

A photograph of three students (two women and one man) looking at a laptop screen. The woman on the left has her hair in a ponytail with a black headband. The woman in the middle has red hair and is smiling. The man on the right has dark hair and a beard. They are in a bright, indoor setting, possibly a library or study area, with a blue railing visible in the background. A large red semi-transparent rectangle is overlaid on the bottom half of the image, containing white text.

# **Fascinating with Open Data: openArtBrowser**

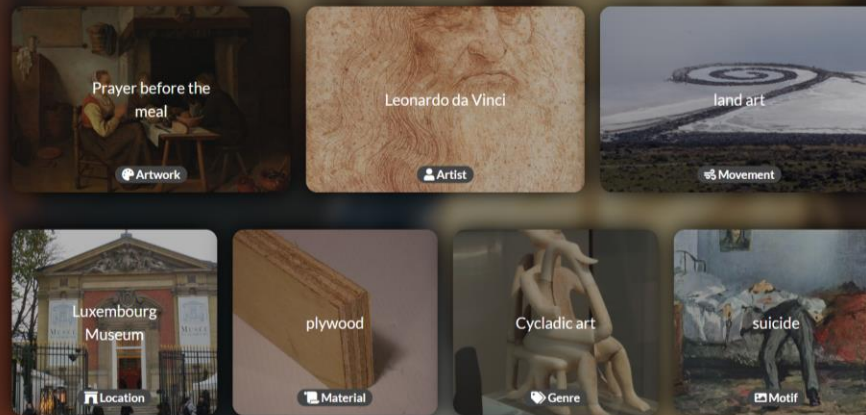
**Prof. Dr. Bernhard Humm**

**Hochschule Darmstadt – University of Applied Sciences**

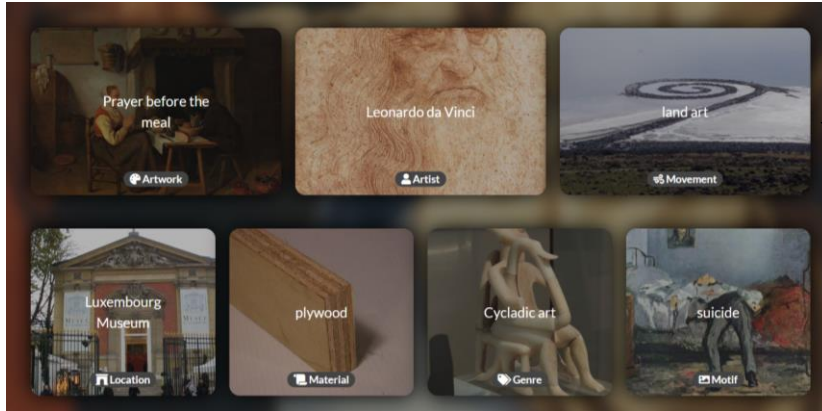
**openRheinMain, Sept 13, 2019**

# ArtBrowser

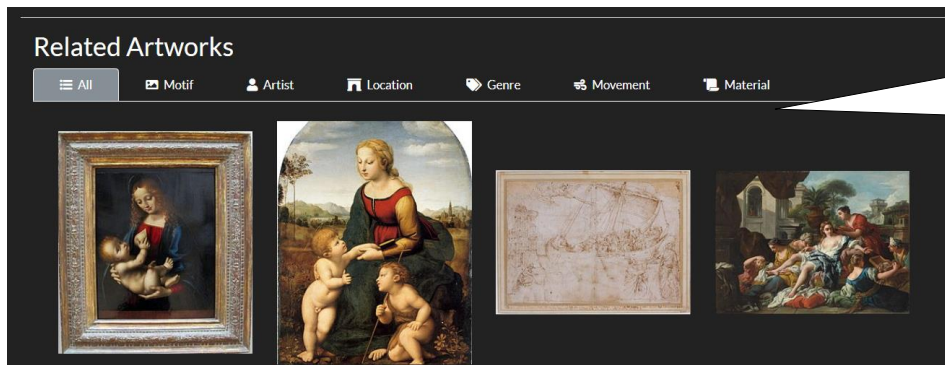
Search for an Artwork ...



