Specification of the commun carthography of UNITA courses

WP5, D5.2.1

USMB

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Abstract

This document presents the specification for the common cartthography of UNITA courses in the three priviledged areas: Circular Economy, Renewable Energy and Cultural Heritage.

The main goals of the carhography is to provide means for exploring the different degrees available in the three domainsin the partner universities

The work on the carthography specification has cristalysed in the developement of a Proof Of Concept prototype. The specification has been in close interaction with the users and content providers that are in WP2

Summary

Figure List

1. Introduction

UNITA brings together the six university partners and aims at fostering intensive exchanges in teaching and learning. This involves strengthening existing collaborations and building new ones. Curretly the project focuses on three priviledged areas: Circular Economy (CE), Renewable Energy (RE) and Cultural Heritage(CH). In these areas the six universities provide a certain number of degrees, both at bachelor and master level. During the first year of the project, WP2 has conducted work on identifying these degrees as well as the courses in them.

2. Purpose and scope

This document presents the specification for the common carthography of UNITA courses in the three priviledged areas.

The main goals of the carhography is to provide means for exploring the different degrees available in the three domains in the partner universities. It aggregates information comming from the different partner universities, and facilitates the identification of possible connections between the degrees.

The Carthography is part of the services provided by the Virtual Campus (VC).

The work on the carthography specification has cristalysed in the developement of a Proof Of Concept prototype. The specification has been constructed in close interaction with the users and content providers that are in WP2

3. Roles and permissions

The carthography provides several exploratory functionalities. They are open to any potentianl users. The can have different roles.

Table 1 shows the detailed description of the roles. The only role that needs identification is the administrator.

It is possible to have several roles assigned to one user. For example, a user can act as Teacher can be an Councelor at the same time.

Even though with the exception of the administrator all the other roles do not need identification, we found it useful to present them, as they help emphasize the diffent possible uses for the cartography.

Role	Acronyme	Description
Visitor	Visitor	Any visitor of cartography.
Student	Student	Student in one of the partner univerity
Teacher	Teacher	Teacher in one of the partner university
Counselor	Counselor	Teachers or mobility staff that help students with defining their mobility project
Cartography Administrator	CAdmin	Person in charge of updating the carthography. It can remove/add/modify degrees in the carthography

Table 1- Carthography roles and permissions

4. General functionalites and constraints

The cartography implements the following general functionalities

	Description
GEN-01	Give a centralized access point to the educational offer in the three priviledged domains
GEN-02	Facilitate the educational offer understading and exploration by providing visual exploration means
GEN-03	Facilitate the construction of study paths by allowing comparison of existing degrees
CON-1	The cartography has to be accesible via a link from the Virtual Campus,
CON-2	A clear process has to indicate how the cartography can be updated each year
CON-3	The update of the cartography has to be as much as possible automated

Table 2- Carthography general functionalities and constraints

5. Integration into the Virtual Campus

The carthography is part of the Virtual Campus (VC) and is one of the services proposed by the VC.

6. Disclaimer

The specifications for the carthography were built in the form of a Proof-Of-Concept prototype. During the POC construction, close collaboration took place with the the content providers, namely the persons involved in defining the course Matrix in WP2

The content currently present in the prototype is the first version of the Online Matrix. At this moment the data is incomplete, and the view it provides does not all the time represent the reality. This is due to a variation in the interpretation of the criterias that were defined for selecting the degrees to be included in the matrix.

The visual capabilities of the POC cartography allowed to identified this variations in the interpretations, and the criterias have been refined. The future version of the Matrix (WP2) and of the cartography will contain a more homogenous inclusion.

Thus, in the screen shots presented in the fucntionality section hereafter, there some there is a certain imbalance in the number of degrees presented that is not aligned with the reaity.

7. End user functionalities

The fuctionalities are presented in groups:

- Overview of the existing offer
- Degree exploration
- Subjects exploration

7.1. Give an overview of the existing offer

In the first part, several graphical elements present overall information about the partners and their offer. In the current prototype the choice was made to include 3 connected graphical elements: the geographic view of universities, number of students, and Number of degrees per priviledge domain, such as detailed in the following sub-sections.

The final prototype might include different graphical elements, but the general purpose of this part remains to give overall information of the offer.

7.1.1. Interactive map of Universities

When hooving over the university, information about the university appears. This contains a brief description of the university and a link to the web page.

