New York University
Computer Science Department
Courant Institute of Mathematical Sciences

Course Title: Database Systems
Instructor: Jean-Claude Franchitti
Course Number: csci-ga.2433-001
Session: 1

Assignment #1

I. Due

September 8, 2022 at the beginning of class.

II. Objectives

1. Learn Introductory Topics on Database Systems.

III. References

1. Slides and handouts posted on the course Web site
2. Textbook chapters 1 and 2

IV. Software Required

1. Microsoft Word.
2. Win Zip as necessary.

V. Assignment

1. Database R&D Exercise (Report)

   (a) Select a product from the following types of DBMS or data service (at least two): XML, ODB, NoSQL, Cloud, etc.

   (b) Write a short report to explain your choice and the capabilities and inner-workings

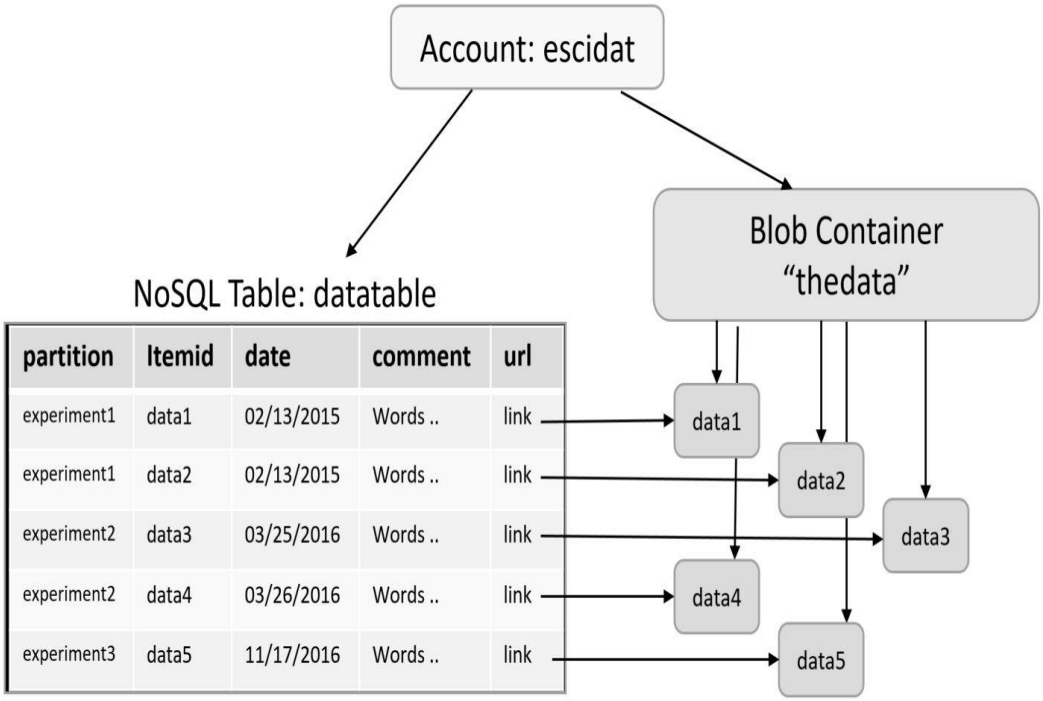
   (c) Demonstrate the use of the database systems of your choice on small example(s) of your choice

   For example, assume you are conducting lab experiments on some data set that is not currently being managed in a DBMS or by a data service. In this case, say you are maintening a .csv (Microsoft Excel) file with a few fields that describe individual experiments and one field in each experiment record includes a URL to a picture

(i.e., .jpg or .jjif file) that is representative of the corresponding experiment's findings.

In this case, how would you migrate your .csv and .jpg/.jjif files to a few different types of DBMSs? What would be a simple (working) migration program written in any programming language of your choice?

The general structure shown below shows how this would be done if you were to pick Microsoft's Azure data service (as an example). In this particular case, you could migrate the .csv file in a NoSQL datatable and store the .jpg/jjif files in blob storage on Azure.



2. Save the file as a Word document.

3. Name the file "**firstname_lastname_hw_1.docx**" (e.g., "john_doe_hw_1.docx").

4. Submit your assignment file via NYU Brightspace by the due date.

   Use the following naming convention in the subject line of the eMail:
   "**DB - firstname lastname - homework 1"**
   (e.g.: "DB – John Doe - homework 1").

   In the case source code is submitted, include your name as a comment at the top of each file
   (Note: all files submitted should include your name).

VI. Deliverables

1. Electronic:

   Your assignment file must be submitted via NYU Brightspace. The file must be created and sent by the beginning of class. After the class period, the homework is late. The NYU Brightspace clock is the official clock.

2. Cover page and other formatting requirements:

   The cover page supplied on the next page must be the first page of your assignment file.

   Fill in the blank area for each field.

   NOTE:

   The sequence of the electronic submission is:

   1. **Cover sheet**
   2. **Assignment Answer Sheet(s)**

   Assignment Layout (25%)

   - Assignment is neatly assembled on 8 1/2 by 11 layout.
   - Cover page with your name (last name first followed by a comma then first name), Date, NYU ID and course section number with a signed statement of independent effort is included.
   - Answers to question V.1 (a), (b), and (c) are complete and correct.
   - File name is correct.

   Answers to Individual Questions:

   (100 points total, all questions weighted equally)

   - Assumptions provided when required.

VII. Sample Cover Sheet:

Name _____ Date: _____
(last name, first name)

NYU ID: _____

Course Section Number: _____

Assignment 1

Total in points (100 points total): _____

Professor's Comments: