

import of data into a database, initial queries, use of NLP to enrich the database, further development of queries and data analysis methods and use of graph-powered machine learning and creation of a client/server application for preconfigured queries. The student's science club helps, and the five tasks become the foci of diploma theses. Researchers from UW support the students by providing data, providing additional historical data and supplemental data. After the project and theses are completed, the application will be hosted on a UW server and available for the public for further research and projects. The development of this student work strengthens the digital humanities in Poland. It also contributes to strengthening the academic Spatial Data Infrastructure (SDI). The project uses the CENAGIS geo-cyberinfrastructure - a computing centre and repository for geospatial data. These connections allow the ongoing project to use big data technology and innovative geospatial analysis tools.

## **People First - Testing Integrated Digital Research/Teaching Concepts from the Ground up (CT)**

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The Centre for Digital Culture and Innovation (CODA) started its activity at the beginning of the 2022/2023 academic year with the aim of supporting Digital Humanities (DH) development in the eight research organizations from the Faculty of Arts and Humanities of the University of Porto (FLUP). CODA comprises three multidisciplinary PhD researchers that develop their own projects and integrate existing projects to bring awareness to a comprehensive range of DH methods - from data collection based on real-world objects or texts to analytics and artistic data experimentation.

Like many other DH community members, CODA members share the idea that Digital Humanities should be a collaborative effort. This is also a practical concern, as they acknowledge that their coverage may be very limited regarding the dimension of their work. One of the first tasks was to map the needs and skills that each research centre could bring to a common pool for starting a DH community at FLUP.

CODA also envisioned the educational institution that framed the research centres as an advantage to implement DH as a convergence between machine and human computation. Thus, CODA selected a high-impact research project that could be used as a demonstration of DH methods' potential. Specifically, the Phonology lecturer from the Linguistics MsC course to implement a project-based learning methodology, where students would learn with data, contributing to a little-explored area - Portuguese Creole Studies. They also acquired data concepts that will be useful in their academic and professional lives. The collaboration also reinforces CODA's goals of fostering interdisciplinary studies and collaboration between FLUP research units - from linguistics to historical, geographical, ethnological, and genetic data.

Regarding infrastructure, we opted to use freely available web-based resources, having as reference the Minimum Viable Product approach. Beyond the static interaction through Moodle, shared Google Presentation and Sheets files were used for real-time collaboration in the classroom. Students learned, also by trial and error, how to clean and transform data while developing their algorithmic thinking. They also had the chance to work their data with basic python script through Google Colaboratory web service. Regarding Linked Open Data, students

were introduced to OpenRefine. Student engagement was a success not only in the work they produced and integrated on an open GitHub repository but also as a learning experience as the high results of the course in the pedagogical inquiries confirm.

## **Data Models and Knowledge Organization in Digital Humanities (IT)**

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Semantic web technologies have had a strong impact on Digital Humanities (DH) methodologies in managing both document-centric and data-centric collections. One of the most interesting outputs in the DH domain is the ontologies reuse for producing Linked Open Data (LOD) for cultural heritage (CH) objects' description. Both structured data coming from traditional Libraries, Archives or Museums (LAM) database and non-structured or semi-structured data coming from the full-text of literary works have been the basis for the production of new scholarly research projects (collections, editions or archives) as LOD datasets. The data modelling phase has been the point of attention of these projects, since it represents the research questions formalization. Producing LOD on the basis of new data models, as a combination of different ontological approaches, is the way for DH to manage knowledge organization issues. Activities as indexing, content description, subjecting and classifying are the methodologies for enhancing CH data with Semantic Web techniques. In order to let DH people to adhere to this approach the important point is to provide as much documentation as possible, in order to ensure the maximum reusability not just of data, but of the whole process (data model, applications, tools and libraries). The idea is to provide scholars with all the steps of the workflow, to easily replicate the same project with different data. Some case studies, and especially the relevant documentation, will be introduced: Vespasiano da Bisticci as a scholarly digital edition (<https://dharc-org.github.io/vespasiano-da-bisticci-letters-de/documentation/index.html>), MythLOD as a data collection (<https://dharc-org.github.io/mythlod/static/mima.html>). Documentation become in these projects the methodology for expressing how to organize the knowledge emerging from data.

## **Day 2 - Tourism Data Analytics and Artificial Intelligence**

### **Big Data Empowered Agility for Dynamic, Volatile, and Time-Sensitive Service Industries: The Case of Tourism Sector (IT)**

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Dynamic, volatile, and time-sensitive industries, such as tourism, travel and hospitality require agility and market intelligence to create value and achieve competitive advantage (Buhalis, 2020; Del Vecchio et al., 2018). Little research exists on the key drivers of big data (BD) use for dynamic, real-time and agile businesses (Mandal, 2019). Aim of the current research is to examine the influence of BD on the performance of service organizations and to probe for a deeper understanding of implementing BD, based on available technologies.