Figure 1 Interactive Map of univesities

7.1.2. Number of Students per University

This histogram is connected to the interactive map. In the final prototype the visual for this information can be changed.

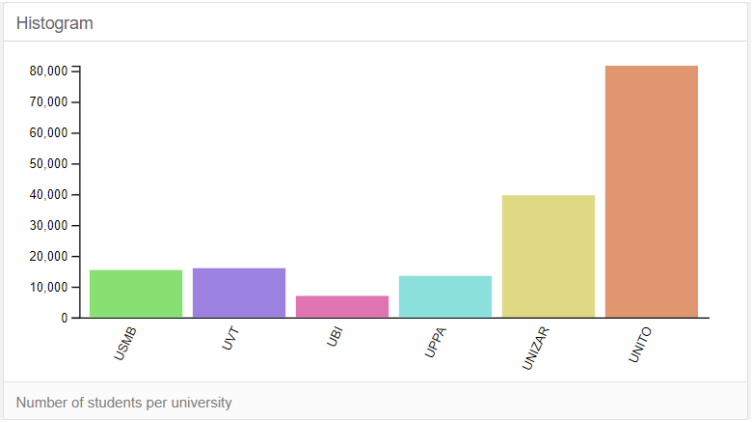


Figure 2 Number of Students per university

7.1.3. Number of Programs per thematic per University

This diagram gives a first glimpse on the proportion of degrees in the different thematic areas in different universties.

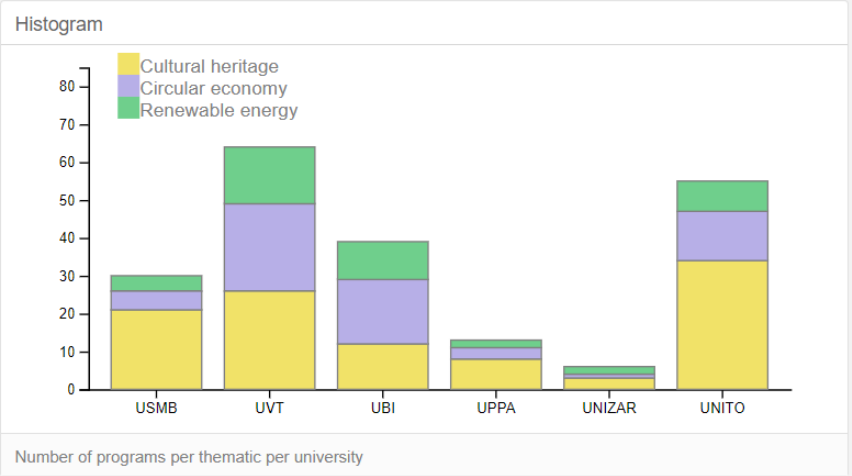


Figure 3 Number of programs per per university

7.2. Degree exploration

This part groups the functionalities related to the degrees exploration. In its current form, these functionalities are provided by the use of a sunburst that groups the entire offer, in the six universities. The offer is structured by domain and by university. The outer layer contains all the degrees.

The offer can be explored by university or by domain.

7.2.1. Degree exploration by domain

The following figure gives an overview of the offer presented by domain.

Figure 4 Presentation of the offer by domain

The above figure presents the offer structured by domain. The inner circle presents the three domains, the subsequent cercle the level of degrees, followed by universities. The outter layer contains all the degrees currently present in the POC.

This graphical element element is interactiv, and allows to navigate the offer. The following figure shows the zooming result of choosing a particular domain, in this cas Cultural Heritage.

