DATABASE SYSTEMS
Assignment 2: File vs Database

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tl;dr

- Contacts managing for 'Hanyang Mail' scenario
  - Group mail system usually serves contacts group members' contacts even if you don't know them. You can have your own contacts together.
  - Let's find out the difference between file system vs DBMS through managing contacts database on group mail system.

- TODO
  - #1: Follow Step1–3 with .csv file I/O.
  - #2: Follow Step1–3 again with DBMS.
  - Submit your code or script executed during #1 and #2. Your example and comment for each step should be also included.

Assginment scenario

- Administrator
  - Mail system administrator. ID: 'admin'.
  - Managing 'students' data and 'HY-in contacts' data
    - Can add new students and his/her contacts
    - Can edit students or his/her contacts.
    - Can delete students or his/her contacts data

- User
  - Students. They have read-only to 'HY-in contacts' and have a full permission of their own contacts.
  - Implementing Contacts List :
    - 'HY-in contacts' and personal contacts should be listed in a single page together.
    - In the list, user can only add, edit and delete their personal contacts.

File I/O: Step 1

- In 'admin' mode, your program must handle following progress:
  - Add new students 'John Doe' (ref: students.csv)
    - 2016001234, xxx, John Doe, male, 6, 1999002345, 1
  - Manage HY-in contacts (from contacts.csv):
    - Add new contact of 'John Doe':
      - 2016001234, 01088884444, hong@hanyang.ac.kr
    - Edit contact email of '권희조':
      - Change the email to 'kwon@hanyang.ac.kr'
    - Delete contact of '김다현'
      - DO NOT delete 'students' data of '김다현'

File I/O: Step 2

- In 'user' mode, your program must handle following progress:
  - User log-in (no need to check password)
  - Users can manage their own contacts list.
  - Insert contacts from 'business_card.zip' to personal contacts
    - Log in as '정남아', insert contacts in 'grass_corp.csv'
    - Log in as '윤인욱', insert contacts in 'fire_corp.csv'
    - Log in as '장두호', insert contacts in 'water_corp.csv'
  - Update contacts from business_card_updated.zip to '정남아', '윤인욱' and '장두호's
    - Only 'phone number' identifying person. If the phone number is same, that person is not new one, other data should be updated.
  - Delete random one contact from '정남아', '윤인욱' and '장두호's personal contact

* Keep in mind the rubrics. You can freely determine the file structure of personal contacts, but you must adhere to the conditions below.
- User cannot see other users' contacts but 'HY-in contacts' and his/her contacts
- 'Admin' can modify only 'HY-in contacts.'

File I/O: Step 3

- In 'admin' mode:
  - The 'email' column in 'HY-in contacts' file should be separated in 'local_part' and 'domain_name.'
    - The part before @ symbol is localpart, The after is domain name 이다.
      - In hong@hanyang.ac.kr, localpart is "hong", domain is "hanyang.ac.kr"
    - Implement a feature showing frequency table of domain name.

- After dividing email column, the form displayed in the list of the contacts on your program should be unchanged.

DBMS

- Repeat the steps so far with DBMS instead File I/O.
  - HINT: Check out SQL queries below.
    - CREATE TABLE ··· AS ···
    - ALTER TABLE
    - UPDATE
    - SPLIT_PART()