# Serendipity: finding without searching



Prominent artworks, artists, motifs, materials, genres, etc. on start page



Related artworks according to various criteria

# Learning with fun

openArtBrowser

Artwork

## Virgin of the Rocks

Artist: [Leonardo Da Vinci](#)

Location: [Room 710](#)

Inception: 1484

More ^

Genre: [Religious Art](#)

Movement: [Renaissance](#)

Material: [Oil Paint](#) [Wood](#) [Canvas](#)

Motif: [Son](#) [Blessing](#) [Eye Contact](#) [Overcoat](#) [Prayer](#) [Kneeling](#) [Blond](#) [John The Baptist](#) [Drapery](#) [Mother](#) [Angel](#) [Long Hair](#) [Child](#) [Nudity](#) [Landscape](#) [Sitting](#) [Child Jesus](#) [Sky](#) [Virgin Mary](#) [Woman](#) [Plant](#) [Rock](#)

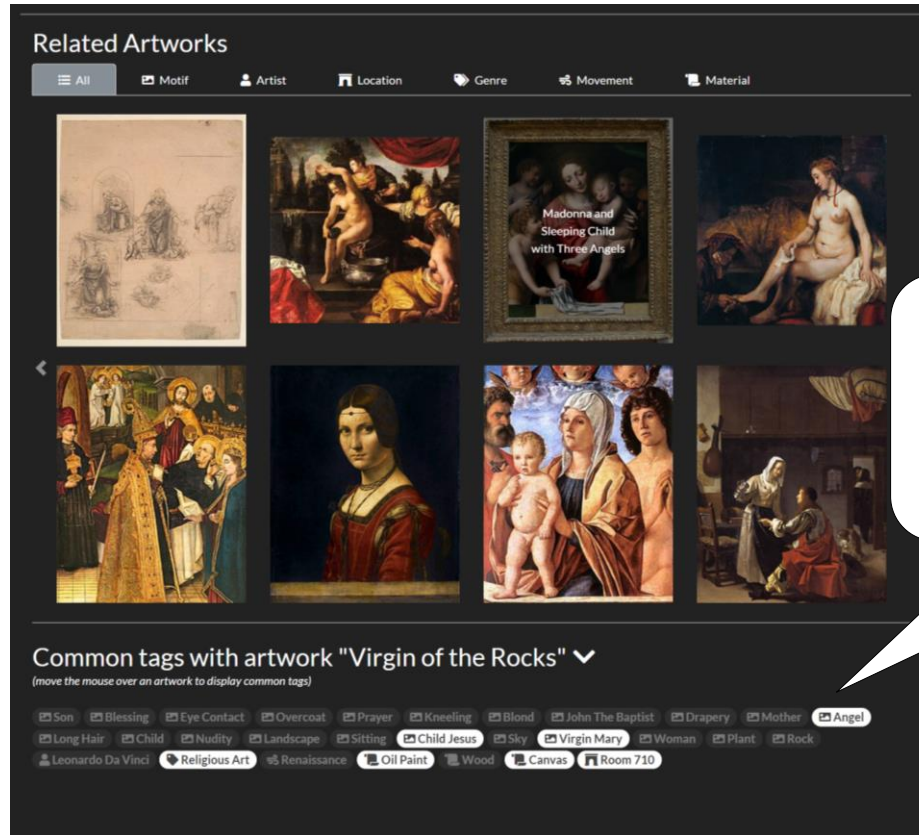
Dimension: 199 x 122cm

Additional information regarding artist, location, inception, genre, movement, material, and motif

Strolling through the virtual museum by following hyperlinks



# Exploring by comparing artworks



Compare one artwork with related ones and find commonalities and differences


# Learn more about artists, movements, genres, materials, locations etc.

**Artist**  
**Leonardo da Vinci**

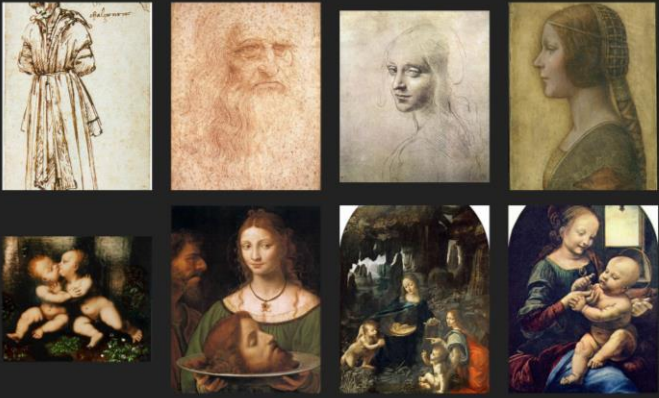
Born: 1452 in Anchiano  
Died: 1519 in Clos Lucé

