Knowledge Graph Engineering

Knowdive Research Group

September 9, 2023

Part 0
Course Organization

Objectives

- Learn how to produce quality and reusable data.
- Learn how to exploit reusable data for a (different) specific purpose.
- Learn what is a Knowledge Graph (KG).
- Learn a methodology to build quality and reusable KGs.
- Learn tool and instruments to implement the above methodology.

Prerequisites

- **Data management**: basic programming skills in python and/or java/javascript.
- **Databases modeling**: ER modeling, Ontology modeling if possible, Ontology definition desirable.
- **Attitude to teamwork**.

Course Modality - The Theory

The theory enables the practice

The theory lectures will be focused on:

- (First part of the course) Data Heterogeneity, Quality and Reuse.
- (Second part of the course) The iTelos methodology for KG building.

Course Modality - The Practice

The course practical activities apply the iTelos methodology in real-world case studies.

- The practical activities are scheduled in parallel with the theory lectures.
- The students (grouped in teams) will have to conduct a complete KG generation project (focused on real case studies assigned by tutors).

Course Modality - Following the course

- Theory and practice will go on in parallel.
- The theoretical lectures will describe the problems to solve, and the solutions proposed by the iTelos methodology;
- those will be then immediately applied in practice over the assigned projects.

It is strongly suggested:

- The presence in the classroom for the theoretical lectures and their following discussions.
- Strong cooperation between the team members is required to carry on the project's development along the course.

Exam Modality - Intermediate evaluations

- After the completion of each iTelos phase (both concerning theory and practice) the students will have to provide an **intermediate report** of the work done so far.
- The intermediate evaluation will allow the tutors to lead the teams towards the right direction by correcting possible errors during the methodology implementation.

Exam Modality - Final evaluation

- The final exam will consist of a presentation of the KGE projects developed along the course and finalized achieving the output required by the initial purpose.
- Additional questions will be asked by the tutors over the both the course theory and practice.
- The course final grades will be composed by the grades obtained for each intermediate evaluations plus the final presentations grade