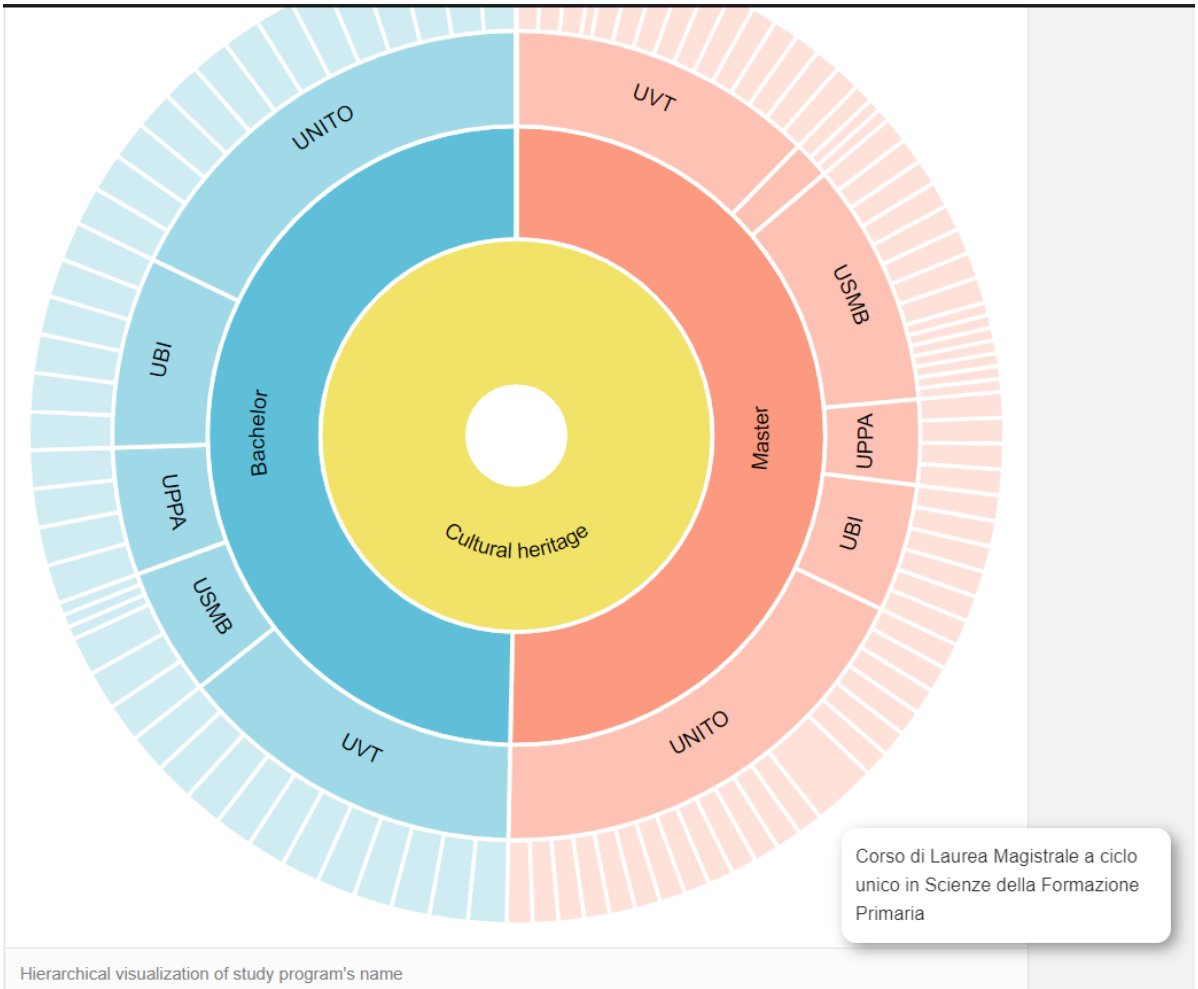


Figure 5 Cultural heritage offer

When hooving the outer layer, the name of the different degrees is diplayed, such as presented in the above figure.

The navigation can continue. The following figure presents the Master level degrees in Cultural Heritge.

