CSE3421 winter 2008

Assignment #2: Due March 10, 2008 3 pm.

Weight 5%

This assignment can be completed in groups of up to 2 students per group.

In this assignment you are requested to translate some queries from English to SQL and then to build a Java application that employs JDBC and submits those queries to DB2.

Part A

(Task A.1.) Write in SQL the queries given in Appendix B and submit them to DB2.

(Task A.2.) Submit the queries to DB2, via a java program that uses JDBC. Name your java program **`A21.java`**.

Part B

(Task B.1.) Create a Java program, which allows inputs for the following:

1. *bid* – to be used in query 1 and query 4 (see task B.2)
2. *type of financial product* – to be used in query 1 and query 2 (see task B.2).
3. *from .. to* dates interval – to be used in query 2 and query 4 (see task B.2).
4. *city* – to be used for query 3 (see task B.2)

(Task B.2.) Use your java program (A22.java) from task B.1 to assemble queries like the ones of appendix B, by substituting the input values as set by the user using the drop-down lists of task B.1, into the queries of Appendix B, as applicable. Your A22.java should contain a GUI, featuring the drop-down lists, per task B.1, as well as four buttons named Q1, Q2, Q3, Q4, each corresponding to each of the four queries of appendix B. After setting the input values the user can click to any of the four buttons and the corresponding query should be executed and the results displayed in a text area, reasonably formatted.

This assignment can be completed in groups of up to 2 students per group.

Details:

1. For task A.1, write the queries into a file (single file, or many files) and then submit them to DB2 and receive the results. Save the results into a file named **`A1.txt`**. In order to run your queries you would need a database with tables filled in with data. Use the database that you created in your assignment 1. You may need to modify your programs of assignment 1 and rerun them to populate

the database, so that the database is populated with data appropriate to illustrate the workings of your queries in this assignment.

2. For task A.2, run your A21.java program and save the results of the queries into a file named **`A2.txt`**. Use the same database that you used for task A.1.
3. For task B.1, the inputs should be allowed via drop-down lists (that display choices and the user can select). Name your java program **`A22.java`**. For input (c) -- *from ... to* dates interval, provide facility that allows the user to select day, month, year for each of the *from* and *to*. Check for correctness, for example that the *from* is no later than the *to*, and assemble the input accordingly for usage in the queries. Note that *from* and *to* might also be the same, which would mean that we are only interested about a specific date, rather than an interval.
4. For task B.2, display the results of the executed query in a viewer-friendly format (the design is up to you). Make the text area scrollable, as applicable, and large enough. Note that not all input values ((a), (b), (c), (d) from task B.1) may be required for each query, nevertheless you should allow the user to enter all values, in task B.1. After clicking one of the query buttons and executing a query, the user should be able to click another query button and execute another query, using the same input values that were set in the drop-down lists. Note that for some of the selected values, a query may give empty output. In such a case, your program should display a related message on the GUI and also indicate which ones of the four inputs ((a), (b), (c), (d) from task B.1) might have caused this.
5. Use only the standard Java SDK libraries and not any third party packages. (your programs should compile and run without the need to have any add-on packages).

What to submit

Hand in the following items:

1) A **hardcopy** of your **`A1.txt file.`**
1) A **hardcopy** of your **`A2.txt file.`**
2) A **hardcopy** of your `file(s)` that contain the queries in SQL, as you did them for task A.1.
3) **Hardcopies** of screenshots that illustrate the workings of your assignment. These should include:
    a. Screenshots of running your A21.java.
    b. Screenshots of running your A22.java and setting the inputs. Use a variety of runs to demonstrate all the workings of your assignment (for example, cases that *from* and *to* are different, i.e., a range, as well as when they are the same). Provide an outline of the test cases that you choose to show.
    c. Screenshots of running A22.java and executing each of the queries.
    d. Screenshots of the process of compiling your A21.java and A22.java programs; and screen shots of the directory showing the .class flies after the compilation.
4) **Electronic copies** of all the above, i.e.:
    a. **A1.txt** file – contains the results of the queries of Task A.1.
    b. **A2.txt** file – contains results of queries of Task A.2.

c. A file named **queries.sql** – contains the queries, as done for Task A.1.
d. **A21.java** file – program done for Task A.2.
e. **A22.java** file – program done for Task B.1.
f. The files **A11.java**, **A12.java**, **createTables.sql**, **insertData.sql**, from assignment 1. These files may be identical to the ones you submitted for your assignment 1, or you might have changed and tailored them for this assignment. Submit them with this assignment, either way.
g. A file named **screenshots.doc** (MS Word format). This file should contain the screenshots that you accumulated, as is described for the hardcopies that you have to submit. Inside this file also clearly indicate what each set of screenshots represents.

How to submit your assignment.

