Study program: Artificial Intelligence

Name of the subject: NoSQL Databases

Teacher(s): Danijela Boberić Krstićev

Status of the subject: Elective

Number of ECTS credits: 5

Conditions: none

Subject goal

Introduction with basic principles and concepts of non-relational databases.

Outcome of the subject

At the end of the course, it is expected that students demonstrate a clear understanding of the theoretical basis of non-relational databases and are able to develop application based on non-relational database

Subject content

Theory

Introduction with basic principles and concepts of non-relational databases. Discussing problems of large databases and problem of scalability. Introduction to different kind of NoSQL databases. Key-value databases. Column - oriented databases. Document - oriented databases. Graph databases. CRUD operations. Query languages. Indexing. Managing integrity of data. NoSQL databases and cloud computing. Performances of NoSQL databases.

Practical learning

Analysis of concrete implementation of different kind of NoSQL databases such as MongoDB (document - oriented database), HBase (column - oriented database) and Neo4J (graph - oriented databases)

Literature

Pramod J. Sadalage, Martin Fowler, "NoSQL Distilled: A Brief Guide to the Emerging World of Polyglot Persistence", Addison-Wesley Professional, 2012

Eric Redmond, Jim R. Wilson, "Seven Databases in Seven Weeks: A Guide to Modern Databases and the NoSQL Movement", Pragmatic Bookshelf, 2012

Number of active teaching classes	**Theoretical teaching: 2**	**Practical teaching: 2**

Method of carrying out the teaching

In the lectures, classical teaching methods using video beam are used to present the topics. In practice, classical teaching methods, using video beam and computers with the necessary software installed are used to practically train skills by getting to know the recommended tools. The premise for successful exercises is the existence of a sufficient number of computers so that each student can work individually.

Evaluation of knowledge (maximum number of points 100)

Pre-exam obligations	points	**Final exam**	points
Project	70	Oral exam	30