Projects Presentation

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Premise

- Projects are OPTIONAL
- Projects are an opportunity to dirt your hands
- Knowledge Engineering is a collaborative work -> groups are encouraged
- Projects MUST be delivered before October 1st

Project Structure

- Projects are divided into three Tasks of increasing complexity
  - Knowledge Engineering
  - Data Linking
  - Semantic Web Application

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  - Knowledge Engineering (1,5)
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  - Semantic Web Application (1,5)

Knowledge Engineering

- Each group MUST
  - design an ontological model about a given application domain
  - provide competency questions, documentation, and examples,
  - present the design motivating their choices.

Knowledge Engineering

- Evaluation Points
    - REUSE of existing vocabularies and ontologies
    - Follow best-practice [1]
    - USE of W3C Standards, RDF, OWL2,
    - USE of existing resources, e.g., Widoco [2]

Data Linking

- Each group MUST
  - **complete the Knowledge Engineering TASK**
    - convert/annotate a given dataset into RDF using the the ontology previously developed
    - translate the competency questions into SPARQL queries and provide evidence of the results
    - publish the dataset as Linked Data

Data Linking

- Evaluation Points
    - Linked Data Principles [3]
        - Automated annotation methods, RML/Ontop
        - Multiple Publication Methods, SPARQL, DUMP, REST
            - USE of annotation vocabularies, VOID, DCAT, SPARQL-SD,
            - Linking to other vocabularies

Semantic Web Application

- Each group MUST
  - **complete the Data Linking TASK**
  - use the annotated dataset to create value in a Web Application
  - Valid SW Apps are just Web App, that exploit KE and LD tools

Semantic Web Application

- Evaluation Points
- Linked Data Principles (again) [3]
- How does it create value?

Project Proposals

- Project Proposals are “Full-Stack”,i.e., they cover all the three aspects
- BUT the annotated dataset is provided group-wise
- Student can propose their ideas too

Proposals: ColorWave

- An application should receive an URL of an Image, extract the colours and shapes from the image and return the RDF annotation of such image.

- Similarly to https://www.degraeve.com/color-palette/, but the results are in RDF

- Alternatively one can use D3.js to provide “live” descriptions of coloured shapes

Proposals: LinkedContainers

- Converting Dockerfile or Docker Images in RDF: the application should receive a link do a Docker Image from DockerHub, retrieve the data via the API and convert the them in RDF.
    - Similarly to https://microbadger.com/images/ubuntu but the results are in RDF
- Alternatively one can provide a text editor where to write a Dockerfile and build an image locally.

Proposals: Foodle Maps

- Provide a Google Maps extensions that shows the location of particular dishes

- Imagine you’re hungry and you’re looking for a burrito, a veggie burrito.

- The application should find the restaurants serving such dish and locate the burritos accordingly

Proposals: PutArtApart

- Provide a Google Maps extensions that shows the location of particular artworks

- Imagine you’re in a city and you’d like to know which patins are around.

- The application should find the museums (e.g.) showing such patins and locate the paints accordingly.

Proposals: Research

- schema.org is a shared project across the biggest search engine vendors, i.e., Google, Bing, Yahoo!, and Yandex.

- It contains a variety of terms to annotate web pages semantically

- schema.org extensions follow a prescribed process. The group interested in pursuit this project should focus on this process.

- DOMAINS:

  - Streaming Data and Events

  - Microservices and Cloud

References

- [1] https://protege.stanford.edu/publications/ontology_development/ontology101.pdf
- [2] https://github.com/dgarijo/Widoco
- [3] https://www.w3.org/DesignIssues/LinkedData.html