- Please drop off your assignment (paper copy) in your section's CSE3421 drop-off box in the Computer Science Building (ground floor; across the Prism labs).
- Also, submit your electronic copies using the submit command. The following submit statement should do this:

```
submit 3421 a2 A1.txt A2.txt queries.sql A21.java A22.java A11.java
A12.java createTables.sql insertData.sql screenshots.doc
```

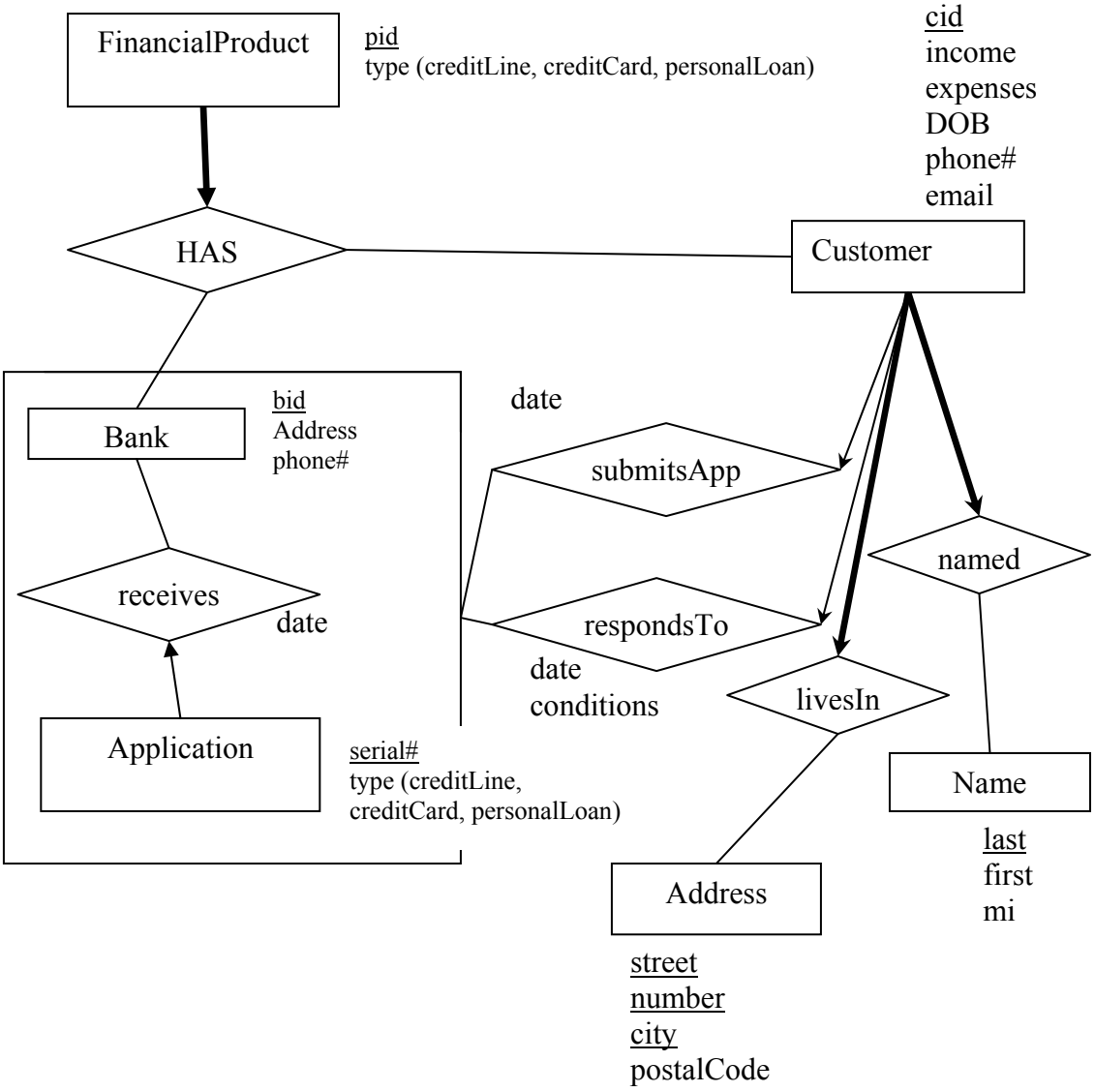
Use the following cover page for submitting your hardcopies, filling out your student number etc as follows:

CSE3421 Winter 2008 Assignment 2 (cover page)

	Student 1	Student 2
Student Number		
CS#		
Last Name		
First Name		
Email Address		

Appendix A – this is the same as on assignment 1 and it is given here for completeness regarding the semantics of the queries of Appendix B.

(ERD)



Notes:

- type (attribute of FinancialProduct) can only be one of creditLine, creditCard, personalLoan.
- For the types of the attributes, use your own judgement.

Appendix B
(the queries)
The following queries are based on the ER diagram of Appendix A (which is the same diagram as the one of assignment 1).

(Query 1.) Find the *cid* of all customers who applied to bank with *bid 1234*, for a *credit line*.

(Query 2.) Find the *last name* of all customers who submitted an application for a *personal loan* during *January 2008* (i.e. anytime between January 1 and January 31, 2008).

(Query 3.) Find the *serial numbers* of all applications submitted to any bank from customers who live in *Chicago*.

(Query 4.) Find the *last name* of all customers whose application(s) received by bank with *bid 2345* during *December 2007* (i.e., anytime between December 1 and December 31, 2007).