More ^


Gender: Male  
Citizenship: Republic of Florence  
Movement: High Renaissance



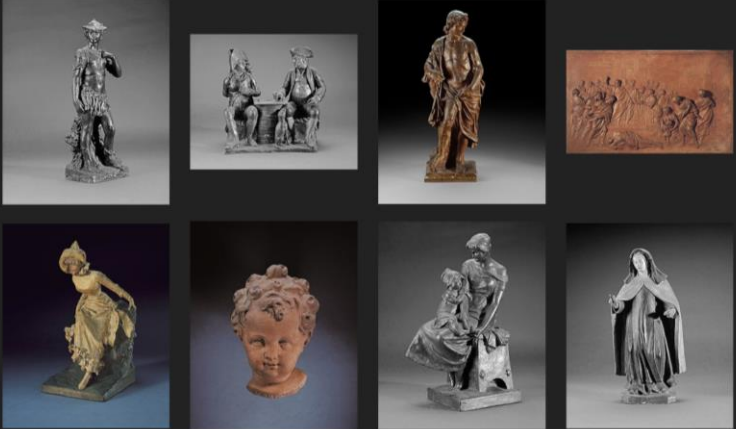
**Artworks**



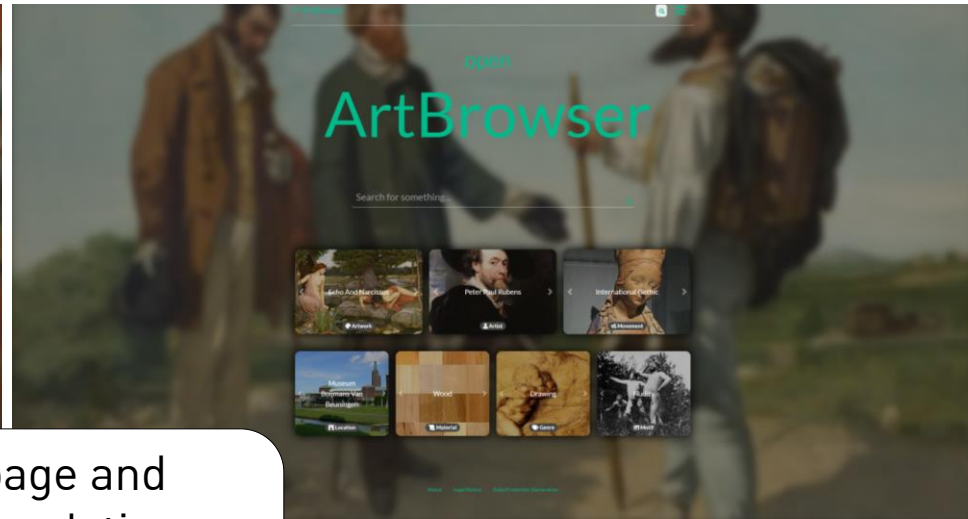
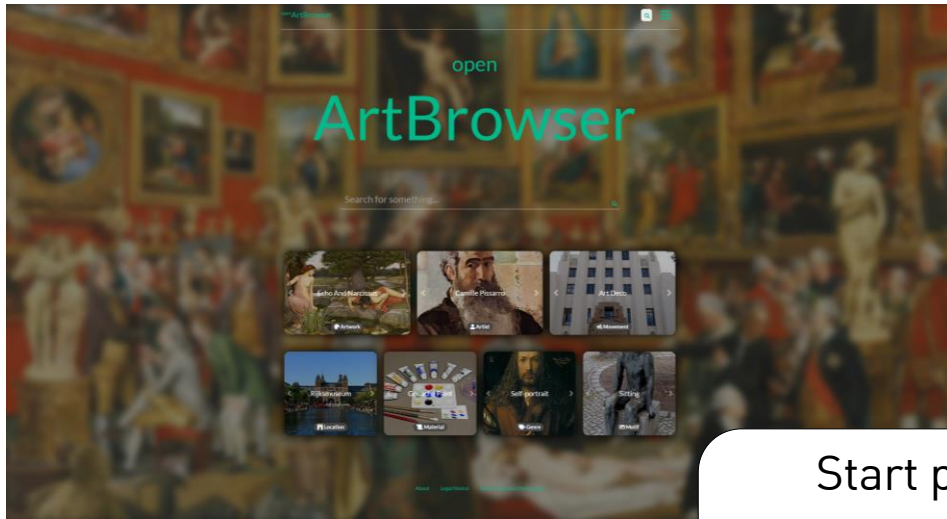
**Genre**  
**Sculpture**



