

Route "/random"
to random

random.jade (html templates)

render content

```
router.get('/', function(req, res, next) {

    //YOUR CODE HERE.........
});
```
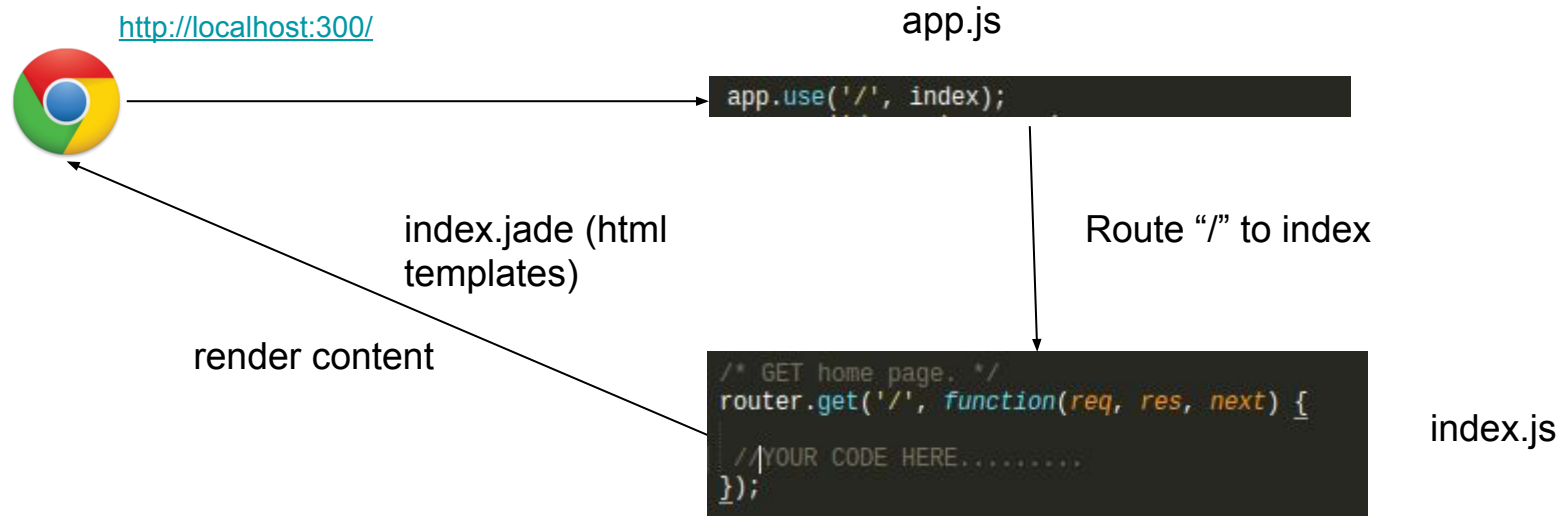
random.js
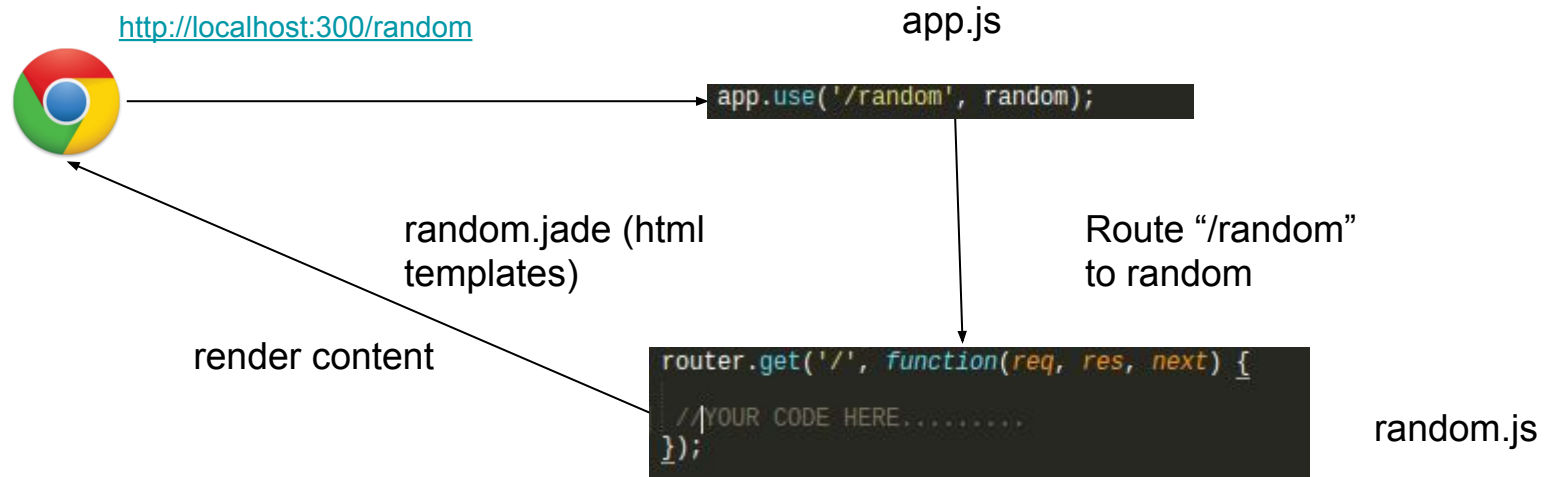
Web App Routes (III): Gallery