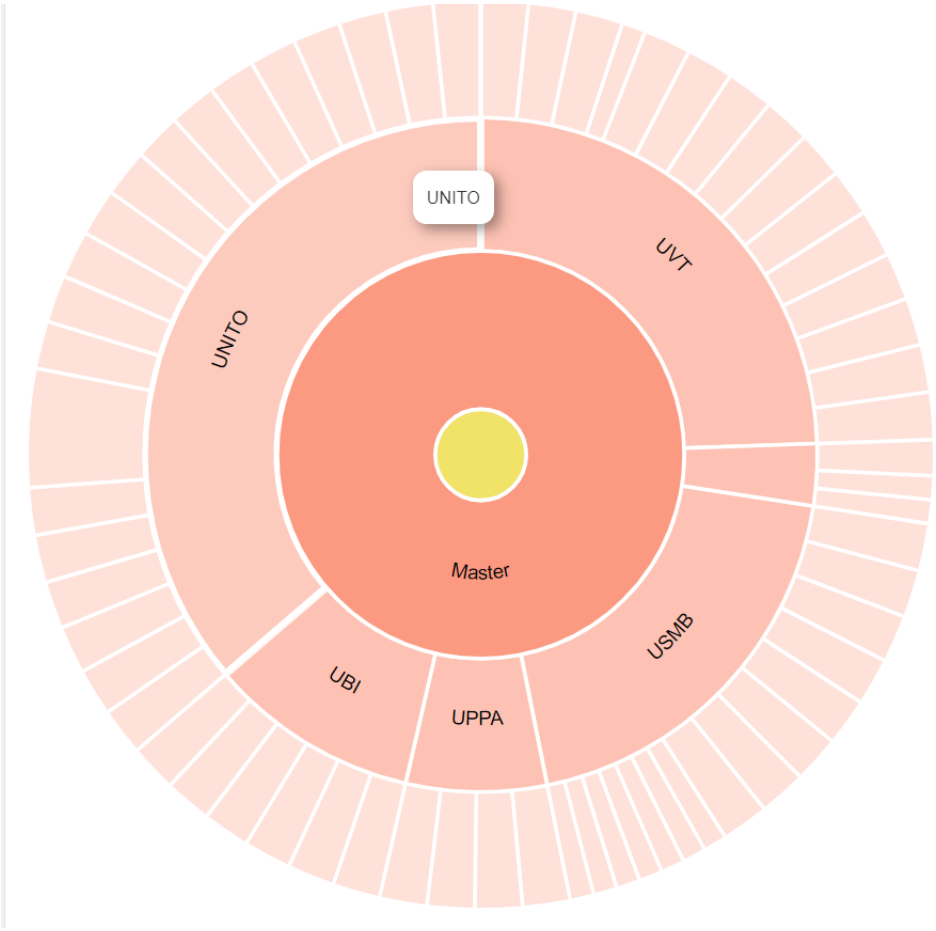


Figure 6 Cultural Heritage, Masters level

The following figure presents the offer at UNIZAR.

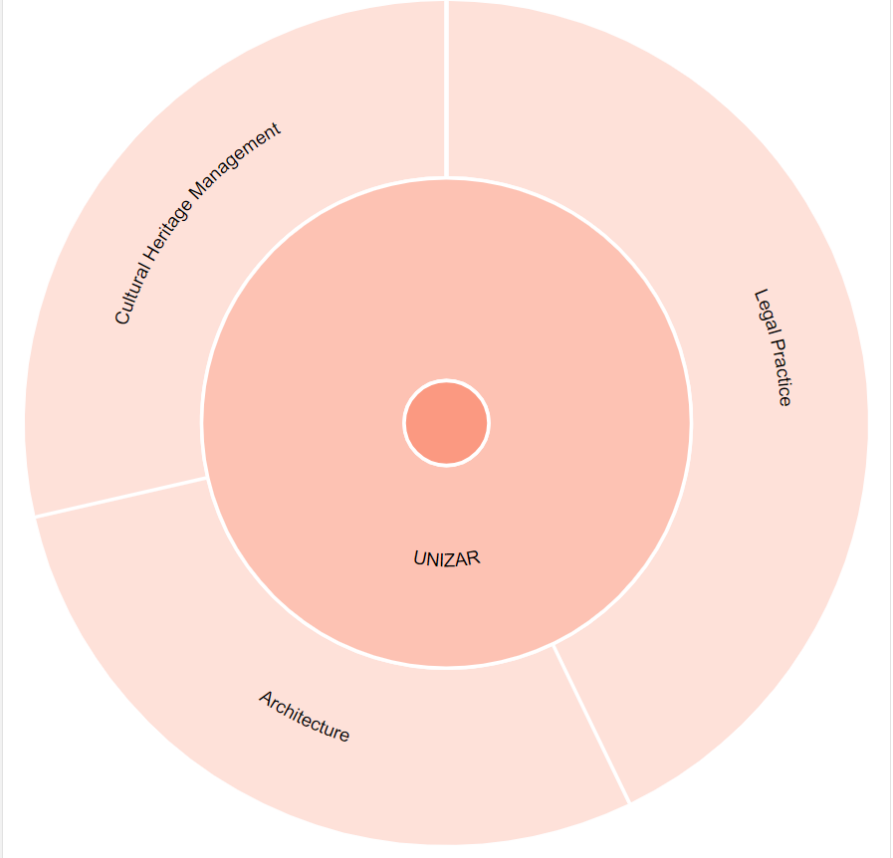


Figure 7 UNIZAR Cultural Heritage Master Degrees

Note: the criteria interpretation at UNIZAR was one of the most strict. Only degrees completly dedicted to the domain were included in the matrix.

