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| Course Name [科目名] | Database |
| Instructor Name [教員] | Mitaro Namiki, Hiroshi, Yamada, Katsuhide Fujita |
| Course Structure [授業形態] | Lecture |
| Course Credits [単位数] | 3 |
| Course Overview [概要] | This course aims to understand the basic databese and data analysis. This course has three parts: 1) RDB & SQL Basis, 2) KVS(Key Value Store),and 3) Data analysis Basis. In the first part, DBMS(Database Management System), relational data model and normal forms are introduced. SQL(Structure Query Language) is explained to define and operate DB in the part. In KVS part, we introduce the KVS (its concept, architecture, benefits) and explain data-processing with real-world KVSs. In Data Analysis Basis part, we focus on the statistical analysis of data and information retrieval for large DB. |
| Course Key Words [キーワード] | DBMS, RDB, SQL, Key-Value Store, NoSQL |
| Academic Goal [目標] | Understandings of  - Concepts of Database  - Basis of RDB(Relational Database)  - KVS basics and its applications  - Statistical Analysis and Information Retrieval for large DB. |
| Course Schedule [授業内容] | 1. Introduction of Database  2. Database Management System  3. WWW and RDB  4. Relational Algebra and Normal Forms  5. Basis of SQL(Structured Query Language)  6. KVS-1: Basics: Why KVS?, Difference of RDB.  7. KVS-2: Basics: KVS Internal Architecture, Its Benefits.  8. KVS-3: Real-life KVS: Amazon Dynamo  9. KVS-4: Real-life KVS: Facebook Datacenter  10. Data Analysis-1: Basic Statistical Analysis  11. Data Analysis-2: Basic Statistical Model  12. Data Analysis-3: Information Retrieval (1)  13. Data Analysis-4: Information Retrieval (2)  14. Computing Platform for Bigdata  15. Examples of Database |
| Textbooks, References,  and Supplementary Materials  [テキスト、参考書、その他] | Nothing(RDB, KVS)  Christopher D. Manning, Prabhakar Raghavan and Hinrich Schütze, Introduction to Information Retrieval, Cambridge University Press. 2008 (Data Analysis). |
| Grading Philosophy  (Percentage / Criteria / Methodology)  [成績評価の方法] | Exercises in each class (RDB, KVS, Data Analysis) |
| Other  (i.e. Expectations on Classroom  Conduct and Decorum etc.)  [その他] |  |