Data Mining II

DMA - Data mining: advanced topics and case studies
Instructors

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Topics

Advanced/alternative data mining methods

- Sequential patterns
- Time series
- Classification
  - Basic elements of KNN, SVM, Neural Networks, etc.
  - Validation methods
- Outlier/anomaly detection
- The data mining process at work (CRISP, etc.)
  - Sample case studies in the CRM domain
Environments

- **Python**
  - Most tasks are supported
- **Knime**
  - Most classification and validation methods
  - Very few tools for time series
  - Some outlier detection tools
- **Ad hoc external tools**
  - SPFM (sequential patterns)
  - ELKI (outlier detection)
Material

- Some topics covered by textbook (Tan-Steinbach-Kumar)
  - Most classification and validation methods
  - Sequential patterns
- For the others, slides and ad hoc materials
  - Time series
  - Outliers detection
  - DM / CRISP process
Classes

DM 2

Classes - Lezioni

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<td>Thursday</td>
<td>14 - 16</td>
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<td>Friday</td>
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Office hours - Ricevimento:

- Nanni: appointment by email, c/o ISTI-CNR
Exams

Same procedure as DM 1

- **Written exam**
  - exercises and questions about all topics – sequential patterns, classification (advanced topics), times series, outliers detection, the data mining process
  - Two (optional) mid-term exams will be given as replacement

- **Project(s)**
  - Topics proposed during the classes
  - A single comprehensive report to be sent 2 days before the oral exam
  - Groups composed of up to 3 people
  - To be performed any tool, including (but not necessarily) those presented during classes (Python, Knime, ...)

- **Oral exam**
  - Short discussion of the project (group presentation, where possible)
  - Questions on all topics presented during the classes
Web-site

• Same as DM 1:  http://didawiki.di.unipi.it/doku.php/dm