7.2.2. Degree exploration by university

The same offer can be navigated using the universities as an entry point, such as illustrated in the following figure.

Figure 8 Offer presentation by University

From this point the user can navigate by choosing the domain, and then level of the studies.

Figure 9 UPPA offer in the three domains

The figure above presents the navigation in the UPPA offer. We can easely see that the CH domain is the predominant one in this institution, with fours degrees at the bachelor level and four at the masters.

The following figures presents the offer at UVT.

Figure 10 UVT offer in the three domains

We can see that at UVT the offer is balanced between the three domains.

NOTE: UVT had the less struct interpretation of criterias for including diplomas.

7.2.3. Indication of domain relevance

This functionality is not present in the current version of the prototype. The current version of the Degree Matrix indicates in most of the cases to which domain the degree belongs. While exploring the offer, we realised some degrees belong to more than one degree. The next version of the degree matrix will indicate a degree of relavance to each domain.

The carthography will visually take into account this degree. One of the possibility is by using a monochromatic colour scheme with the most saturated colours being used for the more relevant degrees.

7.3. Subject exploration

This part groups the functionalities related to the subject exploration.

7.3.1. Subject visualisation

Whilest the sunburst presents the different degrees, the different subjects are presented in tables.

Two tables, presneted in a parallel manner allow to explore the subjects offered.

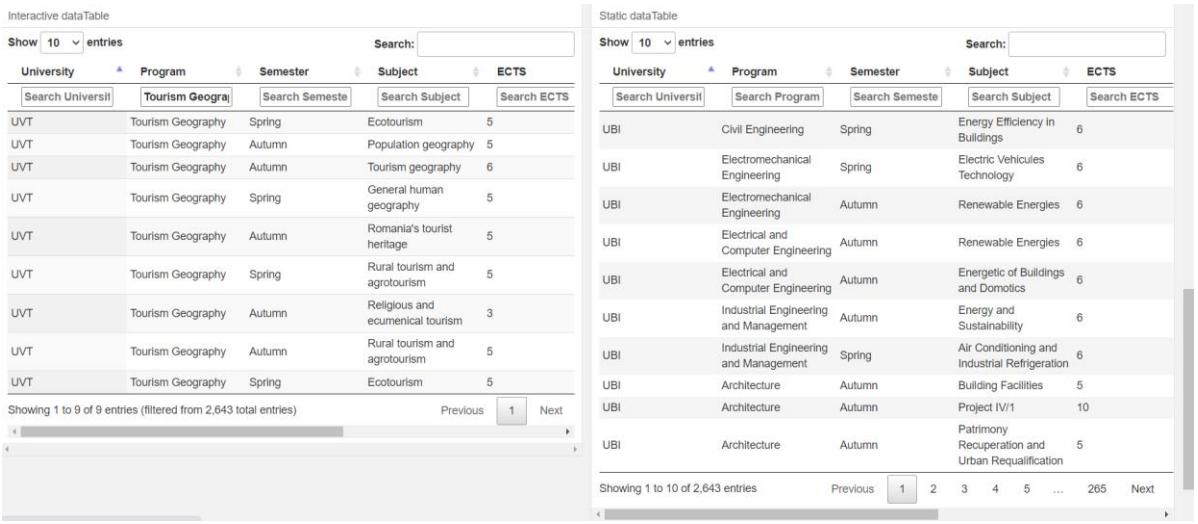


Figure 11 Subject exploration - two tables

In the figure above we can see the two tables. The left one is connected with the sunburst and presents the offer accordingly to the choice in the sunburst. In the case presented above, the choice is Tourism Geography at UVT. Thus the left tables presents all the subject offered by this degrees. The criteria here was include only the subjects related to the domain. We have thus the Cultural Heritage subkects in the Tourism Georgraphy degree at UVT.

In the same figure, the right table presents all the subjects, in all domains, and all universities and levels.The search fields on top of each column allow for filtering.