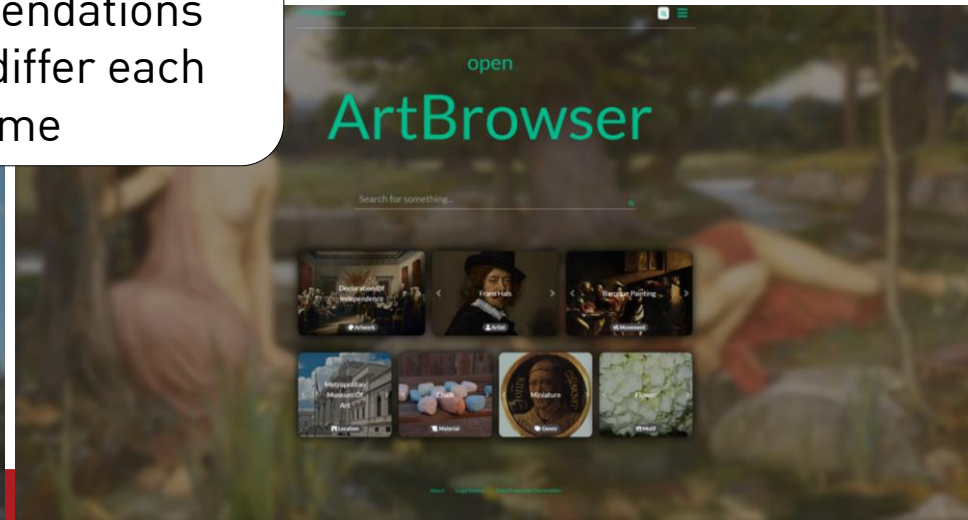
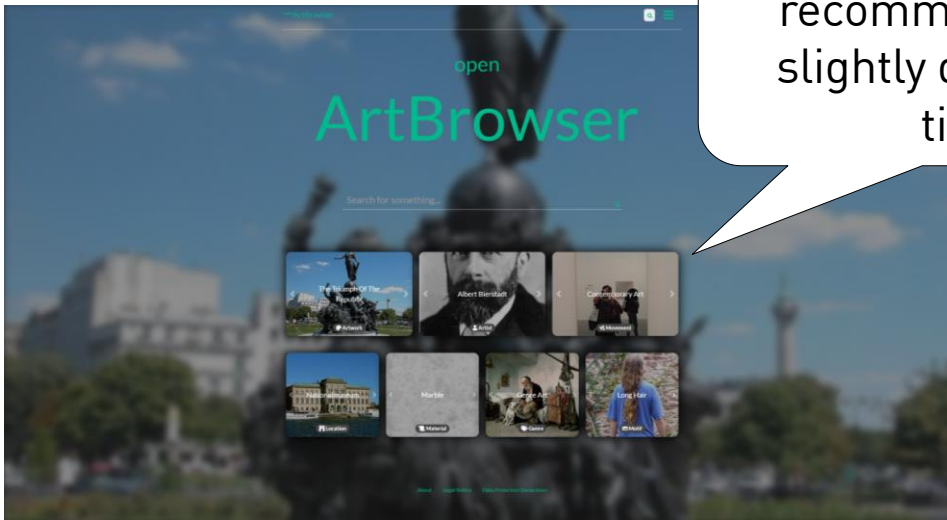
**Artworks**