http://localhost:300/gallery

app.js

```
app.use('/gallery', gallery);
```

gallery.jade (html templates)

render content

Route "/gallery" to gallery

```
router.get('/', function(req, res, next) {

  //YOUR CODE HERE.........
});
```
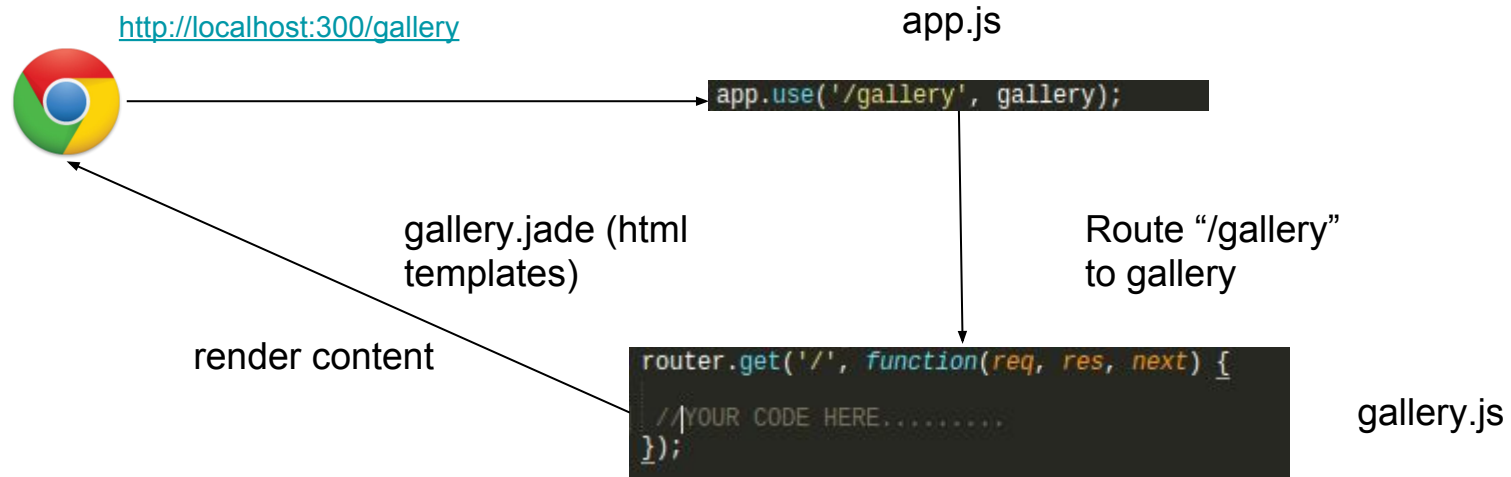
gallery.js

Web App Routes (IV): Gallery (form)

http://localhost:300/gallery
(filter form)

app.js

```
app.use('/gallery', gallery);
```

submit

Route "/gallery"
to gallery

gallery.jade (html
templates)

render content

```
router.post('/', function(req, res, next) {

    //YOUR CODE HERE....

});
```

gallery.js