7.3.2. Degree comparaison by subjetct exploration

The following figure presents the result when putting geography as a filter in the degrees/program column

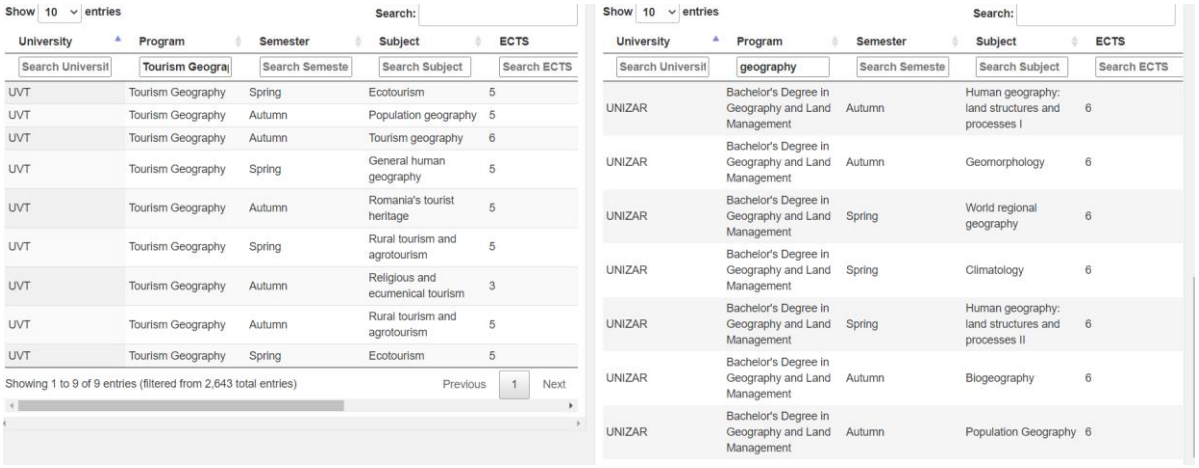


Figure 12 UVT Tourism georgraphy vs. Georgraphy degrees

As shown in the figure above, adding geography as filter in the program column, allowed to identify the program Bachelor Degree in Geography and Land Management at UNIZAR. By showing thes subjects proposed in the two degrees in parallel allow for a comparison and facilitate the construction of potential mobilities.

7.3.3. Construct and save subject list

Whilest exploring the subject tables, the user can save a list of courses that look of interest to him/her. There is an area above the two tables where the user can drag and drop subjects that s/he intends to save for later. The list can be saved as a pdf file

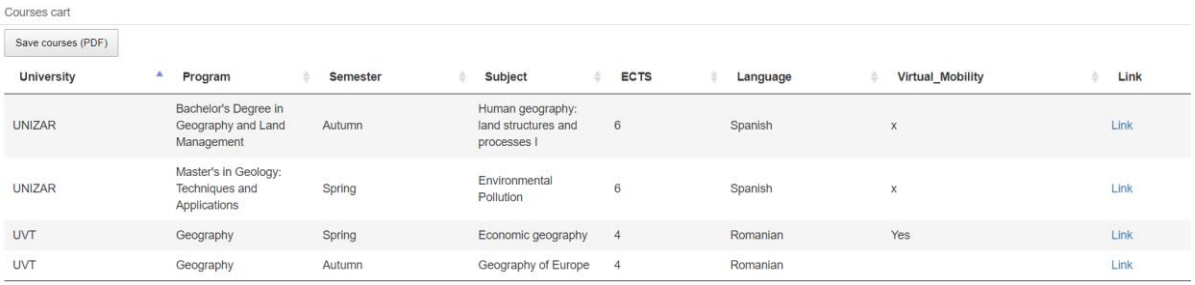
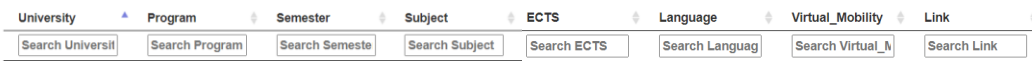


Figure 13 Course cart

7.4. Course Template

The columns of the tables are the following:



Thus for each subject available in the cartography these informations are provided.

The list of columns forms the Course Template.

8. Constraints and maintainance related functionalities

Theree main constraints were stated in the section General functionalites and constraints.

The first constraint (CON-1) is already taken into account as the POC prototype is accessible via a link.

The constraints CON-2 and CON-3 are related to the way the cartography content is to be updated when necessary (normally each year). These constraints were taken into account in the current version of the prototype.