# Be surprised



Start page and recommendations slightly differ each time

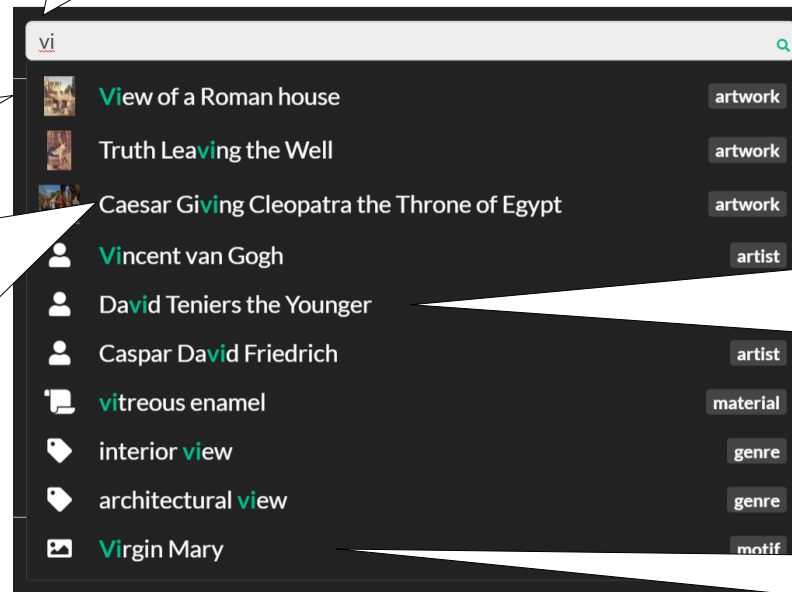


# Semantic Autosuggest

Search bar

Grouping of results

Sophisticated ranking:  
 match at the beginning of the 1st word  
 > match at the beginning of another word  
 > match within a word



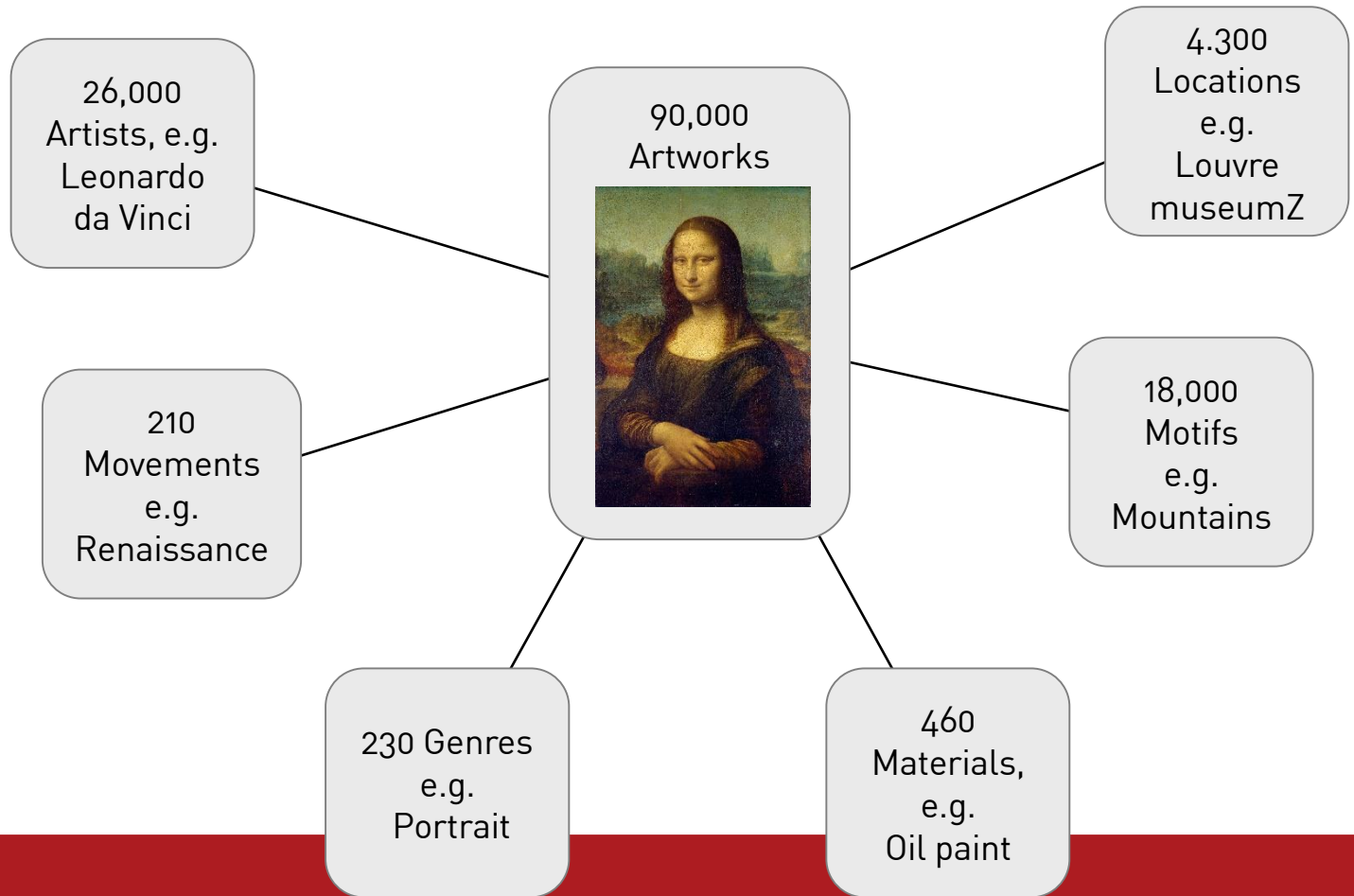
Classification of results in artwork, artists, materials, genres, motifs etc.

