Université Polytechnique HAUTS-DE-FRANCE

Data engineering for sustainable and mobile application

ECTS
4 crédits

Composante
INSA Hauts-de-France, UPHF

Présentation

Description

Goal : Introduction to data management, from centralized databases to distributed semantic web of data. Describe different data modelling approaches

List of subjects to be presented to the students :

• Data storage:
- Relational databases (SQL)
- Non-Relational databases (NoSQL)
- Graph based, document based, etc.
• Introduction to distributed semantic web of data
• Information and data modeling
- Visual representation
- Languages (RDF, OWL, JSON-LD, etc.): namespaces, relationships, entities, properties.
- Data storage: Triplestore, Graph Databases, etc.
- Query languages and engines: SPARQL
• Taxonomy and Ontology
- Inference, Equivalence, Transitivity
- Examples: generic, IoT, SAREF, Smartcity, etc.
- Data models
- Data vs Metadata (data quality, enrichment, and linking)
- Attribute definition
• Data acquisition, sources and introduction to processing
- 5V's of BigData (velocity, volume, value, variety and veracity)
- Datasets vs Data Streams (timeseries, etc.)
- Mapreduce
• Good and bad modeling practices
• Initiatives on smartcity interoperability
- FIWARE, Smart Data Models, NGSI-LD ETSI standard, oneM2M

- Infrastructure federation