CSL310 | Assignment-4 | Due 9/Apr/2018 11:59 PM | 100 points

- Important instructions for coding submission are here: https://goo.gl/IMWvdF
- Grading scheme to be followed is available here: https://goo.gl/52D82g
- Assignment description may be underspecified to allow some room for exploration and creativity.
- Your submission should be packaged as a zip file named **exactly** in this format: CSL310-[your entry no.]-[assignment no.].zip.

We need to perform the following tasks in this assignment:

Task A)

We need to create a schema which can represent the basic banking transactions happening in bank accounts. The entities and their properties are as follows:

1. Account holder
    a. Person ID (PK)
    b. PAN number (Unique key)
    c. First name
    d. Last name
    e. DoB
    f. Contact (FK)
2. Contact information
    a. Street address
    b. City
    c. State
    d. Country
    e. Postal code
    f. Phone
    g. Mobile
    h. Email
3. Bank account
    a. Account ID (PK)
    b. Opening date
    c. Closing date
    d. Status {*Active, dormant etc.*}
    e. Account holder (FK)
    f. Account type {*Savings, Current etc.*}
    g. Current balance
    h. Last transaction date
4. Account transaction
    a. TransactionID (PK)
    b. Transaction type {*Credit, Debit etc.*}
    c. Transaction datetime
    d. Amount
    e. Account ID
    f. Category {*Tax, salary, grocery, medical, phone bill, dining, entertainment, money transfer etc.*}
    g. Remarks

Task B)

We need to write a Java program which can insert synthesized (but sensible) data into these tables, and also be able to query the following information from these tables:

Query 1: A transaction statement for a given account. It should print the transactions recorded for a given account and between given two dates.

Query 2: Category wise spending of a given person in a given month.

Query 3: Category wise spending in a given month by all persons (taken together) who live in a given city.

Your program should take the task to be performed as an input option on command line as follows:

1. If the program is run with an option "-i" then it should generate sensible dummy data and insert into these tables as follows:
    a. Insert 50 different account holders, 10 per city.
    b. Insert 1 bank account of type "SAVINGS" per person.
    c. Generate at least one transaction every day for each account. A transaction involves debiting an amount X from one account and crediting X into another account. Transaction type, amount, time, category and remarks can be chosen randomly. Transactions should only happen between accounts that are having status ACTIVE.
2. If the program is run with an option "-q" then only the output for above three queries should be printed. Which query to execute and the parameters for that query should be taken interactively.

Database connection related information should be read either from command line or from a properties file. It must not be hard-coded in the Java source code.

```
$ java -cp ./my-jdbc-driver.jar:. csl310.a4.Query -i or -q
```

What you need to submit:

1. SQL script for creating the above schema.
2. Well documented and properly formatted Java program source code.
3. A README file which should explain how to build and run the program. It should also describe your high-level design and should show a sample run's output.
4. Any other artifacts which you think are necessary.