Sophisticated ranking:  
 Artist with more paintings  
 > Artist with fewer paintings

Selection of the 10 most prominent matches



# >100.000 Artworks, artists, movements, motifs, etc.



# Data source: Wikidata

<https://www.wikidata.org>

The screenshot shows the Wikidata main page with the following content:

- Header:** "Welcome to Wikidata" with the tagline "the free knowledge base with 55,695,340 data items that anyone can edit." and navigation links: "Introduction • Project Chat • Community Portal • Help".
- Left Sidebar:**
  - WIKIDATA logo
  - Main page, Community portal, Project chat, Create a new item, Create a new Lexeme, Recent changes, Random item, Query Service, Nearby, Help, Donate, Print/export, Create a book, Download as PDF, Printable version.
  - In other projects: Wikimedia Commons, Meta-Wiki, Wikispecies, Wikibooks, Wikimania, Wikinews, Wikipedia, Wikiquote, Wikisource, Wikiversity, Wikivoyage, Wiktionary, Tools, What links here, Related changes, Special pages, Permanent link, Page information, Wikidata item.
  - In Wikipedia: Boarisch, Deutsch, English, Español, Français.
- Content Sections:**
  - Welcome!**: Wikidata is a free and open knowledge base that can be read and edited by both humans and machines. It acts as central storage for structured data and provides support to many other sites.
  - Learn about data**: New to the wonderful world of data? Develop and improve your data literacy through content designed to get you up to speed and feeling comfortable with the fundamentals in no time. Includes images of Earth, a document, and Mount Everest.
  - Get involved**:
    - Learn about Wikidata**:
      - What is Wikidata? Read the [Wikidata introduction](#).
      - Explore Wikidata by looking at a featured showcase item for author [Douglas Adams](#).
      - Get started with Wikidata's [SPARQL query service](#).
    - Contribute to Wikidata**:
      - Learn to edit Wikidata: follow the [tutorials](#).
      - Work with other volunteers on a subject that interests you: [join a WikiProject](#).
      - Individuals and organisations can also [donate data](#).
    - Meet the Wikidata community**:
      - Visit the [community portal](#) or attend a [Wikidata event](#).
      - Create a [user account](#).
      - Talk and ask questions on the [Project chat](#) or via live [IRC chat](#).
    - Use data from Wikidata**
  - Current highlights**:
    - 2019 Gent–Wevelgem (Q57063619)
    - Zuzana Čaputová (Q26273268) (pictured)
    - Patrick Descourieux (Q62593481)
    - Volodymyr Zelenskyy (Q3874799)
    - Geoff Harvey (Q60195498)
    - Nazeni Gharibian de Vardavan (Q31470622)
    - deaths in April 2019 (Q62590746)



Main page  
Community portal  
Project chat  
Create a new Item  
Create a new Lexeme  
Recent changes  
Random Item  
Query Service  
Nearby  
Help  
Donate