The final prototype's architecture has to allow for an easy update.

Additional maintainance functionalities can be added to the cartography. The following table contains a list of such functionalities.

	Name	Description
FUN-01.1	Update degree table	Update the table for containing the degrees in a particular domain from one university. Typically to be used when the programs have undergone major changes
FUN-01.2	Add a new degree	Add a new degree in a domain at one university
FUN-01.3	Remove a degree	Remove a degree in a domain from one univerity
FUN-02.1	Update subject table	Update the subject table for a given degree
FUN-02.2	Add subject to degree	Add a new subject to a given degree
FUN-02.3	Remove subject from degree	Remove a subject from a degree

Table 3- Carthography maintainance functionalities

9. The POC prototype

The POC first intention was to explore the visual paradigms that facilitate the offer navigation. The focus was thus on helping to solicitate end-user feedback on functionality. The POC is not robust, and the next prototype will have to be built from the scratch.

The POC is written on NodeJS 15.10.0 and uses docker/docker-compose. The database used is MongoDB. Mongo is a document-oriented database management system.

The user can connect to localhost:8080 and the api provides a web site that communicates directly with the database.

Here is the architecture of the application:

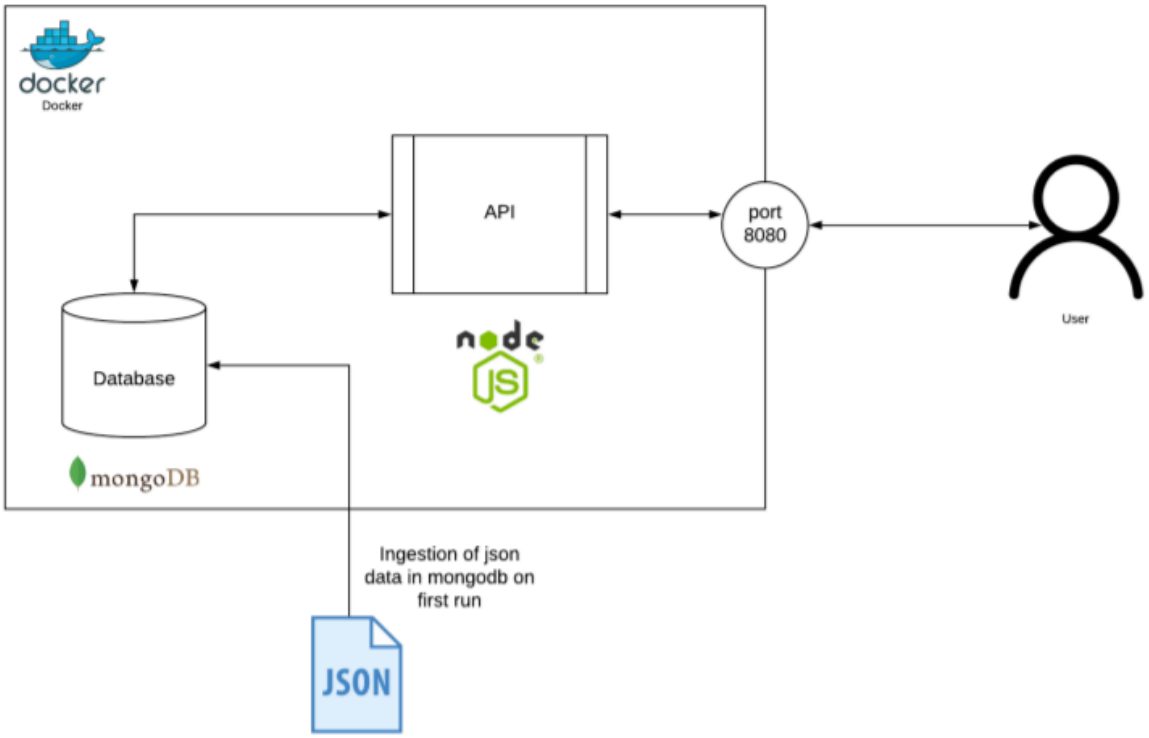


Figure 14 The POC prototype architecture

The prototype has equally been deployed on a server. The adress is the following :

http://vps-63b06303.vps.ovh.net:8080/

Note: The POC prototype contains some additional functionalities not presented in this document. They concern the support for building studypaths.