Python and SQL: intro / SQL platforms

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Course content (part 1):Intro to Python

1. **Preparation of the environment (Ipython Notebook/PyCharm, data structures, debugging).**
2. **Flow control: if, for, while, iterators, error handling. Working with text files.**
3. **Functions and classes.**
4. **Linear algebra with NumPy**
5. **Data handling and wrangling with Pandas.**
6. **Visualization with Seaborn and matplotlib.**
7. **Python in the web: using APIs, JSON, XML, simple web applications.**
8. **Database manipulation with Python.**
9. **Presentations of projects.**

Course content (part 2):Intro to SQL

1. **Relational model for database management.**
2. **SQL: Table manipulation and basic queries: create/drop table, select, where, insert, update**
3. **SQL: complex queries, joins, stored procedures**
4. **SQL: indexing, triggers**

Grading:

- **Final project (60%) : written report + presentation (15 min)**
- **Written test (40%) [practical part +theoretical part]**
- **Activity (up to 10% extra)**
- **The class attendance is mandatory. Four or more unjustified absences signify failure of the course.**

Grade	Total Score %	Description
5	+90%	very good
4+	+80%	better than good
4	+70%	good
3+	+60%	satisfactory
3	+50%	sufficient
2	Less than 51%	fail

Final project requirements:

Goal of the project:

- Prepare own project, which presents how Python is applied to database programming

Possible project topics:

- Python and DBMS in business solutions (Warehouse, Airline reservations system,..)
- Custom Python library (ex. text analyzer) + simple registration website for clients. Website allows clients to enter their personal data and download library.

Each project should :

- be prepared by 1-2 students
- contain codes written in Python + description of functionality and instruction (5 -6 pages)

Deadlines:

- Proposal of the project should be send instructor till the end of November 2019
- Individual defence of the project will be conducted during last labolatories

(5-10 min per project)

Literature:

- 1. Lutz, M. (2013) ,”Learning Python”, 5th Edition, O’Reilly
- 2. McKinney, W. (2012),”Python for Data Analysis: Data Wrangling with Pandas, NumPy, and IPython”, O’Reilly
- 3. Beaulieu, A. (2009), „Learning SQL: Master SQL Fundamentals”,O’Reilly