Print/export  
Create a book  
Download as PDF  
Printable version

Tools  
What links here  
Related changes  
Special pages  
Permanent link  
Page information  
Concept URI  
Cite this page

Item Discussion

Read View history Search Wikidata



## Mona Lisa (Q12418)

painting by Leonardo da Vinci  
La Joconde | La Gioconda

↪ In more languages Configure

Language	Label	Description	Also known as
English	Mona Lisa	painting by Leonardo da Vinci	La Joconde La Gioconda
German	Mona Lisa	Ölgemalde von Leonardo da Vinci	
French	La Joconde	tableau de Léonard de Vinci	Mona Lisa Portrait de Mona Lisa Portrait de Lisa Gherardini, épo... La Gioconda Monna Lisa Joconde
Bavarian	No label defined	No description defined	

All entered languages

### Statements

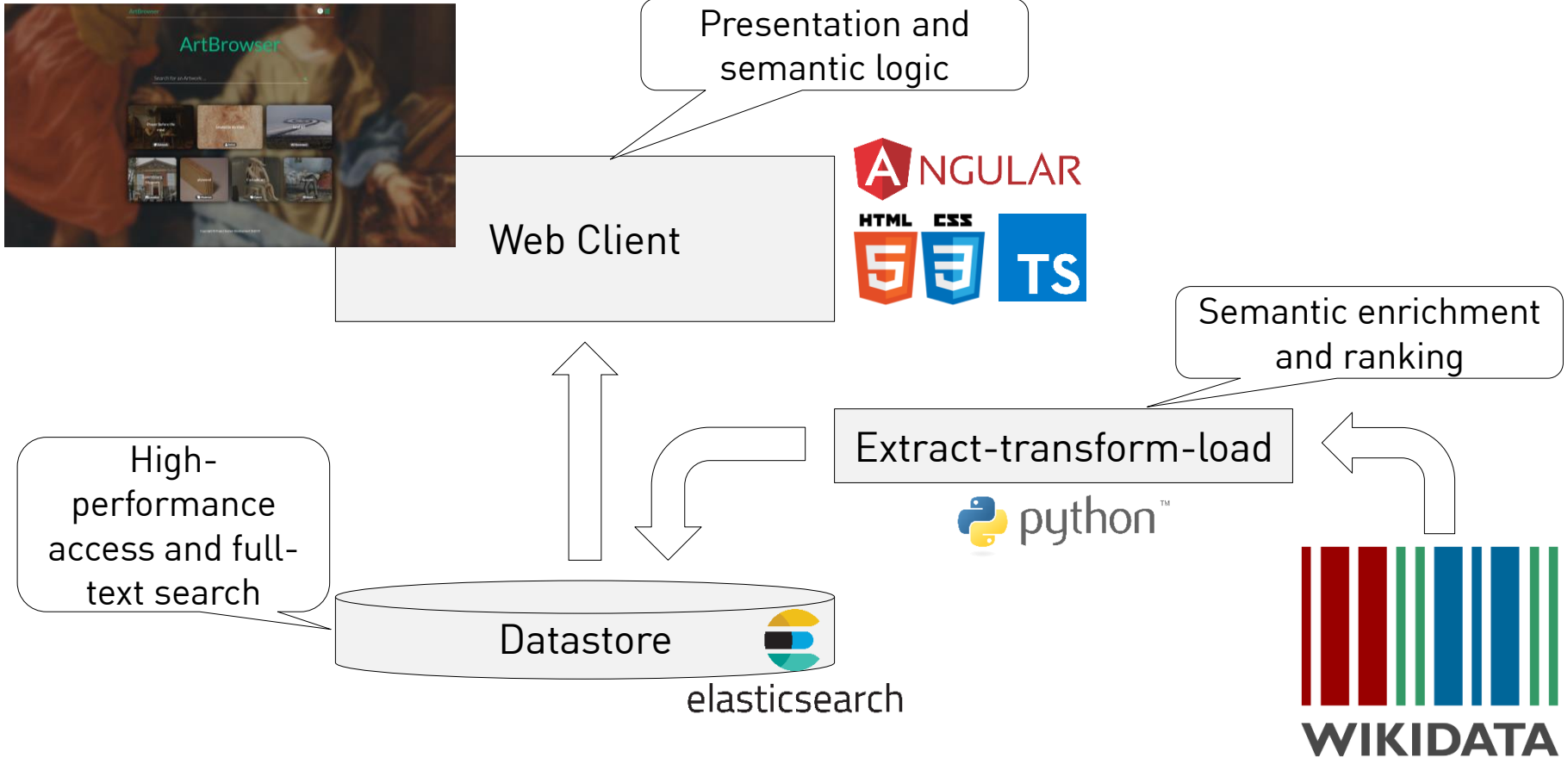
instance of	painting	↪ 0 references
	major tourist attraction	↪ 0 references



