Course project

Energy Informatics
Winter 2015-2016
Submission deadline: 12.02.2016

Work on the following tasks in groups of two students, prepare a 15 minutes presentation to present your findings and achievements for each part on Friday.

**Part I: (Modeling, Analyzing & Implementation -Case study)**
Develop a price comparator for electricity prices

1. Analyze a price comparison portal
2. Develop an informal data description for a tariff
3. Draw the class diagram
4. Translate description/diagram to Python class(es)
5. Develop methods needed for price comparison
   - Extend description
   - Extend diagram
   - Extend implementation

**Part II: (Encryption)**
Decrypt two secret messages (one easy, one harder). Both messages are written in english and are encrypted using a substitution cipher. Use statistical analysis of letter frequency to come up with the encryption key.

**Part III: (Data analysis)**
Analyze vote by roll call data from 2015 (but feel free to include 2014 for more significant results)


b) Questions
   - Which representatives were more often absent than average?
   - Which representatives vote differently than the majority of their fraction?
   - Which fraction’s votes are most uniform?
   - Which are the ballots where the voting inside the fractions is less uniform than usual?
   - Is it true that DIE LINKEN. always vote against the government?

b) But first clean up!
   - Representatives are indexed by name: discuss whether that is appropriate and develop alternatives
• The set of representatives is not constant throughout a parliamentary session
• Discuss the reasons, find out how the Bundestag deals with it, and develop an approach to cope with change in answering the questions