### Wikipedia (114 entries)

af	Mona Lisa
am	ሞና ሊዛ
ar	مونا ليزا
ast	La Gioconda
as	মনালিষা
az	Mona Liza
ba	Мона Лиза
bcl	Mona Lisa
be_x_old	Мона Ліза
be	Мона Ліза
bg	Мона Лиза
bn	মোনা লিজা
bo	མོ་ནཱ་ལི་ཤཱ་
br	Mona Lisa
bs	Mona Lisa
ca	La Gioconda
cbk_zam	Monalisa
ckb	مونا ليزا
co	Giuconda
cs	Mona Lisa
cv	Мона Лиза
cy	Mona Lisa
da	Mona Lisa
de	Mona Lisa
el	Μόνα Λιζά
en	Mona Lisa
eo	La Gioconda
es	La Gioconda
et	Mona Lisa
eu	Gioconda
fa	مونا لیزا
fi	Mona Lisa
fo	Mona Lisa
frr	Mona Lisa
fr	La Joconde
fy	Mona Lisa
ga	An Mona Lisa
gl	Mona Lisa

# Software architecture

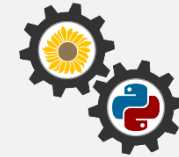




# Extracting Wikidata with pywikibot

```
import pywikibot

def extract_artworks(type_name, wikidata_id):
    query = 'SELECT ?item WHERE ?cls wdt:P279* ' +
            wikidata_id + ' . ?item wdt:P31 ?cls; wdt:P170
            ?creator; wdt:P18 ?image .}'
    items = pg.WikidataSPARQLPageGenerator(query,
            site=pywikibot.Site("wikidata", "wikidata"))
    for item in items:
        item_dict = item.get()
        label = item_dict["labels"]["en"]
        ...
```



pywikibot

SPARQL query

Iterating result and  
accessing fields

# openArtBrowser is open source

<https://github.com/hochschule-darmstadt/openartbrowser/>

The screenshot shows the GitHub repository page for 'hochschule-darmstadt / openartbrowser'. At the top, it displays 'Unwatch 4', 'Star 1', and 'Fork 1'. Below this, there are navigation tabs for 'Code', 'Issues 1', 'Pull requests 0', 'Projects 0', 'Wiki', 'Security', 'Insights', and 'Settings'. A message states 'No description, website, or topics provided.' with an 'Edit' button. Below that, it shows 'Manage topics'. The repository statistics include '368 commits', '2 branches', '0 releases', '8 contributors', and 'MIT' license. There are buttons for 'Branch: master', 'New pull request', 'Create new file', 'Upload files', 'Find File', and 'Clone or download'. A commit history table is visible, with the latest commit by BernhardHumm updating the README.md. Below the commit history, the README.md content is shown, featuring the title 'openartbrowser' and a 'Table of contents' section with links to 'Overview' and 'Frontend'.

Commit	Message	Time
BernhardHumm	Update README.md	Latest commit 2fdcb4 3 hours ago
	app	updated readme, removed variables.scss 3 months ago
	documents	added Angular presentation 5 months ago
	scripts	change script directories name 3 months ago
	.gitignore	switch artist and artwork place in suggestion 4 months ago
	ArtOntology.zip	Art ontology added 5 months ago
	LICENSE	add License and Readme 3 months ago
	README.md	Update README.md 3 hours ago

**openartbrowser**

## Table of contents

- [Overview](#)
- [Frontend](#)

# **Fascinating with Open Data: openArtBrowser**

**Prof. Dr. Bernhard Humm**

**Hochschule Darmstadt – University of Applied Sciences**

**openRheinMain, Sept 13, 2019**

**<mailto:Bernhard.Humm@h-da.de>**